

SUSTAINABLE PATHWAYS OR TROUBLED DEVELOPMENT?
RURAL COMMUNITY DYNAMICS IN THE ANDEAN VALLEYS OF BOLIVIA

Jan Willem le Grand

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SUSTAINABLE PATHWAYS OR TROUBLED DEVELOPMENT?

RURAL COMMUNITY DYNAMICS IN THE ANDEAN VALLEYS OF BOLIVIA

DUURZAME PADEN OF VERKRAMPTE ONTWIKKELING?

DE DYNAMIEK VAN RURALE GEMEENSCHAPPEN IN DE ANDESVALLEIEN VAN BOLIVIA

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*To Julian, Maria, Concha, Lazaro, Luciano, Juan and countless others,
from the valleys of La Abra to the heights of Llavisa*



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After initial scholarship in 1990 along the border between Peru and Bolivia in the framework of the Netherlands Organisation for Scientific Research (NWO) WOTRO Science for Global Development programme, I and my colleague Dicky de Morrée, from ICCO, finally managed to obtain support from the Netherlands' Directorate General for International Development (DGIS) in 1994 for more extensive and in depth research. But instead of our intended study in the border region, DGIS requested us to focus our research on the Andean valleys of Chuquisaca, an area of concentration of Netherlands aid. This research project was implemented under the umbrella of the PIED-Andino project, supported by the Royal Tropical Institute. The rest of the research story and methodology is accounted for in the chapter two.

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I was tempted by the idea of starting a PhD when we finalized our first and most extensive period of fieldwork in Bolivia in 1997. But as often in life, both constraints at home and unexpected opportunities elsewhere – entering the diplomatic service – led to postponement and almost cancellation of these plans. My unexpected and second posting in Bolivia for the Netherlands Foreign Ministry

(2005-2008) rekindled the idea of a longitudinal and comparative analysis. During this last posting at the embassy in La Paz as thematic specialist for environment and water and as deputy head of cooperation, I worked on topics closely related to the subject of this thesis, but again from a different perspective. Back in the Netherlands after almost 14 years abroad, I started working at the multilateral desk of the Netherlands Foreign Ministry, dealing, in particular, with the World Bank and IMF. I seized that opportunity to start on my PhD on a part-time basis in 2009, finally resulting in a second fieldwork period in 2010 and 2011.

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Abstract

This study analyses development processes and the transformation of rural villages in the Andean valleys of Bolivia using a comparative and longitudinal perspective. The purpose of the study is to understand how local evolutionary development takes place, and how community pathways are defined and influenced by various internal and external factors. The theoretical perspective of the study is derived from the path dependency framework. Using this framework, it analyses the accumulative and sometimes contradictory interactions between different forms of agency and collective action and their impact on pathway development. Formal and informal institutions and collective action efforts at the community level play an important role in constraining or (re)creating community pathways. The study is based on two main periods of fieldwork, the first one in 1995-1996 and the second one 15 years later, in 2011. Based on a long-term analysis of trends and a detailed comparison of changes in the resource base between 1996 and 2011, the study reviews and investigates the different ways in which communities were established, and how they positioned and repositioned themselves, both in relation to their neighbouring communities and towards the different levels of government and other external organizations, such as NGOs. It also examines differences between these communities in their interaction patterns and in the public sphere as well as the productive environment. Different forms of agency and collective action (e.g., individual households, local leadership, community organization, informal exchange mechanisms, farmer associations and project committees) interact with or are triggered by external factors, such as external interventions and unexpected shocks, leading to further differentiation or convergence in access to resources and public goods.

Although the differentiation and convergence across communities depends on ‘initial conditions’, ‘retrospective memories’ also play an important role. Moreover, trends may be reinforced or undermined by feedback mechanisms, spatial factors and critical mass, as well as by changes in the external context, for instance, in intervention modalities. These changes may lead to gradual shifts, but also to ‘critical junctures’ or complete transformations. While access to public goods improved over time and differentiation between communities declined, the findings clearly indicate a widening gap in access to productive resources both between and within communities and households. Initial differentiation was augmented by the limited, fragile and uncertain resource base in some of the more marginal dry-land communities (leading to depopulation) in contrast to the intensification of production under irrigation in a small number of communities, without however any guarantee of population retention. Multiple development interventions led to a gradual building up of social and public infrastructure in most communities, and to productive infrastructure in a few. Nonetheless, the fragmented operations, the sometimes contradictory and often unsustainable and ‘disembedded’ character of externally defined development ‘solutions’ has not contributed to improve the sustainability of rural development pathways and even led to an undermining of community participation. Communities, and especially the youth, have voted with their feet, and continue to migrate on a massive scale to peri-urban areas or abroad.

1

Introduction

It is very hard to imagine how, in the next ten or twenty years, poverty can substantially be alleviated in the Andean regions. If current social economic trends are maintained, we cannot be very optimistic about scenarios regarding economic development (Van Niekerk 1992, translated from Spanish by author).

Most of the [MDG] goals are unlikely to be reached, but this will probably not be due primarily to shortfalls in aid. This is in part because development is a long-term and complex process dependent on relieving more than a supply-side constraint on resources. Aid remains vital and contributes to development progress, but even considerable increases in aid are unlikely to buy these particular goals (Clemens *et al.* 2007).

It is time to start preparing the ground for new goals to mark the sustainable end of extreme poverty – a vision of ‘getting to zero’ within a generation, i.e., by 2030. As with the MDGs, this implies much more than just boosting incomes. It entails ending chronic hunger, ensuring universal access to secondary education, ensuring universal access to safe drinking water and sanitation, reducing child and maternal deaths to current upper middle-income country (MIC) levels, and tackling key environmental priorities that will underpin development success (Aryeetey *et al.* 2012).

1.1 The last of the Mohicans

In August 2011, almost 15 years after our initial research, we returned for our second fieldwork phase to Ovejeras, a large dryland community in the higher areas of the Rio Chico valley. The community had been totally abandoned, with a ruined school building and collapsed houses being the few symbolic remains. The only inhabitant left during that visit was Mr Cornelio Chambi, a 95-year-old man who had refused to leave his home, cattle and goats behind. Of the 600 inhabitants registered in 1996, only 2 still lived in the community on the hill. The main cause of the gradual abandonment of the highland area was the drought of 1983, and its severe consequences for agricultural production. Yet, that same drought had also affected other communities, and not led to the collapse of these others. An important additional factor in Ovejeras was the lack of water for agriculture, for cattle and for the families themselves. When the school closed in 1996, and was relocated to the valley below, many families followed, although most still kept a form of double residence. Many received support from non-governmental organizations (NGOs) to build a second house and connections to water and electricity. Within a few years, most families had started moving all of their belongings, completely abandoning their dwellings uphill. As a consequence of a large rural development programme supported by the International Fund for Agricultural Development (IFAD) and the Bolivian government and additional support from a number of NGOs, the Rio Chico valley offered alternative agricultural opportunities under irrigation,

as well as the provision of basic services. Over a period of roughly 10 years, this process led to a growing absentee population in the highlands, and consequently less willingness to invest in agricultural production there, as there was no one to manage the cattle wandering the hillside area.

It is also interesting to note what happened with the community in the valley. Community members, when descending to the valley, gradually became divided among eight different and rather small villages along the riverside. However, they kept their own community organization more or less intact and were still meeting on a monthly basis. The riverside communities ('Ovejerias Rio') were sustained by intensive irrigation, and therefore fought a permanent 'battle with the river', for example, to prevent flooding, destruction of gabions, losses of land and river contamination. These same communities initially benefited from extensive external intervention. Nowadays, they are experiencing high levels of outmigration.

Mr Chambi had refused to move to the new and modern 'surroundings' in the valley, even when his family brought him down to the river on horseback. The next day he had disappeared, returning along the steep and rocky road alone – a 12-hour walk. Although Mr Chambi was perhaps the 'last of the Mohicans', Ovejerias is probably far from an exception in the Andean valleys.

Mr Chambi, unwilling to leave his desolate community, might be a logical exception in his reluctance to adjust to 'modernity', as many of us at a similar age might be disinclined to leave our home for almost unknown surroundings. But for many reasons, and even when continuously 'demanded' by rural communities, the introduction of 'modern' or 'adapted' development interventions (whether health care or education, housing, latrines, tractors, greenhouses, improved seed varieties and reconstructed terraces) faces manifold obstacles in their effective incorporation and *embedding* in community life and dynamics. Top-down or trickle-down modernization certainly does not always turn out as expected. Multiple failures have been recorded as well as an almost complete lack of sustainability of many interventions. These disappointments may find their origins in cultural differences, even between communities, but are in my understanding principally related to the way 'development' is implemented, including differences in perceptions and approaches between community initiatives and externally introduced or supported solutions. 'Development' is often brought to people, instead of building upon their own agendas. I hope with this research to contribute to a better understanding of such mismatches and misunderstandings, as well as of the complex dynamics within rural communities and the multiple constraints and opportunities rural communities face in sometimes quite challenging environments.

1.2 Introduction and background

Despite substantial cooperation efforts, Bolivia is still among the poorest countries in Latin America. During the 50 years from the land reform of 1952-1953 until the early years of the new millennium, Bolivia experienced a period of profound stagnation in which short periods of limited growth were interrupted by periods of recession, hyperinflation and political unrest. In the two decades after 1982, GDP per capita increased only marginally, from around US \$700 to \$900.¹ Over the past decade, however, GDP more than doubled, accompanied by improved development indicators related to rural literacy and child and maternal mortality rates (Pearce 2011). Huge inequalities nonetheless persist (confirmed by a Gini coefficient of 0.64), and 'backward' regions show limited progress, with the Altiplano and Andean valleys certainly remaining among

the country's poorest areas. Similarly, urban poverty is concentrated among migrants from rural areas. Extreme poverty figures for 2006 were at almost the same level as in 1997.

Even though poverty is pervasive, it is far from uniform and static, as may be suggested by 'one dollar a day' types of analyses. While progress has been made with regard to some of the MDGs, development policies have hardly been effective in addressing the wide-ranging needs of the indigenous population, and rural-urban migration is on the increase. Provision of public services in rural areas has improved in regard to education, health, water supply and roads, but indicators vary substantially both between and within regions.

For the Andean valleys, differentiation between communities, whether in terms of productive resources, access to public services, migration rates or internal organizational dynamics, is indeed one of the most salient characteristics. Our initial research in the region,² between 1994 and 1997, found that over a medium-term horizon (10-20 years) communities varied widely in their access to resources, levels of agricultural intensification, migration and settlement patterns, access to services and the presence of external aid interventions. Communities were increasingly integrated into processes of social, political and economic globalization, as well as being the 'object', 'subject' or 'beneficiary' of national and international development policies. However, while in some villages almost all households were able to improve their living conditions, gain access to improved housing, drinking water and secondary education, or migrate abroad, in other villages almost none of the residents did any of these things. Similarly, some villages managed to substantially increase their production, while others virtually collapsed, in terms of both production and population. Communities thus embarked upon different trajectories, varying from agricultural intensification to intensified migration, and from capturing political power to increased marginalization. The factors underlying these differentiated 'community dynamics' and livelihoods have received scant attention in either government or donor development policies.

The debate about change processes in the Andes intensified around 1974 with the introduction of Alexander Chayanov's work, and has long been dominated by Marxist and neo-Marxist studies about the relationship between the *economía campesina* (rural economy) and capitalism.³ One dominant feature of these studies has been a rather uniform picture of Andean communities and their relationship to market conditions. Over the past two decades, the debate has shifted to focus more on the viability of livelihoods and communities, in the Andean region (González de Olarte 1987; Cotlear 1989; Van Niekerk 1994; Zoomers 1998; Bebbington 2000) and elsewhere (Scoones 2009). Some of the more frequently cited perspectives are that of gradual economic and technological transformation, continued impoverishment and increased resilience of local communities.

Several studies elaborate on the diversity of contexts and trends in Andean livelihoods, with a strong emphasis on the household level. In general, far less attention has been given to differentiation between communities and transformation over time from a comparative perspective and to analysing the interactions between community institutions, households and external agencies in shaping these processes. Nonetheless, such an approach can help us to understand how 'history matters' in rural community pathways and in defining the margins and possible constraints for aid interventions in support of rural communities' development trajectories.

The question can be asked of why communities' development pathways differ as they do, if similar communities go through similar development paths, and whether the explanatory factors are internal or external. These questions are particularly relevant in rural development. The viabil-

ity – or otherwise – of communities depends on a wide range of factors, including resources and agricultural potential, demographics, climate perturbations like drought and heavy rainfall, access to and quality of public services, market and migration opportunities and changes in macroeconomic policies. But community dynamics also rely on different forms of community agency and collective action, and in numerous cases on interactions with external agents. Many of these factors and actors are well understood, but little is known about how they relate and interact with each other over a longer period of time and in an overall complex and harsh environment.

1.3 Relevance: poverty and rural development

To deal with issues of rural poverty, government and other ‘development actors’ need the right approaches and instruments. Development policies today generally focus on increasing access to public services and on attainment of the Millennium Development Goals (MDGs). As the opening statements to this chapter convey, many of current discussions look beyond the MDGs, to the *post-2015* development agenda, offering exciting perspectives such as ‘getting to zero’ (regarding poverty indicators) within a generation. One of the most ambitious and widely published experiments is *The Millennium Village* project supported by Jeffrey Sachs. This project professes to upscale drastically the available MDG funding and transform rural villages throughout Africa. According to the project website, it is designed on the premise “that, with modest support, rural economies can transition from subsistence farming to self-sustaining commercial activity”.⁴ Although the wide range of aid policies and modalities channelled through as many different institutions (multilateral, bilateral, NGO and private initiatives) mirrors the diversity of livelihoods, the articulation and fine-tuning of interventions leaves much room for improvement. The successive *Paris*, *Accra* and *Busan agendas* for development cooperation emphasize the need for policy coordination and alignment of support at a national level, but they provide no clear answers to questions regarding how development policies can effectively address diversity at the local level. Most development agencies have done considerable evaluation work on the particular impact of their own development interventions, but knowledge is limited about how interventions interfere with each other, and how they intermingle and transform at the micro level (e.g., that of municipal, community or household). This is all the more relevant as development interventions never take place on a ‘blank slate’, and existing community pathways and previous experiences influence local perceptions and responses.

Development policies, in Bolivia and elsewhere, have been driven to a large extent by international actors like the World Bank, UN agencies and a range of bilateral donors, including the Netherlands. Over the past decades, practically all of the main development trends sooner or later arrived in Bolivia and in northern Chuquisaca and Potosí, the research area of the current study. The *book of recipes* ranges from land reform to food aid, from adjustment policies to social funds, from basic needs to integrated rural development, from gender approaches to community-driven development, from MDGs to rights-based approaches and finally from Green Revolution technologies to a *Cosmovisión Andina* (an Andean worldview). The government of Bolivia is becoming more and more involved in fine-tuning and defining its own policies, applying a mixture of the above, but also adding completely new ideas to the development agenda.

The translation of these both parallel and sequentially implemented development policies led to implementation of a range of heterogeneous, sometimes complementary or even contradictory approaches in Bolivia and in the Andean valleys.⁵ A country-level evaluation study (IOB 1998)

shows, for instance, changes in *paradigm* in the operation of social funds in Bolivia from emergency relief (1987-1990) to poverty alleviation (1990-1993) and human and social development (1994-1997), with correspondent changes and differences in objectives, activities, modalities and levels of participation. Looking further back, the Netherlands was involved in the direct supply of fertilizers, insecticides, medicines and agricultural equipment in the period between 1982 and 1995, but it also supported research and innovation and a wide range of individual projects in the field of integrated rural development in the highlands and Andean valleys. The IOB report cited above also notes that (Dutch) policies related to poverty alleviation and economic self-reliance through investments in the agricultural sector, were “an uphill battle, since the agricultural potential of the Highlands is restricted to narrow valleys with specific microclimatic conditions, [and] although some production niches do exist (i.e. Andean crops), the production of crops under high risk conditions generally does not provide a sound basis for combating poverty effectively” (IOB 1998: 30). Since 1998 circumstances have changed, in relation to both political developments in the country and the main aid modalities. The question might therefore be asked whether this perspective on these marginal areas still remains today, within both government institutions and the donor community, and what the viewpoint of the rural communities themselves might be.

This image of fragmented and discontinued policies is largely mirrored at decentralized levels, especially at the municipal level, where the presence of NGOs has expanded since the early 1980s, and volumes of aid only recently started to decline.⁶ However, with the increasing importance of municipalities after the introduction of the *Law on Popular Participation* in 1994, and particularly after 2000 in terms of financial resources, staffing and increased community involvement, both central government institutions and NGOs have come to see municipalities as a strategic – or even inevitable – partner in the field.

Government and donor policies and documents generally position rural communities at the receiving end. These communities are often presented as homogeneous poor entities. Nonetheless, rural communities have been able to influence external interventions in many ways. The current study focuses on diversity in resources and dynamics, to try to explain why poverty persists more in some areas and less in others. Taking into account this regional and local diversity, the question asked by Cassen (1986) and Riddell (2007), “*Does aid (really) work?*”, is of little help in coming to terms with the widely diverging dynamics encountered. Rather than focus on why and where development policies have been less effective⁷ than expected, the analysis should focus essentially on *why, how and under what conditions* interventions may contribute to improve local living conditions. This approach comes close to what Jim Kim, President of the World Bank, has termed as the “*science of delivery*”.⁸ To understand these conditions requires consideration not only of whether development efforts have fulfilled their intended objectives, but also of whether ‘development’ has been relevant from the widely diverging community and household perspectives over a longer period of time, focusing on the multiple encounters and (dis)embeddedness of development efforts in rural areas. Comparing *less favoured areas* and *high-potential areas*, Ruben and Pender (2004) raise the question of why some communities in a region are far more ‘developed’ than others. Or, as noted by Ghezzi and Mingione (2007: 13), “why despite pressures to converge do important differences persist? The persistence, the resilience, the continuity, the survival, or whatever we may call it, of certain regional or local characteristics is a much neglected aspect in sociology.” This question can to some extent also be inverted: why, despite the existing differences in resource access did convergence occur along certain lines, for instance, in the external

appearance of community institutions, in community demands, in the building up of public infrastructure and in trends towards settlement concentration?

This PhD study intends to contribute to filling this gap in understanding of local and long-term community dynamics. It does so based upon a comparative analysis of data available from the PIED-Andino study realized between 1994 and 1997 and additional fieldwork in the same region and villages in 2010 and 2011. The current study takes a comparative and regional evolutionary perspective based upon a *path dependency* framework, looking at the micro-, meso- and macro-level interactions between different forms of community agency and external actors. The current study aims to increase our understanding of the complexity of local development patterns, reviewing almost the entire cycle of ‘development policies’ since the Bolivian land reform of 1952-1953 and comparing historical and more recent developments across a wide and rather diverse group of communities.

Comparable studies for the Andean region are either large surveys or in-depth, often anthropological, case studies, generally covering only a few communities. The large surveys often employ a rather quantitative style of analysis, with focused and often sector-related research questions and a short timeframe, while the case studies generally provide a rather qualitative, more integrated and often very detailed historical perspective. The strength of the current study, due to its repetition of a survey in the same villages 15 years after it was initially administered, is the opportunity to identify and unravel long-term trends, and both qualitative and quantitative linkages between the different aspects of community pathways and with a longitudinal perspective.

This study’s central research question can be summarized as follows:

Why, how and to what extent did pathway differentiation occur among Andean valley communities, and what has been the role of internal and external factors and actors (agency) in driving differentiation and convergence?

1.4 The setting: northern Chuquisaca and Potosí

This PhD study centres on a comparison of community pathways and transitions among 14 villages using a longitudinal perspective. It builds upon previous research that took place between 1994 and 1997, initiated by the author with a former colleague (of the PIED-Andino study, see Zoomers 1998). Additional fieldwork was carried out in 2010 and 2011 (PIED II) including in both years the same group of villages. Maps 1.1 and 1.2 show the research area.

The PIED-Andino study focused on changes in household strategies between 1983 and 1997 among rural communities in the Andean valleys of Bolivia. The research was carried out in the provinces of Oropeza, Zudáñez and Yamparáez in northern Chuquisaca, and in the adjacent province of Chayanta in northern Potosí.

The population of this region belongs to various Quechua-speaking ethnic groups (*llameros*, *jalq’as*, *tarabucos* and *pampeños*, among others), living either in small villages or *communities* (typically numbering 30-300 families), in the intermediate towns or municipal capitals (2,000-5,000 inhabitants) or in the peri-urban areas surrounding the capital city of Sucre.

Most of the rural communities in the region were only formally established after the land reform of 1952-1953, as before then, families lived in slavery-like conditions under the *hacienda* regime. Even independence in 1825 did not bring much change in the position of the indigenous population. The hacienda system covered a large part of northern Chuquisaca, but it had far less

influence in northern Potosí. Some communities, particularly those on the more marginal and more remote lands and the *ayllu* communities, with their more traditional organizational structure, managed to remain outside the hacienda system, but they nevertheless suffered from continuous encroachment and harassment.

Map 1.1
Bolivia and research area



Source: Caritas, Bolivia. Note: The blue circle indicates the research area.

Map 1.2
Research area and communities in the PIED-Andino study



Source: PIED-Andino.

As an old colonial and capital city, Sucre has traditionally been the home of the white and 'landed-elite', with previously strong interests in mining (principally around Potosí), banking and real estate (*haciendas*). Due to continuous rural-to-urban migration, especially after the 1950s, the city grew from 21,000 inhabitants in 1900 to around 300,000 today. The city is at the centre of major road connections in the region. It is home to most of the 'external development actors' mentioned in this study, and it continues to dominate political and economic developments in the region.

The landscape in the research area is quite varied and shows a great ecological diversity, as at least seven agro-ecological zones can be distinguished. From the valleys at 1,500 m, the terrain sweeps upwards to mountain ridges at heights of more than 4,500 m. From west to east, it descends from the high *puna* of Chayanta with its cold and harsh climate and arid, rocky lands, to the low and temperate valleys of Zudáñez, with their pleasant climate and relatively abundant vegetation. The most important crops in the region are potatoes, wheat, maize and barley. Complementary crops in the high zones include tarwi, oats, oca and papa lisa. At the lower elevations, farmers also cultivate fruits, vegetables and sugarcane. The figures in appendixes 1.1 and 1.2 present the diversity of crop farming and livestock holdings in 1996 among the main agro-ecological zones in the research communities. The region is certainly more differentiated and heterogeneous than rural areas in many other developing countries, but it is broadly representative of the Andean region overall.

Since the land reform of 1952-1953, processes of profound change have taken place in rural areas, including the establishment of independent communities or *sindicatos*, based upon former haciendas. The early period marks the start of vaccination campaigns and the introduction of basic schooling. Major changes in more recent decades relate to the introduction of agrochemical inputs and new means of transport, massive migration to cities and to colonization areas in the eastern lowlands, the rise of new organizational models like the *Juntas Escolares* (parent-teacher associations) and community committees, and gradual settlement concentration. One of the factors that contributed to these changes, was the presence of development institutions and projects in the region. In the 1950s and 1960s, the research area had relatively few projects, but following the severe drought of 1982-1983 the number of development project grew explosively (Le Grand 1998a; De Morrée 2002).

Between our first research in 1996 and our second fieldwork in 2011, again, many changes occurred in the region and in the research villages. Two of the major changes were the increasing importance of municipalities after the introduction of the *Law on Popular Participation* and the entry of the Morales government in 2005. Both of these events profoundly affected the interaction between communities and the state, both at the national as well as at the local level. They also changed the panorama for the other development actors, like NGOs. Chapters four and five review these developments in more detail.

In the course of their histories, the communities in the study area experienced major transitions, which impacted their 'viability' and substantially changed the outlook of their inhabitants. This thesis is not a complete historiographical analysis of the region or of the selected communities. Rather, it is a review of these interaction processes and an attempt to understand and partially reconstruct community pathways and transitions using a comparative and longitudinal perspective.

1.5 Thesis outline and summaries of the following chapters

Chapter two elaborates on the main elements of a theoretical framework for comparative analysis of change factors and the resulting diverging development paths among communities using a medium-term perspective. This chapter highlights the importance of informal institutions and collective action in mediating external interventions targeted at those communities and in defining the constraints and possibilities for long-term changes in community pathways and rural livelihoods.

Chapter three elaborates on the research methodology and provides a basic classification of community pathways.

Chapters four and five discuss the changes in the research communities' internal institutions and organizations and in the relevant external context. Chapter four discusses, in particular, dynamics related to the main community-level institutions: the way these are translated into community practices, the main organizations responsible for these institutions and their respective 'rules of the game', and finally some of the factors affecting their operability and effectiveness over time. It then looks at some tentative outcomes and impacts on pathway differentiation. Chapter five reviews the role of development interventions in building social and public infrastructure in most communities and erecting productive infrastructure in a few. The launching of a more massive external presence and development interventions only occurred after the drought of 1983, and was initially marked by a strong presence of NGOs, a few specialized state agencies

and, at a later stage, several 'social funds'. After 1996, municipalities largely took over the agenda of interaction with communities, redefining the role of NGOs and placing more emphasis on small-scale public infrastructure.

Chapters six to ten discuss different domains in which pathway development and differentiation took shape. Chapters six to eight focus on the productive side, while chapters nine and ten relate, respectively, to education and public service delivery.

Chapter six elaborates on the gaining of and maintaining access to land and natural resources as a driving force of pathways over a long time, from far before to far beyond the land reform of 1952-1953. Coming from diverse origins, either as ex-hacienda or *ayllu* communities, local populations needed to uphold or define their rights and access as a group to lands and establish a common territory and a common identity, while also gaining legal title to their lands. This chapter reviews regional and community histories and analyses the background of differentiated developments.

Chapter seven relates, in particular, to agricultural production and livestock in dryland communities. These resources are crucial for communities, and they have been subject to internal and external pressures, including macroeconomic and agricultural policies, climate change and a range of external interventions. The question asked in this chapter is how communities through different forms of agency have answered and driven changes in existing practices and whether they have been facilitated or constrained by internal and external factors and institutions.

Chapter eight shifts the focus to the impact of irrigation on community pathways. Irrigation requires definition of water access rights and modalities for water management. Irrigation institutions require continuous adaptation to changes in infrastructure and irrigation techniques, water availability, crop requirements and market demands. They must also deal with competing claims to land under irrigation (including from returning migrants). Management of irrigation systems often extends beyond community boundaries, and it may require organizational structures in parallel to *sindicato* or *ayllu* structures.

Chapter nine discusses the changes in access to education over the past decades. This agenda was initially driven by the communities themselves, starting with the building of (still precarious) schools and demanding payment of teacher salaries. Although progress has been mixed, and some communities advanced little further than primary education, in others children gained access to secondary education either in their own village or in a neighbouring community.

Chapter ten relates to the long history of collective action in relation to public services, either by the communities themselves or in cooperation with external actors in the region. There is a clear trend towards settlement concentration and even urbanization in a number of places – especially in those communities with access to irrigation. This has had consequences not only for public service provision, but also for internal organization, migration patterns and the productive sphere.

Chapter eleven summarizes the findings for the main pathways and reflects on lessons learnt for the analysis of pathway differentiation in Andean communities and development interventions.

Chapter twelve provides a final reflection on the theoretical discussion regarding the analysis of rural pathways from an evolutionary perspective.

All citations from interviews and other-language sources in this volume were translated by the author.

Notes

¹ http://kushnirs.org/macroeconomics/profile/profile_bolivia.html.

² The PIED-Andino study was implemented in northern Chuquisaca and Potosí (see Zoomers 1998). See chapter three for a more detailed overview.

³ See Plaza (1979) for an overview of the main theoretical currents at the time.

⁴ www.millenniumvillages.org.

⁵ See Van Niekerk (1994) and Yeckting Vilela (2008) for a more in-depth overview of development approaches in the Andean region.

⁶ International support to NGO counterparts diminished after 2008, in particular due to budget constraints and changes among internal co-financing organizations in Europe (including Spain and the Netherlands).

⁷ A parallel question is when and where aid might be only a symbolic ‘drop in the ocean’ or might even increase local dependencies and uncertainties.

⁸ Speech delivered by World Bank Group President Jim Yong Kim at the annual meetings of the World Bank in Tokyo, 11 October 2012.



The abandoned community of Ovejerias and its last inhabitant in 2011 (pictures by author)

2

Meta-theoretical framework: community pathways

‘The river does not die in its place of origin’
(Mozambican proverb, translated by author).

2.1 Introduction

Rural dynamics in the Andean valleys are surprisingly heterogeneous, and some communities fare much better than others. This chapter elaborates a theoretical framework for analysis of the main factors influencing pathway differentiation and convergence. As alluded to in the previous chapter, the current study takes a path dependency perspective, focusing in particular on the interaction between ‘structure’ and ‘agency’, where structure refers to the (gradually changing) resource conditions and institutions and agency to both internal and external actors. This chapter briefly introduces the main concepts, interrelations and relevant theoretical approaches.

2.2 Pathways and communities

‘Community pathways’ describe long-term patterns of change at the community level. Pathways are defined by Pender (2004: 341) “as common patterns of change in livelihood strategies”, and by De Haan and Zoomers (2005: 43) as “patterns of livelihood activities which arise from the coordination process among actors”. For this study I prefer a slightly different wording: ‘common patterns of change in livelihoods arising from the interaction between internal and external factors, including access to resources, infrastructure and institutions’. Changes in livelihoods may also arise from the (lack of) coordination processes among actors, or from a range of internal or external factors. In the definition of livelihoods, I include the available resources, built physical infrastructure and the existing institutions. The patterns of change might include shocks (e.g, drought, market changes or inflation), which might occur suddenly or gradually and lead to resource degradation or to higher levels of sustainability or set in motion changes in settlement or migration patterns. Pathways differ from strategies, as there is no pre-set goal to attain (*ibid.*). They arise from an iterative process, linked to continuous interaction and decision-making by the local inhabitants. Pathways are often defined by comparative advantages, by positive or negative externalities, and by the incidence or pressure of external institutions. The concept of pathways itself is neutral. It is simply a descriptive tool to analyse differences in community development over a longer time horizon. Pathways are not just a sequence of events or a definition of boundaries. Rather, they represent the interplay of different internal and external factors and actors coming together at different points in space and time.

In analysing pathways, the focus here is principally on the community level, investigating ‘community’ developments from a long-term perspective. This study makes use of the main elements of Albó’s (1985) description of Andean communities, in which a community is said to share a territory with collectively defined borders, to make use of the same services and to operate largely through collective decision-making on a large number of issues, therefore upholding joint authorities, norms and principles and providing a sense of joint identity reflected in common festivities or rituals related to the agricultural calendar and life cycle. One of the main reasons for the focus on the community is that the community level represents a social arena in itself, though it is one that is internally heterogeneous and constantly changing over time.

The current study’s review of the various research communities nevertheless clearly shows that not all communities fulfil all these criteria continuously over time. Even though the concept of community is widely used by governments, development agencies, NGOs and communities themselves, the notion of ‘community’ itself is contested. As Boelens (2008: 32) indicates, “in rural development analyses and policy proposals different ‘schools’ present its existence and behaviour (or ‘required behaviour’) in different ways”. Community organizations are often considered to be autonomous and traditional. Development interventions may seek to harness these traditions. In this regard, the notion of community tradition may well be convenient for the state and NGOs alike (Mosse 1997). In reality ‘communities’ continuously change and are ‘reinvented’ over the years. Bastiaensen *et al.* (2005) use the term ‘institutional landscape’, to describe an institutional environment in which institutions appear and disappear at the disposal of the people involved. This approach is particularly suggestive in the Bolivian context, where communities have often redefined their identity and external appearance (Le Grand 1998a). Bastiaensen *et al.* (2005: 981) point to the futility of searching “for a central institutional realm, ‘where the ballgame is being played’”.

2.3 Path dependence and path creation

Use of a path dependency framework can help us to understand in detail the development patterns and pathways of rural communities. Such a framework brings out the historical changes that underlie trajectories and determining factors, and it disentangles interactions between multiple and simultaneous processes over time. Recent studies on rural development using a path dependency framework deal, for instance, with topics as wide ranging as agrarian reform (2005), rural Australia (Tonts *et al.* 2011), agricultural modernization in Spain (Clar & Pinilla 2011), and the role of regional culture in the organizational culture of firms in a specific region (Cooke *et al.* 2011). Much analysis in evolutionary economic geography has focused on firm development and regional economic development. There are as yet, however, few studies that apply a path dependency framework to analyse the dynamics of rural communities in developing countries from a comparative and longitudinal perspective, and there are even fewer such studies with a focus on the Andean valleys.

Although, as noted by Martin and Sunley (2006), the conceptualization of path dependence has its roots in ideas like ‘cumulative causation’ as developed by Veblen (1898), many of the main notions of path dependence were developed in economic theory, particularly through the work of David (1988, 1994). In recent decades, path dependence has assumed prominence in the social and organizational sciences and in a range of other disciplines, influencing a shift towards evolutionary perspectives, drawing also from complexity theory and social ‘Darwinism’ (Martin 2009; Hodgson 2009).

The concept of path dependence was originally used to analyse technological changes and trajectories. Only later was it adopted by economic science (Nelson & Winter 1982; Arthur 1994). One of the most frequently discussed examples relates to the invention and almost universal acceptance of the QWERTY keyboard. Path dependence refers to processes that deviate from expected regular trends, principally due to the understanding that smaller or larger contingent events in the past may influence current developments. As a framework, however, path dependence goes beyond the simple idea that ‘history matters’. David (2001: 2) refers to path dependence as a “property of contingent, non-reversible dynamic processes, including a wide array of processes that can be properly described as ‘evolutionary’”. His intention with this approach is to integrate “*historicity* into economics” (*ibid.*). A rather simplified model of path dependence according to the framework developed by David (*ibid.*) and Arthur (1994) contains four stages of a development trajectory: “pre-formation, path creation, path lock-in, and path dissolution” (Martin & Sunley 2006: 6), or in an alternative framing, “path origin, path development and path outcome” (Sydow 2009; Vergne & Durand 2011: 371). These trajectories generally include three main features: random events (contingency or ‘historical accidents’), leading to subsequent path development and the gaining of ‘momentum’ or ‘critical mass’, and ending in ‘lock-in’ due to the influence of positive or negative feedback mechanisms (Martin & Sunley 2006; Prado 2009). The trajectory is finally interrupted by an external shock, leading to a destabilization or ‘delocking’ of the pathway. The path dependent system model as elaborated by David may contain a range of “possible equilibria among which event-contingent selections can occur” (David 2001: 10).

The starting point of the model is the ‘initial conditions’ (included in the model as part of the ‘pre-formation’ phase), with a main idea being that path dependence as an outcome is “not determined by any particular set of initial conditions” (Mahoney 2000: 511). The geographical endowment of land, water, capital and labour and access to markets and institutions are important factors in defining the initial ‘space’ for communities and households (Zoomers 1998; Ruben & Pender 2004), and the combination of these elements may reflect differences in sensitivity to endogenous or exogenous factors of change. For the current study, this implies that even pathways with similar starting points will not automatically lead to similar outcomes, due to path dependent developments.

A second main element is contingency. ‘Contingency’ is defined by Vergne and Durand (2010: 741) as an event that is “unpredictable, non-purposive, and somewhat random”. Events are considered to be ‘contingent’ when they are too specific to be explained by predominant theoretical ideas or the particular framework in use (Mahoney 2000). Contingency, or ‘historical accidents’, may lead to relatively deterministic outcomes or path dependent developments or trajectories, reflecting ‘inertia’. In the more extreme versions of ‘chaos theory’, the initial fluttering of a butterfly’s wings could eventually lead to the development of a severe storm elsewhere (Mahoney 2000: 546). Inertia implies that processes, once they gain momentum, tend to continue in the same direction, which may differ depending on the nature of the sequence analysed. Mahoney identifies, for instance, self-reinforcing and reactive sequences. In the former, contingent historical events lead to the ‘reproduction’ of particular patterns over time, while in the latter, inertia leads to ‘reaction and counterreaction’ and a chain of events that are interrelated in their own inherent logic (*ibid.*: 511). For the purposes of the current study, these chains are typically built upon a range of different feedback mechanisms, occurring within and between certain domains (e.g., land, irrigation and technological developments).

A final core element of the model is 'lock-in', typically used to explain the path dependent evolution of technologies or industries towards one particular equilibrium, among multiple possible equilibria, where deviation takes place only after the occurrence of an external shock. Lock-in describes a situation in which "actors are unable to move to a new state despite all involved [being] willing to do so" (Katz & Shapiro 1985, cited in Garud *et al.* 2010: 765). This is also defined as the 'penguin effect' in economics. Although the general use of 'lock-in' therefore has a negative connotation, some authors distinguish between positive and negative lock-in, in which case positive lock-in describes gradually self-reinforcing positive trends that directly support progress on a chosen pathway, and negative lock-in is a situation in which alternative options become less attractive even though failure to consider them may undermine progress or performance (Vergne & Durand 2011). In the context of rural development, lock-in is typically caused by a lack of coordination (Schelling 1978) or by free-rider behaviour (Olson 1965).

The elements discussed above are some of the main concepts used in explaining different path dependent trajectories. Depending on their area and focus, some authors (David 2001; Vergne & Durand 2011) favour a stricter application of the model, while others (Garud 2010; Martin & Sunley 2006; Martin 2009; Dobusch & Schüßler 2013) emphasize the importance of a more pragmatic and flexible approach.

Martin and Sunley (2006) review, for instance, the applicability of path dependency for economic geography. Their analysis focuses on the evolutionary perspective of economic landscapes. They summarize path dependence as a concept intended "to capture the way in which small, historically contingent events can set off self-reinforcing mechanisms and processes that 'lock-in' particular structures and pathways of development" (*ibid.*: 5). Here, the concept of path dependence is used with an emphasis on the contextual and contingent perspective, allowing a departure from the classical economic geography with its focus on universal laws and linear developments, translating it to a broader evolutionary geographical perspective. Finally, it is important to analyse how different evolutionary processes interact in a specific geographical context, influenced by "selection mechanisms operating on the heterogeneity that exists both within and between places" (Tonts *et al.* 2011: 297), implying that the evolution of certain pathways may reflect a place-dependent process (Martin & Sunley 2006).

In line with the more critical approach mentioned above Martin and Sunley (2006) and Martin (2009) also distance themselves from the main 'canonical' form of the path dependence model, with its strong emphasis on equilibrium thinking. According to Martin (*ibid.*), each of the model's three main elements is to some extent problematic, including the relation of its defining moment of origin to 'historical accidents', the idea of 'lock-in', and the requirement of 'external shocks' to unlock trajectories. Path dependence as an approach also raises methodological questions: how to deal with 'initial conditions' in a complex and multidimensional environment, with all kinds of *random* events and with the long-term 'legacy of the past'; under what circumstances does path dependence arise; can we separate causes and consequences; is 'lock-in' inevitable; how do new paths emerge; can we differentiate strong and weak forms; and what is the role of institutions and human agency? Is path dependence generally evolutionary, along incremental lines, or is radical change a frequently reoccurring possibility? Along those lines, Martin and Sunley (2006: 16) even conclude that the notion of "regional path dependence is a complex multi-dimensional one that possibly defies any singular overarching theoretisation". Several authors (e.g., Schwartz 2004) consider the notion's conceptual base to be 'shaky'.

Vergne and Durand (2010) note the rapid diffusion of the notion of path dependence in management studies, and are also concerned about a lack of consistent use. In their view, the concept should be clearly distinguished from other ‘history matters’ perspectives. They favour a more restricted use of the notion of path dependence, ‘disentangling’ process from outcomes and defining clear conditions under which the latter will take place. They identify weak initial conditions, ‘contingent’ or chance events, self-reinforcing mechanisms, and lock-in, as determining the path dependent character of pathways, while classifying lock-in as the absence of exogenous shocks to the system (*ibid.*). In their criticism of the ‘interpretative flexibility’ of the notion, they even suggest leaving empirical case studies aside and focusing principally on more controlled design. As also noted by Dobusch *et al.* (2012), it is indeed necessary in each case to indicate what kinds of self-reinforcement mechanisms are occurring, but not necessarily under ‘laboratory conditions’.

Taking a different view, Garud *et al.* (2010) question the deterministic implications of the path dependency paradigm. Building upon their critique regarding complex adaptive systems, they diverge strongly from the rather narrow focus of Vergne and Durand (2010), which reduces the role of ‘purposive’ agency. They also criticize the concept of given initial conditions, because different actors “may have different starting points in experiencing and describing the journey they are part of” (*ibid.*: 763). Finally, they see external contingencies as unpredictable, and non-purposive, and highlight the deterministic perception of lock-in and self-reinforcing mechanisms (*ibid.*).

In an alternative approach, which they label as *path creation*, Garud *et al.* (2010) emphasize instead the role of human agency and strategic manipulation by actors themselves. Initial conditions are not given, but constructed, and instead of ‘lock-in’, they favour a perspective of provisional stabilization within a broader structural process. In the reconstruction of pathways, the current study is aligned with Garud *et al.* (*ibid.*: 770) in recognizing the importance of focus on narrative ‘redescription’, with a major role for the involved actors (“follow the actors to study how actions become possible through entanglements”). Thus, pathways are not considered to be merely inevitable or logical sequences of events. Although the narrower focus of Vergne and Durand (2010) might be appropriate for clearly defined and demarcated experimental studies, for the analysis of widely diverging community pathways the more flexible conceptualization of Garud *et al.* (2010) seems more appropriate, particularly the latter’s stronger emphasis on agency, path creation and *retrospective* and *prospective* memories. Even for the same actors, ‘initial conditions’ may vary across different domains, as ‘living memories’ regarding colonial or post-colonial legacies may be entirely different from those related to more recent dealings with the state or perceptions of local governments. In my view, the development of pathways necessarily takes place along an interplay and a continuum of outcomes between path dependence and path creation, where path dependence is largely evident in contingent events and the (gradually changing) structural conditions and path creation is found in the multiple forms of agency. According to North (1990: 98), path dependency theory should not lead to a deterministic perspective: “[a]t every step along the way there are choices – political and economic – that provide... real alternatives. Path dependence is a way to narrow conceptually the choice set and link decision-making through time. It is not a story of inevitability in which the past neatly predicts the future”.

2.4 Structure and agency

In line with the path dependency paradigm, the structure-agency perspective (Giddens 1984) allows us to explain the “transformation of both individuals and structures” involving the possible causal interactions and the explanation of evolutionary change, supporting a structured analysis of pathway development. According to Giddens (*ibid.*: 25), “structures are recursively organised rules and resources”. As Hodgson (2007: 103) indicates, this theory “regards agent and structure as a ‘duality’ where both human subjects and social institutions are jointly constituted in and through recurrent practices”. The continuous dynamic in the ‘interactive duality’ between structure and agency is an important driving or constraining factor in defining community pathways. With structure defined as the ‘emergent properties of patterned social arrangements’, and agency as the “unfolding action nets that emerge around issues and events” (Garud *et al.* 2010: 770), it becomes possible to differentiate the role of institutions (as ‘rules of the game’) in different settings (or, patterned social arrangements), and to focus on agency at various levels. Agency is, from this perspective, not uniformly distributed.

Archer (2010) subscribes to the basic philosophy expressed by Giddens (1984), but proposes a less rigid interpretation in combining structure and action. Her perspective on routine action is different from Giddens, who highlights the extremes between voluntarism and determinism without indicating the degree of freedom that actors may have and under what circumstances. Archer (2010) raises the question of whether and when actors can be transformative (with certain degrees of freedom) or are limited by external constraints (e.g., scarcity, such as famine, the shortage of land or overpopulation), which she defines as “trapped into replication” (*ibid.*: 231).

Structural properties (as Archer prefers to define them) may have different qualities, which sometimes allow for relatively quick and easy adjustment, but in other cases require more effort or a longer time horizon. The examples given vary from tax regulation and demographic or knowledge distributions, to bureaucratic characteristics. Some structural properties may not be subject to change (e.g., exhaustion of natural resources), while others may require intensive cooperation or struggle at various levels to accomplish any change (examples found in the current study are the process and definition of the new constitution of Bolivia and the subsequent adjustments of municipal mandates). This approach to structural properties allows for a systematic analysis of the capacity of local actors to deal with the broader environment, not only encompassing the resources directly available, but also involving the wider economic and political context. New or existing rules may be contested, and this is often due to inequality or the unequal distribution of the available resources. This is the case for government policies and municipal or NGO resources, but also for access to water and land (see also Boelens 2008).

According to Giddens (1984) radical change is often the consequence of existing contradictions, and can be forced by social conflict. With this he implies that conflict and contradiction may coincide. At the other end of the spectrum, actors are formed by society through the construction of habitual action. Following Archer (2010), this entails a risk of understanding habit as a guarantee of stability, and changing habits as leading to destabilization. In her approach to morphogenesis, Archer (*ibid.*: 236) deals with the division between voluntarism and determinism, analysing “the stringency of constraints and degrees of freedom in different structural contexts and for different social groups”. She highlights the need to look at the initial structural distribution of the property, in considering what pattern of change could emerge. Exponential patterns of change may build upon levels of skills acquired, investments, human capital, et cetera, but at the same time, constraints will

be inherent in any structure. Effective change, therefore, requires not only the elimination of a prior structural property but the construction, or what Archer (*ibid.*) identifies as the structural elaboration of new social properties. Archer's approach helps us to respond to the question of whether and when transformation will prevail, which requires the unravelling in both time and space (scope) of the relations between structure and action.

For the possible causal interactions and the explanation of evolutionary change Hodgson (2007: 106) uses a framework that clarifies the "transformation of both individuals and structures". Hodgson (*ibid.*: 96) defines 'social structures' as comprising "all sets of social relations, including the episodic and those without rules, as well as social institutions". Institutions are embedded in these social structures and play an important role in this process, as they influence individual behaviour and activity, they constrain and mould them, form the basis of congruent beliefs and intentions, establish conventions and subsequently allow for the creation of habits (*ibid.*).

2.5 Formal and informal institutions

Formal and informal institutions and community-level collective action play an important role in shaping the development pathways of communities in the Andean region. They define and influence social rights and access to resources within and between communities. They also facilitate or constrain interaction with external actors and some forms of collective action, therefore structuring the development paths of communities. Community agency reflects people's capacities to form relationships, to adapt to circumstances and to build upon existing resources, which makes it a key aspect of rural communities and development processes (Brennan & Luloff 2007).

North (1975), starting from an economic and rational choice perspective, sees institutions as the 'rules of the game', which define "the incentives and sanctions affecting people's behaviour" (Dorward *et al.* 2003: 323). In the context of rural development, institutions can be pragmatically defined as "persisting arrangements between social actors" (Helmsing & Fonseca 2011). Institutions, or institutional arrangements, can also be seen as the result of "historically situated, ongoing bargaining processes among social actors, occurring at different places and societal levels" (Bastiaensen 2005: 980; Long 2004). It is useful to retain the distinction between institutions and organizations, as formal institutions are often enforced by specialized organizations, while informal rules are enforced by group members (Kingston & Caballero 2009).

We can identify different processes and factors underlying institutional change. In the first place it is important to note that the causes of institutional genesis or 'reproduction' are distinct from those that may have given birth to the institution originally (Mahoney 2000: 515). External circumstances (e.g., geography, climate and ethnic composition) may affect the path of institutional development (Alonso 2005), but institutions' sensitivities to outside pressure may vary substantially. Events early in the sequence matter more in determining the path trajectory than later induced changes. Further down the path, change processes become more bounded, as earlier available options require more effort or cost to adopt (Deeg 2006). In this respect, North (1990) also highlights steep transaction and learning costs as factors limiting institutional change and reducing the willingness of actors to abandon investments (*sunk costs*), while positive feedback mechanisms may help to explain the persistence of institutions, but at the same time narrow down alternative options for the future.

In a more recent study, North (2010) highlights several consequences of path dependence for processes of institutional change associated with three levels. First, at the individual level the in-

heritance of a particular set of beliefs, as a self-reinforcing mechanism, may serve to resist proposed changes in institutional arrangements. Second, at the level of institutions, the interdependence between institutions may limit the possibility to achieve a desired institutional change outcome. Third, at the level of society, formal institutions, which are different from the informal ones, may be driven or altered by ‘fiat’, while the informal ones are far less susceptible to ‘deliberate’ external impositions.

Deeg (2006) elaborates on the relation between path dependence and institutional change, with a particular focus on institutional complementarities and coherence. Coherence is understood as the way in which similar institutions try to motivate similar groups of economic actors to behave in the same way. The coexistence of different institutions together will affect actors’ strategic choices. A first element relates to the ‘nestedness’ (Cinner 2009) of the different institutions, which is defined here as the way they relate to each other in terms of hierarchy and ‘embeddedness’ in the local context. Using the logic of complementarity, one institution can make up for the deficiencies of another. Formal or informal institutions at the community level may complement each other and be instrumental in the differential impacts of changes. In the context of the current study, the predominant community institutions define levels of access to resources; and implicit or explicit *trade-offs* are made regarding the main beneficiaries. Strategies may, for instance, be geared more towards food security (low but stable access), crop diversification, (temporary) migration, innovations or access to markets.

‘Critical junctures’ are the moments at which actors adopt a particular institutional arrangement among two or several alternatives. The critical element is the increasing difficulty of returning to the original point of departure, while an alternative selection might have led to an entirely different outcome (Mahoney 2000). In the Bolivian context, the election of President Evo Morales and the Movement toward Socialism (MAS) party is an example of such a ‘critical juncture’.

This example links with a range of explanations for path dependence given by Mahoney (*ibid.*), based on a framework elaborated by Collins (1975). Mahoney differentiates between power, legitimation, utilitarian and functional explanations. In the first case, though the origins of an institution may not relate to ‘pre-existing’ power arrangements, subsequent developments are often driven or reinforced by power dynamics. In the legitimation explanatory framework, ‘reproduction’ of institutions occurs because the actors involved consider the institution to be legitimate; though such recognition may range from passive acknowledgement to active involvement and approval and also be marked by inclinations towards possible alternative solutions. In a utilitarian framework, actors choose institutional arrangements, including ‘sub-optimal’ ones, because the possible gains may be higher than the expected costs. In this case, organizational interdependencies may again reduce actors’ willingness to adopt earlier and probably better suited alternatives. Finally, Mahoney (2000) identifies two variations of the functionalist perspective. The weak version explains the reproduction of institutions in terms of its consequences. The strong version explains institutions’ persistence and reproduction in terms of their implications for the survival or adaptation of the wider system in which they are embedded. These different explanations are to a large extent also applicable in the context of rural community institutions, leading furthermore to distinctions in terms of the main mechanisms of change, which may relate, respectively, to the weakening of elites, changes in value systems, learning processes or the occurrence of exogenous shocks (*ibid.*). In a similar view, the level of economic development, random events or specific actions of leaders may also induce changes (Alonso 2005). Institutions today

reflect previous institutions and technologies. Many of the institutions described in the literature related to productive systems in the Andean region are based on political, socio-economic and technological developments that took place over decades or centuries. These institutions not only influence incentives today, but they also influence behaviour in the future, as shared experiences underpin mutual expectations and influence social norms. Innovation could from this perspective be considered the opposite of inertia (Cannarella 2008). Development of new norms could make reorganization or adaptation costly. This is a consequence of many development projects, though it is seldom taken into account. Institutions can also experience lock-in, and severely constrain the options available for creation of new technological developments.

Chang (2011: 489), analysing country-level changes, distinguishes two dominant views of institutional change. The first one is pushed by the external idea or drive for 'better institutions'. It assumes that institutional change is a relatively easy and 'voluntarist' process if there is sufficient political will. The second view is part of the more fatalist 'climate-culture school', which is convinced that the possibilities for institutional change are severely curtailed by the almost immutability of factors such as climate and culture. Chang (*ibid.*) suggests that by resisting the external drive for change, communities may follow their own rationality and principles of justice and efficiency, thereby underlining a more fundamental process of path dependence in the evolution of institutions. Chang (2002) emphasizes the importance of the broader political economic context and political struggles in the construction of new institutions. According to Gomez (2008), the replacement of (state) institutions may happen as a consequence of an institutional 'vacuum', caused by an external shock or contingency. Finally, we might ask whether institutional change is the result of a spontaneous and evolutionary process or the outcome of deliberate design. Helmsing (2013: 31) finds that institutional change is strongly related to actors' and organizations' capabilities "to implement, adapt and replicate new institutional designs".

This literature corresponds to the idea of 'purposeful human agency', a concept that is seldom still applied in path dependency theory. Communities are actively involved in their development, either by taking the initiative, by participating in external interventions or by resisting 'encroachment' or externally imposed 'rules of the game'. Cleaver (2001) and Sehring (2009) label this dynamism 'institutional bricolage', which "explains how local actors recombine elements of different institutional logics and thereby change their meaning" (*ibid.*: 1).

'Cognitive lock-in', or a common worldview, can be an important driver of change or of resistance to change at the community level. From this perspective, the process of identity formation (Boelens 2008; Healey 2009) is a key underlying and complex driver of institutional change processes. Identity formation is the outcome of both gradual and 'endogenous' processes of collective belonging, the building up of culturally embedded practices and institutions, and the influence or manipulation of dominant groups, external actors and ideologies. According to Boelens (2008), these may lead to direct exploitation or the mixing up of communities or internal logics. Externally defined ideologies may thus purposively or unconsciously lead to the internalizing, strengthening or undermining of community identities; but the reverse is also true, as communities may use or adapt their identities in the struggle or competition for access to external resources (Le Grand 2012). According to Hippert (2011: 2), using identities in this way "often exacerbates differences and inequalities among the poor".

2.6 Community organization, agency and collective action

Community organizations reflect and influence the decision-making process in rural communities in the Andean valleys. The structuring and behaviour of these organizations can also be analysed from a path dependency perspective, in particular, by explaining patterns of routinization and the gradually narrowing down of the scope for alternative action (Schreyogg & Sydow 2011). In most path dependency analyses, the pre-formation phase still offers considerable room for manoeuvre. In the formation phase, decisions are made and an ‘organizational path’ is evolving, which may be further narrowed down in the next phase, and eventually lead to lock-in due to self-reinforcing mechanisms, including, for instance, coordination and learning effects, as well as the emerging complementarity with other organizations (*ibid.*). Schreyogg & Sydow (*ibid.*) also note that organizational processes are often ambiguous and complex and that developments in the final stages cannot be conceptualized in a rigid manner.

According to Giddens (1984: 9), agency “concerns events of which an individual is the perpetrator, in the sense that the individual could, at any phase in a given sequence of conduct, have acted differently”. Hodgson (2009: 169) discusses the possible links of agency with a social ‘Darwinist’ framework. Following the Darwinist ‘principle of inheritance’ there is a need to understand intentions as well as for a capacity to learn from the past and to adapt continuously, both in dealing with risks and in the overall accumulation of ‘problem-solving’ knowledge across generations. Darwinism, however, implies that ‘intentions’ are caused, which reduces the space for agency. This is clearly the case for power relations, but the multiple forms of action with ‘unintended consequences’ encountered at the community level do not justify a unilateral and deterministic view of agency. Rather, they point to the importance of continuous “reflexive monitoring” (Giddens 1984: 9) and day-by-day learning. Power and power relations within communities are far from fixed or ‘top-down’ constructions. Rather, they are the result of a building up of experience and knowledge about community traditions and practices, reflected, for instance, in the complex ‘pathways’ to becoming a community authority (Astvaldsson, cited in Stobart 2002). Power relations also depend on the existing socio-political organizational structure, prevailing asymmetries and the framings and conceptions used at various levels by internal and external actors. Normalization or ‘normalizing power’ leads to the prescription and hierarchization of norms and externally defined categories. It imposes ‘homogeneity’ and aims to correct deviant behaviour. Normalization, however, goes beyond the ‘formal’ rules of the game of official policies and legislation, to also involve more subtle ways of influencing day-to-day behaviour, imposed in part through ‘self-correction’ (Boelens 2008; Kelly *et al.* 1994).

Community organizations have collectively defined boundaries; they distinguish members from non-members and they follow certain principles in relation to internal hierarchy and the demarcation of responsibilities. Community organizations do so in various areas, including access to resources, the organization of production, participation in community activities, market access, and even migration and settlement patterns. In the Andean valleys, the principal decision-making forum in the community is the community assembly and related organizations. *Sindicatos* and *ayllus* are the predominant organizational forms at the community (and higher) levels. *Ayllus* generally refer to traditional organizational forms representing various levels from the extended family to a group of communities linked together. They essentially predate the land reform of 1952-1953 and in some cases even have pre-colonial histories. *Sindicatos* were established after the land reform upon the territories of former haciendas. The community-level organization obliges individuals to

accept temporary assignments (*cargos*) on behalf of the community and establishes a rather formalized system of rotation of those assignments.

These organizations are generally the main interlocutor for external actors, but a range of other organizational forms have been implemented over time, often in parallel to the community organization. Households may participate in irrigation committees, parent-teacher associations, *club de madres* (mothers clubs), producer associations or another (often externally motivated) committee. Some of these last involve only a limited number of families. Finally, at the household level, exchange networks take many different forms. Households participate in joint efforts (*mink'a, ayni*), in barter, in sharing of labour and land and in other informal and mutual exchange mechanisms and relationships (De Morrée 2002). These are often based upon kinship or social networks.

Bebbington (1999) uses different dimensions of capital to differentiate among and between communities. Zaal and Dietz (2003) distinguish between natural, physical, financial/economic, social, cultural and human capital, defining the various related assets at both household and community levels. These authors view actors as selecting and trying to combine a set of capitals among those available to construct a livelihood strategy, and they see the point of development projects or processes as providing people with a wider variety of capitals to choose from to construct or reconstruct their livelihoods. The resulting strategies can only be sustainable if they are embedded in more permanent economic and political structures. NGOs should therefore focus on the broader “decision making environment” in which these capitals are used (*ibid.*: 8).

Social capital (and related interpretations of *bonding*, *linking* and *bridging* social capital, see chapter three) is probably the most widely used concept among the different capitals identified above. In this regard, it is useful to differentiate between community institutions and organizations in terms of basic cultural norms, shared knowledge, trust and reciprocity. Some actions may require specialized knowledge, for example, to design an irrigation system or to interact with government agents. Lessons learned through migration may teach active agency. At the same time, it is important to look at relations of trust, reciprocity and exchange, common rules, norms and sanctions, and networks and groups (Meinzen-Dick *et al.* 2004; Ostrom & Ahn 2001), as these may influence the long-term viability of institutions and the effectiveness of collective action efforts. Polanyi (1957) looks at the significance of insertion in social exchange networks, the balance between informal exchange mechanisms and principles of redistribution, and the possible impact of increased market integration. Polanyi (*ibid.*) considers that last to be a potentially disruptive process, which may thus also affect levels of social capital. Finally, social capital is often considered to be a favourable condition for development efforts.

Opportunities and boundaries for collective action

Community institutions develop around ‘enduring’ patterns of behaviour and are reflected in changes in ‘rules of the game’. They may allow, restrict or facilitate collective action, which in the end is needed to transform community life and conditions. Collective action can manifest as an activity, an event or a process, for instance, related to the mobilization of community members, coordination of activities and maintenance of infrastructure (Poteete & Ostrom 2004). It is also relevant to distinguish between organizations and collective action. Organizations may exist only on paper, while collective action may occur spontaneously. Failure of community-based development programmes is often based on a lack of understanding of how collective action arises to deal with issues and how it is sustained (Meinzen-Dick *et al.* 2004).

Poteete and Ostrom (2004) elaborate more generally on the collective action problems that communities and individuals confront. Building upon an ongoing International Food Policy Research Institute (IFPRI) effort to study collective action for the management of common pool resources, Poteete and Ostrom (*ibid.*) focus on forestry, though making some references to irrigation and watershed management. Collective action problems may exist and originate at multiple levels in each community. The variation and possible problems in collective action are related to the nature of the good itself and the composition of the *user groups* involved. Participation of households or of specific user groups in collective action may depend on perceptions of possible benefits, and is related to the specific livelihood resources concerned, levels of income and education, levels of trust and group cohesion, and also on competing claims and time constraints and the nature of the good itself (Ostrom 2000; Poteete & Ostrom 2004; De Morrée 2002; Agrawal 2005). Community organizations and households respond to changes in different ways, and in their interactions they may alter the course of the pathway, either by a coherent and collective response, or by the accumulation of individual responses, for instance, in abandoning the community.

Though dynamics of collective action are influenced by the type of good (public or common) and property rights, the reverse is true as well: collective action may define or enforce property rights in cases where multiple sources of rights exist. Collective action will be more feasible in circumstances with clearly defined responsibilities, boundaries and a sense of boundedness of the group (*ibid.*). ‘Boundedness’ in this regard refers to the common recognition of who belongs to the group. The recurrence of collective action in the same field may lead to institutionalization, for instance, in the case of a consolidated irrigation system. While institutionalization may reduce transaction costs, it also reduces flexibility and adaptability (Meinzen-Dick *et al.* 2004). Not all collective action takes place at the community level, as groups of organized households, or producer associations may involve a narrower segment of the community or even members of various communities.

A review of experiences related to forestry resource management highlights a range of possible collective action problems. These include “population pressure, group size, market pressure, local autonomy, heterogeneity, economic and subsistence salience of the forest, difficulties of exclusion, and difficulty of understanding how forest resources respond to human actions” (Poteete & Ostrom 2004: 226). Heinmiller (2009: 1) adds “commonly identified factors [such] as trust, social capital, common preferences, shared knowledge, collaborative experiences, focusing events and expectations of future interactions”. He also indicates that “investments and adaptations in early resource management institutions can make it difficult for actors to abandon these institutions”, as such constraining subsequent collective action efforts (*ibid.*).

According to Poteete and Ostrom (2004: 1), “rivalry in consumption and difficulty of exclusion make the provision and sustenance of common-pool goods particularly challenging”. The free-riding problem and possible rivalry in extraction is common to many natural resources. Collective action related to public services (e.g., health, education and drinking water) may be different due to the possibilities for collective access to the public good, but households with limited resources, living in more remote locations or facing labour restrictions may be excluded from participation. Institutional arrangements in health and education are often more formalized and have a greater tendency to be dominated by external institutions than those related to natural resources.

Communities need to be able to guarantee minimum levels of access or equity in relation to community resources and actions. They may do so by minimizing (climate) risks, by optimizing agricultural or work-force productivity or by opting for the use of non-agricultural resources (De Sardan 2005; Zoomers 1998). Communities may in this respect follow different strategies. The degree of collectiveness in these efforts depends on the strength and history of the community organization, on the margins and flexibility allowed by rural livelihoods (agricultural calendars), and on the many formal and informal ties between households and among villages. Non-monetary forms of exchange (including barter) and reciprocal ties are particularly important in the Andean region (Lehmann 1982; De Morrée 1998).

According to Alonso (2005: 115), power asymmetries may define the ‘rules of the game’ and tend to create path dependence, but other factors in turn may affect the underlying “pattern of power distribution”, and players may become strong enough to change the rules and increase their influence in the decision-making process. The question is whether local actors have the capacity to assess the impact or consequences of persisting inequalities. To what extent might existing inequality be an obstacle to change? Considerable differences in wealth between households are associated with less willingness to engage in collective action and increased prevalence of conflicts. Indeed, greater congruence between livelihood strategies may strengthen collective action initiatives.

As indicated before, institutional lock-in, for instance, due to feedback mechanisms like sunk costs, vested interests and network effects, may significantly reduce the possibility of deviating from the current pathway, which implies that early institutional choices can have long-term effects on subsequent collective action efforts (North 1990; Heinmiller 2009). Grabher (1993) further distinguishes between functional, cognitive and political lock-in. Functional lock-in (strong cooperation in a closed social network impeding external contacts) can be reinforced by cognitive lock-in (personal ties that lead to shared beliefs). Political lock-in relates to development trajectories building upon cooperation between different institutional actors, including trade unions or political actors. This distinction is useful in the Bolivian case. As we will see, changing political circumstances allowed community institutions to expand their horizon and their influence over external institutions, including municipalities and even the national government.

The interaction with external actors defines to a large extent the patterns and the sequencing over different ‘rounds of the game’. One of the main questions posed in this study is whether, when and how external interventions have articulated or built upon collective action efforts and where have they made a difference in shaping development pathways. Communities’ development histories exhibit intersections with different forms of collective action at the community level, related to both common pool resources and public goods, and their respective (dis)articulation with external interventions. Differentiations in the sequencing of collective action responses related to common pool resources or public goods in different pathways may provide useful lessons on the building up of (path dependent) institutions for collective action. Depending on the levels of synchronization, external interventions can motivate but also constrain collective action efforts.

2.7 Aid interventions and operational modalities: patterns of interaction at the community level

Development interventions, which presented themselves at the village and regional levels in a surprising array of modalities, consciously or unconsciously become part of the long-term develop-

ment history of a particular village. Taking a path dependence perspective may help us to explain why communities with similar initial conditions experienced similar or rather diverging development trajectories. Patterns of external interventions differ between communities, for instance, in terms of their 'take-off', sequencing, intensity, permanence and continuity. They also differ in terms of their sectoral focus, their linking with local institutions and organizations, the incentives they use and in their mutual complementarity.

Interventions relate to and influence community institutions and organizational forms through to the level of individual households. Individually or collectively they may motivate or provide disincentives for collective action, and in doing so, they may end up changing the provision of infrastructure, access to resources and the further shaping of community institutions. These multiple interventions can in many ways be considered a range of small or large 'historical events', which trigger subsequent development trajectories in either self-reinforcing or reactive patterns. These patterns may depend on whether the interventions fit with existing expectations and demands, or whether implementation modalities or technologies deviated from or even contradicted existing beliefs and practices. This raises an issue with the idea of 'contingency', as quite a range of interventions may indeed come unexpected (not linked to articulated community demands), although communities are becoming gradually more 'knowledgeable' about the multiple ways of responding, adapting to or even transforming interventions according to their own preferences.

In terms of outcomes, external interventions may provide a better fit or articulation with local development patterns or a relatively high level of embeddedness in community pathways. Articulation may take place at different levels of relevance for the community, for instance, related to the coverage of services at a sub-regional level or providing for more or less coherence at the community or user-group level. These interventions may thus become both part of the solution and part of the problem (Pritchett 2004) in resolving development constraints.

The delivery of public services and the quantity and quality of development interventions is the outcome of deliberate external decision-making. But it is also the consequence of a complex and intricate negotiation process between the various external agents involved, and also between community actors and those development organizations. The development path of a community or the broader region can thus be explained by identifying internal and external factors that may stimulate or constrain certain developments, and also point to why regional growth disparities occur or persist.

The changes taking place in aid channels and modalities in rural areas over the past decades are an important factor explaining changes in intervention patterns. Among the main drivers are shifts in international development paradigms and the related 'principal-agent' behaviour (Martens 2002) of a range of development organizations in the field. Depending on their mandate and focus, development organizations may elaborate more or less explicit theories of change and define their intervention modalities accordingly. Following Pritchett (2004), external interventions can be grouped as policies, programmes and projects, each allowing different amounts of discretionary space in terms of implementation in the field. Coming together at the regional and community levels, development institutions and their multiple interventions define the evolving external 'institutional landscape' (Bastiaensen 2005).

External actors are not always well equipped to find the right answers to local problems. Pritchett (2004) identifies three systematic failures: (i) the intervention modality pays little attention to incorporating local knowledge, (ii) the intervention pays little attention to what people actually want-

ed and (iii) too much space is left for providers to use their discretion. Standardization (*one size fits all*) of intervention modalities may lead to difficulties in fine-tuning efforts to local circumstances and to different beneficiary groups, but even with tailor-made solutions a range of implementation failures may occur.

In the development literature much emphasis is given to ‘participation’ to improve the role of communities in defining development interventions. External institutions often seek community participation to obtain specific development objectives in a predefined time and place. In practice, community participation does not always have the desired impact in (re-)defining the priorities of external institutions (Pijnenburg 2004), but communities do have other ways to influence development policies and external interventions. Strategies for gaining control of municipal governments and active co-optation of NGOs are relevant examples of institutional mediation by communities. Externally defined policies face serious difficulties in understanding the complexity of different organizational forms at the community level and in anticipating the consequences of changes in access to resources, as these are generally path dependent and conditioned by participants’ previous experiences and expectations (North 1991). Contingent on the degree of *institutional complementarity*, external interventions and policies can be supportive as “long-term drivers of change” (Scoones 2009: 20), helping communities to become more resilient (*adaptive capability*), to defend their existing assets, or to reach a transition towards sustainability.

In line with the approach followed by De Sardan (1988), the number of possible reactions of peasants to external project proposals is, in practice, rather limited. De Sardan (*ibid.*) summarizes some of those most frequently encountered as follows: maximizing work-force productivity, minimizing climate risks and use of non-agricultural resources. From this inventory he broadly identifies two main principles and three main strategies for relating to external interventions: the principle of selection and *side-tracking* and strategies directed at *safety-seeking*, *aid-seeking* and *monopolizing* aid opportunities. De Sardan (*ibid.*), as such, underlines the differences in *logics* between development interventions as conceived and the multiple responses and practices of the *developees*. Dorward *et al.* (2009) rephrases these logics in a general classification of livelihood strategies as ‘hanging in, stepping up, or stepping out’, where the use of assets or activities engaged in today or in the medium term may define the diversity of livelihoods and dynamic aspirations of people, mixing and pursuing their strategies. Participation and negotiation do not necessarily provide an optimal or static solution (Ambrosio 2010). Development solutions may be contested, negotiated and in the process also reshape social relations. The current study principally focuses on the impact of (dis-)continuous, cumulative and sequential external interventions in leading to processes of path or place dependency, path creation or path disruption.

2.8 Conclusion: building blocks for a (meta-)theoretical framework of change

The different elements of the theoretical framework presented in this chapter contribute to the elaboration of a *theory of change* in relation to rural community pathways. Using a path dependency perspective, community pathway development is related to ‘initial conditions’ and may subsequently be marked by contingent events and the dynamic interaction between internal and external factors and actors, resulting in a broad range of possible outcomes, varying from lock-in and provisional stabilization, to self-reinforcing or reactive trends.

Following Garud (2010), initial conditions are not given. Instead, time horizons are defined by the actors themselves in ‘unfolding journeys’, as events that have taken place in the past may still be

relevant in the future. Initial conditions differ, therefore, also between different domains, whether related to common pool resources, such as land or the productive environment, or the availability of and changes in public services and infrastructure. The actors involved and their 'retrospective memories' may attach different significance to events or legacies from the past.

The subsequent stages or processes can be identified in terms of path dependence or path creation, starting either as a consequence of external and unanticipated events or as a result of an accumulation of and the interaction between different trajectories. These trajectories may relate to existing resources, institutions or organizational forms, the dynamics of collective action, and interactions with external actors and interventions over different 'rounds' or stages. In the context of the Andean valleys and the rural communities there, it is then essential to consider the multiple and rather diverse forms of agency. Communities and households respond to existing and changing structural conditions, whether they be natural resources or 'patterned social arrangements'. Changes may refer to the demographic structure and dynamics, shifting patterns of rural-urban migration, landholdings, soil degradation or rainfall patterns, and the broader economy including levels of market integration and processes of globalization. Communities also interact with external actors and their policies, programmes and practices (Pritchett & Woolcock 2004). In this respect, it is important to also highlight the importance of various forms of 'resistance' to external policies, through continuous renegotiation of the 'rules of the game' (Boelens 2008). While Boelens (*ibid.*) focuses on water rights and irrigation practices, community dynamics and agency relate to a much wider spectrum of resources, including land, livestock, forestry and mineral resources, as well as public services and off-farm labour opportunities.

The resulting pathways are not homogeneous trajectories, as these will reflect differences in resource access and livelihood strategies between households, as well as differences in historical patterns of interaction. Livelihood strategies also depend on household composition, gender, levels of education and life cycle. Both community and household strategies are a reflection of (changing) routines related, for example, to the agricultural calendar, migration patterns and exchange mechanisms. Resource constraints and collective rules and monitoring influence the boundaries of household strategies and define households' rights of access to resources (Meinzen-Dick *et al.* 1997). Access to assets and opportunities is mediated through or governed by institutions and social relations and is influenced by power relations (De Haan & Zoomers 2005; Scoones 2009).

Whether communities will be able to change the course of development depends upon whether the community organization has the strength, critical mass and resilience (expressed in the various forms of social capital and collective action) to respond and adapt to changing circumstances and to mobilize internal (household and community) and external resources. Understanding decision-making processes is important to understand the impact of adaptive choices and the space for manoeuvre that people have in defining their (collective) actions (Coulthard 2012). These capacities or trends may be mutually reinforcing or contradictory, depending on feedback mechanisms and possible externalities. The capacity to get past major traps or to solve other key obstacles in development may be considered an evolutionary step in the development path of the community, although not all steps may be equally 'progressive'. Ostrom (2000) analyses a range of principles related to conditions that may favour collective action. The current study reviews whether those principles apply in the research communities and, particularly, in the different domains investigated. Coordination problems and ineffective control mechanisms in relation to free-riding behaviour (Olson 1965) may, for instance, underpin lock-in situations, but they may be overcome by external

shocks or intervening outsiders (Garud *et al.* 2010).

External agencies define a range of policies, programmes and practices (Pritchett & Woolcock 2004) in relation to local communities. Development interventions range from changes in legislation to a rather wide array of regional and local implementation mechanisms. Intervention patterns depend to some extent on principle-agent relations (involving central governments or external donors), but they also influence one another. Government policies and institutional settings, for instance, related to decentralization, change over time, and intervention practices shift. Development interventions are *selective* and generally *biased* towards a particular area, sector, self-defined agenda (e.g., participatory, supply-driven or ‘gap-filling’) or certain beneficiaries.

Following an often implicit ‘theory of change’ or more explicit objectives, these interventions generally intend to trigger certain changes in community pathways or trajectories. For rural communities, interventions come as expected or unexpected events, and the community and the corresponding institutions may respond with incorporation, acceptance or a wide range of other reactions. In this process of ‘con-fusion’, external interventions may have direct impact, but they are often mediated by formal and informal institutions at the community level. The concept of ‘con-fusion’ reflects both the coming together or intermingling of community agency and external action, as well as the reactive and proactive ways in which internal and external actors try to frame and change the underlying dynamics of interaction. In their resistance strategies, communities “strategically fuse and confuse at once” (Boelens 2008: 500). Communities do this, for example, by reframing identities, by actively lobbying and by persistently resisting certain policies or actions, but also by remaining silent, through low-profile actions and through alternative framings of development agendas. External actors, for their part, frame and commingle their multiple efforts in different wordings and modalities, both to convince communities and to address other actors and supporting institutions. In congruence with the analysis of De Sardan (2005) at the household level, and depending on the available level of social capital and collective action, communities’ responses reflect, for instance, principles of *selection* and *side-tracking*, or strategies directed at safety-seeking, aid-seeking or monopolizing aid opportunities (*vis-à-vis* other communities). External interventions may result in complementary or contradictory approaches, and undermine or reinforce existing trends (leading, e.g., to *economies of scale*) or influencing willingness to embark upon collective action efforts.

Interactions between community agency and external actors occur in different ‘rounds’ or stages. In this process, feedback mechanisms, previous experiences and learning processes define the long-term ‘embeddedness’ or ‘sustainability’ of interventions. Interaction mechanisms are generally different for common pool resources and for public goods, but they may have mutual repercussions. A snapshot view may miss slow transformations for the better, as “people intensify production, improve environmental conditions, invest or migrate out”, or for worse, as temperatures rise, terms of trade decline or migration undermines local livelihood patterns (Scoones 2009: 19). Many smaller changes may indeed lead to altered community perceptions and new forms of collective action. Previous interventions or new community demands may induce external institutions to become more actively involved, subsequently leading to substantial changes either in production or service delivery levels. While development pathways may include multiple options, at the community and household level, as well as for external actors, the complexity, fragility and heterogeneity of rural communities and their diverging development pathways imply enormous challenges for government policies and development cooperation efforts.

The common classification of communities as *less favoured areas* or *high-potential areas* reflects perceived differences in potential. The first group is defined in particular “in terms of fragile agricultural resource base and/or limited access” (Ruben 2007: 2), suggesting that households are ‘trapped’ in a vicious cycle of poverty and resource degradation. In this case, the prolonged presence of government institutions and NGOs might, for instance, lead to improvements in service delivery, but that would not automatically guarantee changes in productive potential or human capital. A breakthrough (*path creation*) may depend as much on internal action as on external factors and actors and patterns of interaction. Pathway development is thus bounded by constraints in natural endowments and institutions, but also depends on changes in accessibility and market access, and it may be influenced by contingent events, including shocks, external interventions or other events occurring by *chance*.

Differing pathways lead to different outcomes and impact. Change patterns may be emergent or incremental, radical or erratic, continuous or self-reinforcing. Those processes can ultimately be characterized in terms of positive or negative lock-in, provisional equilibria or a range of other qualifications. In practice, we may find that both institutional and organizational pathways reflect incremental evolutionary change, as well as discontinuity, rupture and wholesale transformation in a relatively short timeframe. There may be cases in which external shocks, critical junctures or displacement lead to deviation from existing logics, established routines or vested interests, opening up the possibility for path creation along different lines (Schneiberg 2007). The current research analyses possible conditions under which such patterns occur. Outcomes of these processes can be related to individual livelihoods or to the community as a whole, or to broader conditions. The ultimate impact can be discerned in major changes in land use and access to resources, in quality of infrastructure and services, in demographic developments, in migration patterns and in sustainability or resilience of community pathways. Some trends (migration, access to double residence, agricultural intensification) are common among rural communities. However, patterns, sequencing, intensity and causality may vary widely between communities. According to De Haan and Zoomers (2005: 42), “although the concept of development pathway allows for internal diversity among households, it is the general correspondence of their actions that becomes the pathway”.

Why have pathways developed as they did, and why does divergence or convergence occur between community pathways? Where can path dependence and ‘lock-in’ be found, and where can we identify community resilience and ‘path creation’? What makes pathways more ‘embedded’ and ‘sustainable’, and what does this imply for development policies? The drive to unravel community pathways leads to this study’s main question and subquestions, as follows:

How can we characterize change processes in community pathways in the Andean valleys?

- *What has been the role of community agency (household and collective action efforts) and institutions in driving these changes?*
- *What has been the role of external actors and interventions, and to what extent have these articulated or mediated community actions?*
- *Why and how did pathway differentiation and convergence take place, and under what circumstances do we find path dependence or path creation?*

To answer these questions, chapters three through five deal with the different building blocks, providing the overall setting and a classification of community pathways, and analysing the principal internal and external actors, institutions and agency. Chapters six through ten analyse and illustrate community pathway developments in various domains. The main emphasis is on the period after the ‘revolution’ of 1952 and the land reform of 1953. The focus, in particular, is on access to land, productivity in dryland and irrigated areas, education and other public services. These chapters therefore centre on the following questions:

- *Chapter 3: How can we characterize and classify change processes in community pathways in Andean communities, and how did these evolve over the past two decades?*
- *Chapter 4: How are institutions and ‘rules of the game’ defined, what are the main organizations involved in decision-making and implementation, and what are the implications for (initial) pathway differentiation?*
- *Chapter 5: How can we characterize the changing presence and influence of external actors and policies, and how have interactions with local communities contributed to pathway development and differentiation?*
- *Chapter 6-10: How and why did pathway differentiation or convergence occur, respectively, around land and natural resources, dryland production, irrigation, education and public service delivery, and what were the implications for broader pathway development? How did internal and external factors and agency influence and respond to these developments?*

3

Community pathways in the Andean valleys

The community has experienced several problems during the last 10 years: the contamination of the river, river currents that affected the orchard, flooding that has affected our houses and hailstorms destroying the crops. But we are still here, looking for a better life (Group discussion Tuero Chico, 2011).

3.1 Evolving pathways: dynamics in Tuero Chico

Tuero Chico went through many transformations in its recent history. Before the land reform of 1952-1953, the parents or grandparents of some current community members still worked for the hacienda. In those times, people did what they could to guarantee at least a modicum of access to their own production and to find a *modus vivendi* under the exploitation of the landlords. Agricultural production was realized in rather marginal areas uphill. According to community testimonies, production levels in these dryland areas used to be better than they are today, but under the *pongueaje* (obligatory service) system they were allowed to retain only a small share of the production.

Shortly after the land reform, the community split up into two parts, Tuero Grande and Tuero Chico, the former one was largely abandoned. In the initial years after 1953 *comunarios* tried to buy (better) land from the former *landlord*, which had not been subject to the land reform. Between 1953 and 1983 most of them lived in a rather dispersed settlement in the dryland area. They suffered from *chagas* disease (trypanosomiasis), and had no access to education or other services. In the first year after the land reform they tried to attract a teacher.

The major shift came after the drought of 1983, when many households descended to the valley, and the community received support from Plan International. After arranging for access by road, Plan International supported the community in building new and standardized houses in a concentrated settlement (laid out in the form of a triangle around a main square). Plan International also assisted the community in building small dams, giving them access to agricultural lands close to the river. The shift from dryland agriculture to irrigation implied smaller plots but a more intensive farming system, a stronger focus on the market, less attention for animal husbandry, and in particular, less time for herding goats and sheep. In this phase, gaining access to basic services, especially primary education, basic health care and drinking water became important. Changes in settlement and services led to improvements in health conditions, reducing community members' need to go to Sucre or Yotala for health care. While in the past, children were needed at home to care for goats and sheep, parents now became more willing to let their children go to school. Families still kept their houses in the dryland area uphill as a place to keep their chicken and livestock.

Over the 15 years from 1996 to 2011, further changes occurred in the productive sphere and in the activity calendar. The intensification of agriculture implied more use of cows and plough

oxen or *yuntas*, and numbers of these animals increased from just one to an average of three per family). Later, tractors became available for rent. At the same time, families reduced their small livestock herds. Numbers of sheep and goats per household decreased from an average of 22 to practically zero, while the number of donkeys also declined. While in 1996, all families still had goats, in 2011 only one family retained their stock. Agricultural production shifted from maize and potatoes to roots and cabbage and other produce, mainly for sale in the markets of Sucre and Potosí. Irrigation allowed multiple harvests every year and reduced the need for migration to the Chapare region in Cochabamba (to work in the coca harvest) or elsewhere. The changes in the agricultural calendar led to shifts in rituals too, especially those around the joint determination of the most convenient date for the start of the agricultural season.

With intensified production and sales for the market, more people seized the opportunity to use cash income to migrate abroad, for example, to Argentina and Brazil. The migration process at first was marked by uncertainty, and the first ones to go (households or individuals) struggled to find their way. One of the early migrants commented in 1996 that they were easily cheated by external intermediaries. Once they learned alternative ways to deal with transport, bureaucracy and paperwork, many more community members followed, clearly expressing an increase in *bridging* social capital. Argentina offered greater income potential than national destinations, and income from work and remittances allowed families to invest in the city of Sucre. Few families invested in the acquisition of land or equipment in the community itself.

Land in higher areas was gradually abandoned because of lack of water and erosion, but also due to disasters (hailstorms, floods and landslides), which pushed people to intensify land use at the lower altitudes. The community received support from at least three different institutions in their efforts to reclaim even more land from the river. Yet, problems related not only to access to irrigation, but also the quality of irrigation water from the river and clear signs of contamination as a consequence of upstream mining activities, affected production (and sales) dramatically in the early 1990s.

From 1996 to 2011, the overall population declined from 211 to 166, and school enrolment declined with it, jeopardizing the availability of teachers. The community even introduced a new rule obligating community members to keep their children in the local school. As such, they tried to retain basic education facilities and even to gain access to higher education. Secondary education could only be obtained in the city (and recently also in the small town and municipal capital of Yotala). To attend secondary education, children required the acquisition of small plots and access to housing.

In 2008, the basic community infrastructure was severely affected by a strong *riada* (flash flood), which passed straight through the heart of the village. The flood destroyed the school and severely damaged the health centre. Many houses were affected. The community again sought external support. In this period, the role of NGOs was less predominant. The community turned to the municipality, and received effective support to build a new school and health centre. The community also received central government support to improve and basically rebuild all of its houses for the second time in 15 years. The quality of housing here was among the best of all survey communities.

In 2011, around 11 affiliates no longer had a permanent presence in the community. They only returned for community meetings, specific agricultural activities and major festivities. The population structure had shifted towards the few remaining elders, who took care of some of the

grandchildren. The national pension system introduced in 2006 provided at least a minimum monetary income to the elderly. Overall, this implied less labour availability and declining participation in community meetings and activities. With the continued pressure on land and production and increased incidence of crop diseases, families had started to seek other sources of income close to the community, for instance, related to exploitation of *ripio* (stone gravel mined from the riverside). Finally, in a clear example of supra-communal agency, they joined forces with other riverside communities to exert pressure on the contaminating mining companies to improve the quality of irrigation water. Some families had been able to save enough money or acquire loans to migrate to Spain.

This short community history shows that various stages in the life of the community have been marked by different battles for improved living conditions. First was the battle to gain freedom from the hacienda, followed by struggles to obtain access to land, water, land titles, education infrastructure, more teachers, better paid jobs, fair treatment (in the face of river contamination) and improved housing. Most of these efforts were sustained by their own inputs, in terms of labour and some basic investments in infrastructure along the riverside. The community invested substantially in terms of labour days, while external institutions provided materials and technical support. At a number of junctures, external interventions became an important driving force; for instance, external actors both designed and implemented basic services. The continuing shifts in settlement pattern had consequences for the community organization, for levels of participation, for quality of access and for the way the community came together for meetings, as well as for the use and control of land in higher areas. Community institutions retained a strong focus on agriculture and irrigation, and they also played a part in ensuring community members' access to the public services that were gradually expanding. Nonetheless, this strong emphasis on access and control has made them less effective in dealing with the rapid changes that the community has faced in recent years, in particular, the decline in working age population. The *sindicato* has responded mainly by raising the bar to community membership, introducing higher fines for nonparticipation in collective efforts and for not sending children to school in the community.

3.2 Introduction

In the Andean valleys of northern Potosí and Chuquisaca, communities have been transformed in many different ways in both time and space, as the history of Tuero Chico illustrates. Some communities, like Llavisa, remain practically 'unattended', others 'muddle through', gain new life, or may be transformed or vanish entirely, as happened to Ovejerías. We can obtain a better understanding of this diversity and heterogeneity in pathways by analysing communities' various origins, long-term trends and final outcomes.

Pathways, when used in this way, are mainly a descriptive tool to understand how internal and external factors shape community developments in the long term. Pathways do not necessarily develop in a linear fashion. Rather, they trace processes of local evolutionary change, in which a variety of feedback mechanisms or shocks play important roles in strengthening or weakening different trends, in some cases leading to turning points in the existing development route.

The next section presents the research methodology for both the PIED-Andino and PIED II fieldwork periods. This provides the relevant context for our analysis and classification of community pathways, which follow in more detail and from different angles in the subsequent chapters. This chapter's main question is as follows:

How can we characterize and classify change processes in community pathways in Andean communities, and how did these evolve over the past two decades?

3.3 Research methods

PIED-Andino research (1994-1997)

The PIED-Andino project analysed household strategies by doing two phases of research. In the first phase, a rapid rural appraisal was realized in 41 communities. This was followed by the second phase in which a more in-depth study was conducted in 17 communities. The 41 communities were initially categorized according to agro-ecological zones. A diagnostic review of these communities indicated that they could be classified into four main groups (*tipos*), based on the 'external context' and distinguishing between more and less favourable contexts in both lower and higher agro-ecological zones. The more detailed classification (see Zoomers 1998) also includes references to road and market access, availability of services, institutional presence and the main type of community organization (*ayllu* or *sindicato*). The 41 communities (and the subsequent subset of 17) were located in nine municipalities in the northern part of the departments of Chuquisaca and Potosí.

In the second research phase, eight households were selected in each of the communities, based upon self-stratification by key informants from the communities. In making the selection, informants were asked to take into consideration socio-economic criteria related to household position within the community. The aim was to get an approximately representative sample. The resulting 136 households were followed for a full agricultural cycle, from August 1995 until July 1996, by monthly visits to each community. Local research assistants and a member of each community assisted in order to systematically collect weekly data regarding time spent in different activities by all members of the households. This produced a very large dataset. Back in 1997, with still limited computing capacity, the project could analyse these data only at the level of the individual communities. The current study managed to pull these data together for a more in-depth and comparative analysis of agricultural calendars in the various communities.

With the households in the sample, a range of additional structured and semi-structured and open interviews were held regarding the family background, family composition and resources, participation in the community organization, productive activities, participation in projects, history, cultural identity, exchange mechanisms, migration patterns, market integration, and finally also perceptions of the longer term processes of change in their community. A detailed household survey was also conducted regarding access to land, identifying all the individual plots and the different crops the households were cultivating that year. Alongside this household-level information-gathering, group interviews and community workshops were held on a number of themes, in particular, position in relation to external markets, external institutions and the history of the community. The research team took photographs of many of the most relevant aspects of community life. These were later used in a perception survey regarding long-term changes at the community level. Finally, interviews were held with key informants, with community leaders and with staff members of institutions working at the community level, including both technicians and programme officers and directors. For every community a diagnostic report was elaborated and presented to community authorities. De Morrée (1998b) provides a more detailed description

of the research methodology, including an assessment of the quality of the data collected in both the first and second phase of the PIED-Andino research.

PIED II fieldwork (2010-2011)

In 2010 and 2011, during a total period of three months, fieldwork visits were again realized in Chuquisaca and northern Potosí. After short exploratory visits in 2008 and 2009, we managed to convene four of the researchers involved in the first phase to join us again for a more in-depth follow-up study. Together with a number of new researchers familiar with the region, we paid visits to 10 of the 17 communities involved in the earlier PIED-Andino research (table 3.1). The aim was to identify changes in relation to specific aspects of community life.

Table 3.1
Research communities involved in different phases

<i>Department</i>	<i>Municipality</i>	<i>Communities (1996)</i>	<i>Communities (2010)</i>	<i>Communities (2011)</i>
Chuquisaca	Sucre	Ovejerías	Ovejerías	Ovejerías
		Quila Quila		Quila Quila
	Yotala	Tuero Chico	Tuero Chico	Tuero Chico
		Wasa Ñucchu	Wasa Ñucchu	Wasa Ñucchu
		Escana	Escana	Escana
	Yamparáez	San Juan	San Juan	San Juan
		Talahuanca	Talahuanca	Talahuanca
		Pampa Yampara		
		Pampa Lupiara	Pampa Lupiara	Pampa Lupiara
	Tarabuco	La Abra		La Abra
	Mojocoya	La Cañada	La Cañada	La Cañada
		Sundur Wasi		Sundur Wasi
	Zudáñez	Sijcha Baja		
		San Juan de Orcas		San Juan de Orcas
Potosí	Ravelo	Yurubamba	Yurubamba	Yurubamba
		Cochapampa		Cochapampa
	Ocurí	Llavisa		
TOTAL		17 communities	10 communities	14 communities

Based upon the findings of the first phase of the PIED-Andino research, and assessments by a range of resource persons, including the principal researchers from the first phase, particular emphasis was given to identifying possible changes in migration, water and irrigation, education and the level of monetization in rural communities. Wherever possible, we visited the same households that were involved in the earlier PIED-Andino research, which allowed systematic assessments to be made of changes at the community level, alongside a reconstruction of life-cycle changes and strategies. Findings from the 2010 fieldwork were presented to the Dutch for-

eign ministry, and summarized in a paper for a conference of the European Association of Development Research and Training Institutes (EADI) (Zoomers & Le Grand 2011).

In 2011, building further on the 2010 findings, a broader and longer research effort was undertaken to more systematically compare the same research communities and the principal changes that had taken place over the past 15 years. Four teams, numbering two to three members each – i.e., a senior researcher and a Quechua-speaking research assistant, generally accompanied by either the research coordinator or another research assistant – visited in total 14 communities,¹ for an average of five to six days each. Three researchers from the first phase (PIED-Andino) were involved to facilitate a systematic comparison with regard to research methods and findings. The 14 communities were selected from the 17 communities involved in the first phase of the project, and offered a broad and representative range of the differences in ecosystems, accessibility, cultural characteristics (*ex-hacienda* or *ayllu*) and institutional presence. For each of the 14 communities, eight households were again selected, following the same procedure of self-selection as done during the initial PIED-Andino research. In every community, several workshops were held to analyse the main changes with regard to population dynamics, migration, agricultural production, public services and the presence of external institutions from 1996 to 2011. Special attention was given to external shocks and events that might have particularly affected community life during this time.

The fieldwork was greatly facilitated by the use of photo albums for each of the 14 communities, containing a selection of some 50 pictures of the community in 1996, accompanied by the diagnostic studies for the respective communities. These enabled very systematic comparisons to be made of developments over time. The photo albums quickly brought back community members' memories of our first research period, and they helped us to obtain rapid acceptance of an exercise to look back at our findings from the first phase. For several of the communities, comparative pictures were presented. All of the communities were given a revised and updated diagnostic report, which was a great help in systematizing and comparing pathway developments over time and between the 14 communities.

In addition, for 330 communities in six municipalities in the region (including 12 of the selected 14 communities), full details of municipal expenditures for the period 2000–2008 were obtained and reviewed as background information for the fieldwork.

Finally, interviews were held with NGO and government representatives, other (semi-public) institutions, and a final workshop took place in La Paz to discuss preliminary findings with the Netherlands embassy and the donor community. The Netherlands Foreign Ministry published selected findings, in particular, those related to the impact of the decentralization process in the research communities (IOB/Le Grand 2012).

In addition to our own research and findings (Zoomers *et al.* 1998; Zoomers 1999; Zoomers & Le Grand 2011), a range of secondary sources (including archival sources, PhD research, doctoral theses, project documentation and municipal development plans) complemented and deepened my own observations of community dynamics. Previous PhD research in the region and research communities proved particularly valuable, including De Morrée (2002), which focused on the role of farmer associations, cooperatives and exchange practices and was also based upon the PIED-Andino data, and Kessler (2006) and Klemola (1997), which present research in two of our research communities (Talahuanca and Quila Quila). Finally, Morales and Guerrero (2001) presents

research on the effects of climate change in five of the research communities in 1998. Their study was very useful for understanding the effect of external shocks.

The in-depth research carried out in the first phase facilitated development of a shorter and far more compact methodology for the second phase, essentially focusing on changes in resources, production and a number of other factors. Nonetheless, this approach has clear limitations. The main emphasis is on community-level changes, but even 'communities' may cease to exist or be transformed in new territorial areas or identities. It was thus not always possible to follow them in full detail regarding their territorial expanse.²

As indicated, the communities studied are relatively small, varying roughly from 30 to 200 families. The stratified selection of eight households therefore provides an illustrative but not necessarily always fully representative sample of household dynamics. Nonetheless, this author is convinced that the complementary information gathered at the communal level allowed for a reasonably fair reconstruction of community pathways over time, for instance, regarding demographic trends, production, migration and external presence. It was of course more difficult to capture all internal organizational dynamics, but the interviews and workshops did highlight some of the main trends and sentiments. Comparative data for 1996 and 2011 were complemented with information regarding prior and intermediate years. Nonetheless, the choice of these two base years may lead to a 'temporal' bias, as choosing prior or following years might have painted a slightly different picture. Both fieldwork periods were realized during 'regular' years in terms of rainfall and productive and other external conditions. Workshop data may also contain a certain bias towards the years immediately before both fieldwork periods, although reference to well known 'historical' events helped to correct this bias, at least in part. Most of the observations made regarding external interventions are based on both fieldwork interviews in communities and on external actors, but it was clearly impossible to review in detail experiences in the more than 600 'interventions' with all external actors involved, and findings may certainly be contested by either side. The current study nevertheless attempts to give a balanced picture of developments in the productive and public spheres, as these are crucial for understanding the evolution of community dynamics in the long term.

A focus on a comparative and longitudinal analysis requires multiple trade-offs, as it is impossible to deal with all of the relevant aspects of evolutionary change on equal footing. Although this study describes and analyses pathways from a rather integrated perspective, my own background certainly led to a major emphasis on the (ir)relevance of internally or externally driven development efforts, as reflected in the 'domain chapters', while devoting fairly limited attention to issues like religion. Even among the external interventions I had to make choices, which led to far more emphasis being placed on education rather than health, and more on agricultural production than on credit programmes or reforestation. This bias is partly explained by the direct visible and measurable incidence of those programmes to households and communities, though without denying the possible long-term effects of, for instance, health programmes, which are also included, though with less detail, in the discussion.

In the preface, I mentioned my own involvement in development cooperation in Bolivia. I played a part indirectly and at a relative distance (as a policymaker) in some of the programmes and activities included in this research project over a few decades of Bolivian's recent rural development history. Nonetheless, the constant shifts in organizational perspectives (from NGO to research to bilateral and multilateral cooperation) allowed me to distance myself from a too close

identification with any single form of development cooperation and its governmental or NGO status.

Reports of our first study acknowledge the possible impact of the research project (De Morée 1998b), and a particular case of such an impact is discussed in the introduction of chapter eleven. For the remainder, I feel that during my work³ I have been able to remain at a sufficient distance from ‘daily operations’ in these communities, although my analysis of national policies has of course been influenced by the multiple policy discussions that took place within the Netherlands embassy where I was employed and by my interactions with other donors and government stakeholders.

Finally, the respective samples of 41, 17 and 14 communities can never be fully representative of the Andean region or even of northern Chuquisaca and Potosí. Additional information from the Bolivian national statistics institute (INE), municipal development plans and development agencies allowed me to situate the communities in the wider context. The diversity encountered in the research communities is certainly illustrative of the wide range of factors influencing pathway developments in the Andean valleys.

The quest for a systematic understanding of rural development processes from the perspective of a community or even a household requires an interdisciplinary focus, including anthropology, institutional economics, geography and tropical agriculture. I do not profess to have gained such an exhaustive grasp of all layers of community life. Cultural elements like religion and power certainly deserve more attention. But the combination of in-depth fieldwork in the first phase and the more targeted survey 15 years later made it possible to produce a rather detailed reconstruction of community histories and transformations and to analyse major changes in household perspectives. The reconstruction of community ‘histories’ was, nevertheless, far from self-evident, and I am sure these will contain misguided interpretations of particular trends or of ‘minor’ or ‘major’ events.

3.4 Classifying pathways

As discussed in chapter two, community pathways can be analysed from many different perspectives, focusing on changes in production or resources or broader patterns of change. This section looks at some comparable studies of change processes in rural communities. These tend to be either large-scale surveys – sometimes including over 100 communities – or in-depth (often anthropological) case studies, generally covering only one or a few communities. As this PhD study builds upon a medium-scale survey realized some 15 years ago, it combines both these perspectives, offering not only an opportunity to make comparisons among a relatively large number of case studies, but also the option of taking a more in-depth and longer term approach. A number of previous studies have employed a more or less comparable focus, although these generally fall into one of the two categories mentioned above: either large-scale surveys or narrowly focused case studies.

A classic example of the large-scale surveys is an IFRPI-related study focusing on the “critical triangle between environmental sustainability, economic growth and poverty alleviation”. Zeller *et al.* (1999) analyse pathways of rural development in Madagascar by means of an econometric and descriptive analysis of 188 villages in which community members were asked to provide a retrospective account of the situation 10 years earlier. These authors’ focus mainly on a distinction

between agricultural extensification and intensification, related to either the expansion of cultivated areas or increases in yields (*ibid.*).

Pender *et al.* (2004) analyse and compare rural pathways in 348 villages in Honduras, Uganda and Ethiopia. They use a similar retrospective approach (but including different periods for each of the countries), and they apply a similar econometric analysis as Zeller *et al.* (1999), but these authors take a broader perspective regarding agricultural pathways, building upon cereal production as either the primary or secondary activity, and considering complementary crops and activities. The central hypothesis of their research is that “appropriate strategies for sustainable rural development and land management depend upon comparative advantages that exist for people in a particular location” (Pender *et al.* 2004: 339). They identify four factors that influence villages’ comparative advantages: resource potential, external context, population density and external presence. The focus on comparative advantage is certainly important (in the PIED studies practically all communities focused on commercialization of crops that were well suited to their specific agro-ecological circumstances). However, the impact of community strategies and pathways may extend further than crop selection and market orientation. Including other elements in the pathway analysis may therefore be appropriate.

Using a so-called ‘stages-of-progress’ analysis, Kristjanson *et al.* (2007) examine households and poverty dynamics from a long-term perspective in 40 rural communities in two highland regions of Peru. They review, in particular, the role played by livestock assets and strategies as an explanatory factor. The study uses five criteria to capture rural livelihood options: “altitude, agricultural activities, market access, size of community, and ethnic group and language” (*ibid.*: 296). The analysis focuses mainly on pathways at the household level, but the indicators at the village level (e.g., availability of and access to public services and main income sources) are similar to those used in the PIED study. Several conclusions, indeed, are drawn at the regional, instead of at the household level. The authors indicate some methodological problems and limitations, as it appeared difficult to retrieve reliable information compared to the situation 10 years earlier, regarding the ways households were able to diversify successfully, or as stated by Kristjanson (*ibid.*: 306), “what policies and interventions led to this successful diversification”.

One of the most cited studies involving a similar group of communities in the Andean region is Figueroa (1983) regarding eight communities in the Peruvian *sierra* (highlands). Figueroa (*ibid.*) starts from a rather economic point of view, but realizes a broad survey including very detailed measurements of agricultural and livestock production, considering practically all monetary and non-monetary inflows and outflows. Although the study gives some retrospective information regarding demographic changes, it does not really present a longitudinal analysis.

A more recent Peruvian study (Escobal & Ponce 2010), building upon Cotlear (1989), compares developments in two larger communities between 1983/84 and 2009, using indicators that are similar to those used in the PIED studies, such as changes in population, household size, educational levels and provision of basic public services. For the productive side, the study compares changes over time in the distribution of income in relation to, for instance, potatoes, maize and livestock equivalents, placing most emphasis on the household level.

In a more theoretical review, Shiferaw and Bantilan (2004) conclude that there are two main contrasting viewpoints regarding perceptions of rural communities’ responses to increased resource pressure. Simplified, the two opposite positions – in the study, represented by the Boserup and the Malthusian perspectives – centre on population growth. One position regards this as

beneficial to the process of agricultural change, intensification and prevention of further resource degradation, while the other considers it to be a negative factor and principal agent of degradation and poverty. Our study found contrasting population trends in both communities in a downward spiral as well as in communities embarking upon increased intensification, suggesting the importance of other factors in co-determining development pathways. As Shiferaw (2004: 329) acknowledges, “the fixation of existing theories on population growth per se as a leading driving force in the process of agricultural change has overshadowed other associated factors” conditioning and mediating interactions between “poverty, population growth, and environmental quality”.

Most of the abovementioned analytical studies relate principally to changes in the productive sphere or demographics. This relatively narrow perspective does not always do justice to internal community dynamics, as these imply a continued interaction between a wide range of different factors and actors over time. Positive developments at a certain stage may lead to cumulative effects later, but circumstances may also revert back, due to other internal or external factors. The study of interactions between different elements therefore requires a broader focus on community pathways. Pender *et al.* (2004), Zeller *et al.* (1999) and the comparative study by Kristjanson *et al.* (2007) in Peru mainly focus on agriculture and livestock production or in some cases on alternative income sources, like migration. In addition to those factors, the current study includes elements such as demographic change and public service delivery. In the productive sphere, it places special emphasis on irrigation. In addition, this study systematically reviews the different ‘rounds’ or stages of interaction between communities and external actors and the existing feedback mechanisms in a variety of domains. The added value of the current study compared to many of the more extensive surveys is the opportunity it offers to establish not only qualitative but also some quantitative linkages between the different aspects of community pathways and the availability of comparable data for 1996 and 2011.

Before we go on to these comparisons, it is relevant to look back at the classification of communities we developed in the context of the initial PIED-Andino study back in 1997. We grouped the 41 and 17 communities, respectively, in the first and second phase of that research into four groups related to the favourability or unfavourability of external context, at both lower and higher elevations and in relation to six systems of production, varying from specialized potato production to more diversified agricultural production in the valleys, extensive livestock management, transformation, migration and subsistence agriculture (Zoomers 1998). The classification into higher and lower elevation areas, combined with inclusion of the different agricultural specializations, roughly corresponds to the traditional classification of communities according to agro-ecological zones, but adds in this case the specializations of certain communities. Omitting the details on the specific production orientation of individual communities and looking only at the 14 communities that are included in both research periods yields a picture for 1996 as presented in table 3.2.

Revisiting this typology 15 years later, we found that it provided a surprisingly accurate prediction of development outcomes and population trends between 1996 and 2011, especially regarding the few communities with an unfavourable external context.⁴ All three communities classified as having an unfavourable external context also scored very low in the present matrix. Two of them had a drastically diminished population, while only four out of eleven in the other group declined (but less so) in population.

Table 3.2
Distribution of communities in 1996

<i>Higher areas with favourable external context</i>	<i>Unfavourable external context</i>	<i>Lower areas with favourable external context</i>	<i>Unfavourable external context</i>
Yurubamba, Pampa Lupiara, San Juan de Orcas, San Juan	Cochapampa, Talahuanca	La Abra, Wasa Ñucchu, Es- cana, Quila Quila, La Caña- da, Tuero Chico, Sundur Wasi	Ovejerias

Source: Zoomers (1998).

3.5 Pathway clustering and classification

A pathway classification should allow the testing of hypotheses regarding our main questions related to the interaction between structure and agency in defining pathway development and differentiation. Community institutions are generally linked to processes of defining access to resources at the community level and perhaps beyond community borders as well. This may include access to common pool resources, to public goods and even to markets and external institutions. A pathway classification system that relates to the existing differentiation between common pool resources and public goods and to changing demographics will therefore help in analysis of the differential role of the institutions involved in these different domains.

Appendix 3.1 provides an overview of the main characteristics of the 14 communities in 1996, alongside some additional indicators going further back in time. These indicators provide an intermediate baseline for comparing pathways. Based upon a series of steps (detailed in appendix 3.2), including two methods of cluster analysis and a more detailed review of event calendars, the communities were grouped into a summary classification (table 3.3) and a more detailed classification (appendix 3.5). The latter contains a further subdivision based upon additional factors (e.g., education, access to services and migration). The summary classification divides the communities into four main pathways, based on demographic change (*decline* or *growth*) and productive capacity (*dryland* or *irrigation*). As we will see, population growth largely coincides with the differentiation in production levels over time, as most of the communities with relatively stable or growing populations showed on average higher levels (or lower declines) in agricultural production.

Throughout the chapters of this book, and in most of the tables and graphs, the summary or simplified pathway classification is used. This is a deliberate choice, based both on the outcome of the cluster analysis and for ease of reference (with four groupings only), but also because this classification enables comparisons of other underlying factors and changes, such as access to services and migration patterns, and a differentiation between primary or secondary education or between *sindicatos* and *ayllus*. Those subdivisions are further discussed in the following chapters and included in the more detailed pathway classification presented in appendix 3.5.

The detailed classification further specifies levels and patterns of national and international migration, agricultural intensification and irrigation, access to public services and settlement concentration, and access to primary⁵ and secondary education.⁶ The following chapters use these subdivisions in analysing pathways in relation to specific domains (land access, dryland agricul-

ture, irrigation, education and other elements of service delivery). Finally, origin or identity issues are highlighted in relation to three communities where they were considered relevant for pathway differentiation. This more detailed classification enriches understanding of, for instance, whether access to secondary education is an important (additional) driver of differentiation between *decline* and *growth* pathways, or between *dryland* and *irrigation* pathways.

Table 3.3
Summary pathway classification 1996-2011

	<i>Population decline</i>	<i>Population growth</i>
<i>Mainly dryland</i>	Cochapampa, Ovejerias Alto, San Juan de Orcas, San Juan (<i>Dryland decline pathway</i>)	Talahuanca, Pampa Lupiara, Yurubamba (<i>Dryland growth pathway</i>)
<i>Mainly irrigation</i>	Sundur Wasi, Quila Quila, Tuero Chico, La Abra, Ovejerias Rio (<i>Irrigation decline pathway</i>)	Wasa Ñucchu, La Cañada, Escana (<i>Irrigation growth pathway</i>)

Source: Own elaboration.

The classifications result in different groupings. At the extremes we find Ovejerias and Cochapampa at one end of the spectrum and at the other end Escana. These differ basically in all trends, regarding population, migration patterns, educational levels, production patterns, levels of service provision, settlement concentration and resource accumulation.

Depending on the angle of analysis, which will change in relation to the different domains (i.e., access to land, irrigation and education), our focus on the matrix can be either horizontal or vertical, allowing us to capture both commonalities as well as the internal differentiation taking place in pathways related to the different domains. Thus, chapter four, regarding community institutions, examines differentiation between *ayllus* and *sindicatos*, chapter seven highlights initial differences between dryland systems specialized in potato production and more mixed production systems, while chapter eight highlights the initial differentiation and subsequent changes in irrigation systems over time. Chapter nine discusses the division between primary and secondary education and chapter ten, finally, adds a distinction between levels of service delivery and changes in patterns of settlement concentration over time.

3.6 A first approximation: pathway convergence and divergence

Depending on the perspective taken, Andean communities in the region can be conceived of as all rather similar or quite different. Most are rather small, poor and distant from a main road; they produce potatoes, maize and grain; raise cattle, goats and chickens; build similar houses and use similar technologies; celebrate many of the same festivities and even organize themselves in more or less the same manner. Yet, these communities are located at widely differing altitudes in a large range of agro-ecological zones and with a tremendous variety in landscapes and local *niches*, consequently producing a variety of crops. They also migrate to many different destinations, and represent a wide range of cultures and identities.

Based upon the main elements of the pathway matrix presented above, the following section further elaborate and quantify some of these commonalities and differences, focusing in particular on demographic changes, migration, resources at the household level and changes in accessibility. Where possible, we will determine whether and how these trends have been converging, or if further differentiation has taken place over time.

Population dynamics

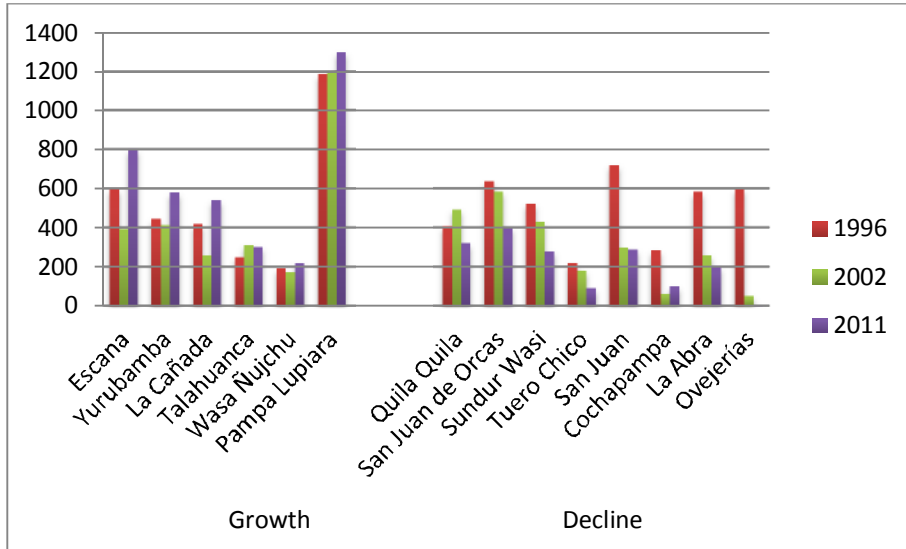
Demographic changes are an important reflection of pathway dynamics. Shrinking and growing communities face different challenges, related to control of natural resources and collective action, but also to thresholds for provision of certain public services. Gradual growth and decline seldom have substantial immediate effect, but changes do have marked effects when certain tipping points are reached (e.g., a minimum number of pupils for the maintenance of a school or a minimum number of people needed for planting, harvesting and social control). Most research communities were relatively small upon their establishment, or at least in the years immediately after the land reform of 1952-1953. Communities were established among 10 to 20 families, or by pulling together different ex-haciendas or hamlets. With the gradual incorporation of new families and a still relatively slow process of natural population growth, most communities probably increased in size at least until the late 1980s and early 1990s (table 3.4, figures 3.1 and 3.2).

Table 3.4
Changes in the size of selected communities due to demography and migration

<i>Community</i>	<i>+/- 1980</i>	<i>1992</i>	<i>1996</i>	<i>2002</i>	<i>2011</i>	<i>Popul. change 1996- 2011</i>	<i>Tempo- rary mi- gration change</i>	<i>House- hold size 1996</i>	<i>House- hold size 2011</i>
Talahuanca			250	312	302	21%	-60%	6.4	3.5
Cochapampa			283	61	100	-65%	200%	6.8	3.3
San Juan	1000		720	297	289	-60%	-45%	7.5	3.1
San Juan de Orcas			636	585	400	-37%	-33%	6.4	4.4
Pampa Lupi-ara	1040	1120	1185	1196	1298	10%	20%	6.1	3.5
Yurubamba	360		445	414	580	30%	-20%	6.9	5.3
Ovejerías			600	50	3	-99%	-46%	7.4	3.6

Source: Community surveys, actas, health centre statistics.

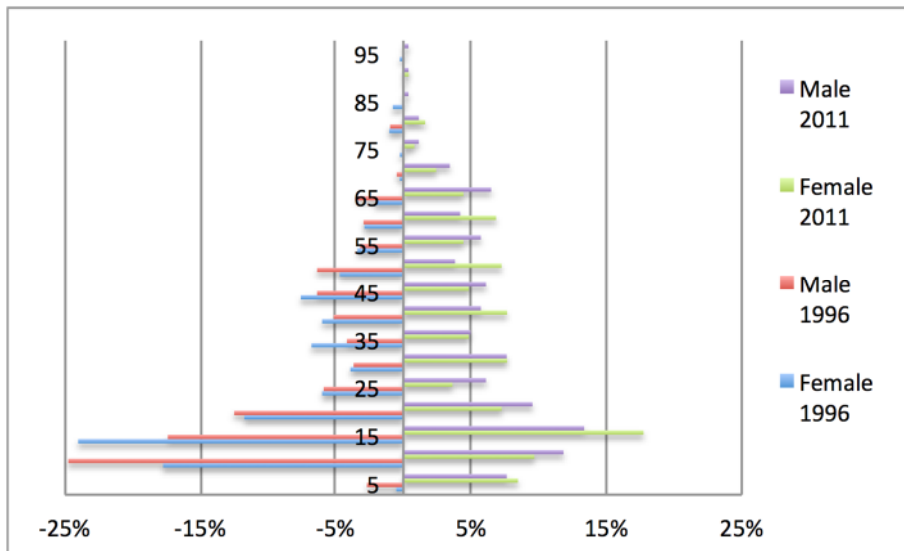
Figure 3.1
Demographic changes (growth pathway vs. decline pathway), 1996-2011



* Source: Census data (2002) and community surveys; PIED studies.

Note: For La Cañada no separate data are available for 2002. Due to the split from San Julian, data for 1996 and 2011 include the population from both communities together. In reality, La Cañada is about half the size indicated.

Figure 3.2
Combined population pyramid, 1996 and 2011



Source: Community surveys, own elaboration.

In the first three decades after 1950⁷ national population growth rates increased from 2.1% in the 1950s, to 2.3% in the 1960s and 2.7% in the 1990s, implying a doubling of the population in roughly 26 years (Pearce 2011). Available sources⁸ indicate that communities like San Juan⁹ had already started experiencing a declining population in the 1990s and perhaps even in the early 1980s (see table 3.4).

For Talahuanca, a *dryland growth* pathway community, similar trends¹⁰ can be observed in the flux of emigration, but overall the population remained more stable than in the group of communities included under the *dryland decline* pathway. Only Pampa Lupiara, also in the *dryland growth* pathway, showed a relatively steady increase in population over the past decades. Changes in population and migration patterns can be both a cause as well as a consequence of changes in production systems. This possible reverse causality is also noted by Pender (2004) in his study of pathways in Uganda.

The patterns of demographic change from 1996 to 2011 indicate substantial transformations and differentiation between the communities. The six communities on the left in figure 3.1 show to some extent an increase in population, while the other eight, all included in the *decline* pathway, experienced a steady or even extreme decline.¹¹ Nonetheless, in about half of the communities, the pattern of growth or decline is irregular.¹²

Comparing the overall composition of the population in 1996 to that in 2011 (see figure 3.2), a number of changes can be noted. The population in 2011, at least among the selected families, is much older than the population in 1996. The overall population structure in 2011 exhibits a small peak among those between 10 to 20 years of age, but this peak is far smaller than that for the same cohort in 1996. The population structure in 2011 is considerably different from that at the national level too, as the demographic structure of Bolivia as a whole still shows the classic pyramid shape (Pearce 2011), suggesting a large absentee population in the ‘dented’ areas.

There were minor shifts in the gender distribution among the different age groups. In 1996, the study communities had more women than men in the age group between 35 and 45 years – a reflection of the higher migration rates among men. The 1996 figures also show a slightly larger presence of men older than 50. In 2011, the share of women between 40 and 60 years is still large, but there are fewer women between 20 to 30 years of age, indicating more migration among young women. The population older than 50 years of age increased from 16% to 22%. Overall, these changes led to considerable reductions in sizes of households, which declined on average from 6.6 persons to 4.6 persons between 1996 and 2011.¹³ The much smaller family size is indicative of the fact that most young families had left the communities.

By monitoring the time dedicated to specific activities during a full agricultural cycle we were able to construct a detailed image of labour time and activities in relation to age in 1996 (see appendix 3.7). For household members 12 years of age or younger, the main emphasis was clearly on socialization activities (principally education), household chores and caring for livestock.¹⁴ For the age group between 15 to 30 years, a relatively large share of time was dedicated to migration. For the older groups, including those up to 65 years of age, agriculture was more important. Only those older than 50 years spent considerably less time in migration, and those older than 70 spent less time caring for livestock.

There were substantial differences between men and women, both in time spent on reproductive activities and livestock (far greater amounts of time among women) and frequency of migra-

tion and time spent on community activities ('social') and agriculture (more labour-intensive among men).

While clear differences were found in patterns of demographic growth or decline between communities, a certain level of convergence was evident in patterns related to household size (shrinking), a gradual ageing of the population, and shifting activity patterns during the life cycle.

Migration trends

Migration levels impact directly or indirectly on population dynamics and presence in the community. Temporary migration affects presence in certain periods of the year, allowing for the migrating members to return temporarily during agricultural peak periods. Longer term migration (an absence of a year or more) and permanent migration likely has a more permanent impact, including on collective action dynamics and control of landholdings. Average temporary migration rates remained relatively stable in absolute terms between 1996 and 2011, but showed a substantial increase in relation to household size as well as shifts over time between communities and regarding main destinations. While most of the *dryland* pathway communities (with the exception of Cochapampa and Lupiara) showed a decline in temporary migration, most *irrigation* pathway communities showed an increase (with the exception of Escana and La Cañada) (figure 3.3).

Only a few communities show relatively balanced distribution in migration rates between men and women. In particular, among the *dryland growth* pathway communities, far more men than women migrated, leaving women with a larger burden in household and agricultural tasks. The *irrigation* pathway communities show, on average, far higher levels of international migration than the *dryland* communities. The smaller *irrigation* pathway communities have by far the highest levels of definitive migration. *Dryland decline* pathway communities do, however, present the highest levels of rural-to-urban migration within the country (mainly oriented towards Sucre).

The declining and gradually ageing population, the increase and shifting composition of both temporary and definitive migration and the increasing duration of absences for school attendance (in particular, related to secondary education) have had substantial implications for the distribution of labour between men and women and between the elder and younger age groups. These developments also have implications for communities' capacities for collective action, as we will see in the following chapters.

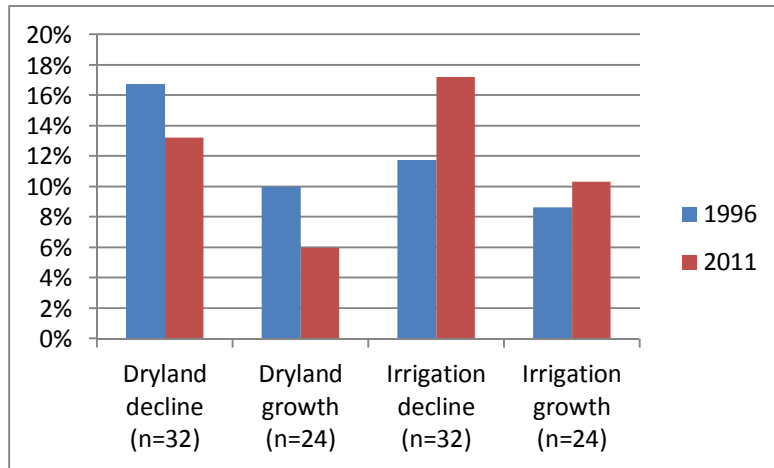
Changes in household resources

For the analysis of changes in resources, quantitative data at the household level were combined with an assessment of changes at the community level. In practically all communities the main productive resources were land under irrigated or dryland agriculture, livestock, forestry or fruit trees, and access to productive equipment. In addition, estimates were made of changes in the quality of housing, access to public services at the household level, and households' total stock of valuable consumer goods (figure 3.4).

The assessment of the different resources was based on the added value of those resources in a particular context. The value of land depends on its location and ecological environment, in particular, availability and intensity of use of water (land registered the greatest increase in value in the *irrigation growth* pathway communities). A clear differentiation was found between the so-called *pampa* communities in the *dryland growth* pathway with their opportunities for intensive potato production and the more marginal – hillside – *dryland decline* communities. Both *ayllu* com-

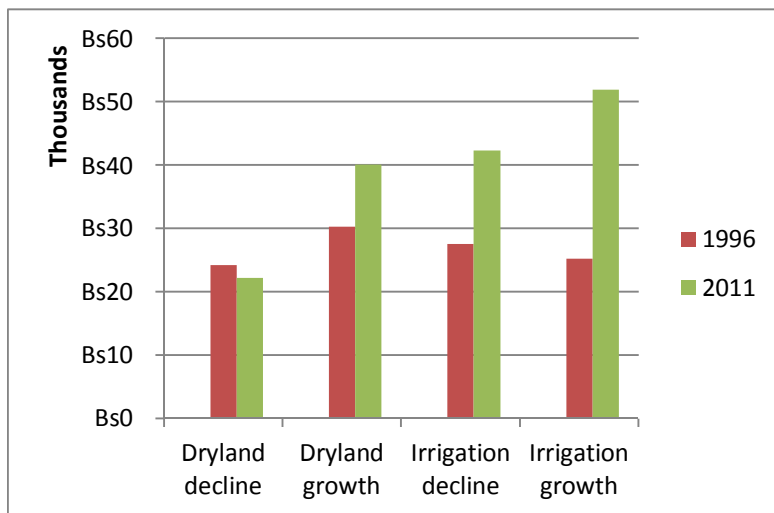
munities were on the *decline* pathways. This is partially a reflection of their historical limited access to productive lands, as we will read in chapter six.

Figure 3.3
 Percentage of population that migrates temporarily for main pathways, 1996 and 2011



Source: PIED studies. Note: Numbers of households surveyed in parentheses.

Figure 3.4
 Total value of household resources for main pathways, 1996 and 2011



Source: PIED studies. Note: Estimates are given in bolivianos (US \$1 = approx. Bs 5.5 in 1996 and Bs 7 in 2011), based on 24-32 households per pathway per survey year.

Access to productive resources

Analysing the change in estimated value of the different resources, the largest increase was found in the value of irrigated land, followed by the value of housing, productive equipment and consumer goods (figure 3.5). Most of the other productive resources declined slightly in value. The value of household resources increased in 10 of the 14 communities, including in practically all *irrigation* pathway communities, while stagnating in two and declining in another two communities. One community experienced a tripling of total resource value over the 15 years under study, while in another five communities, total resource value almost doubled. Among the communities with the largest absolute increase, five out of six were *irrigation* pathway communities. At the bottom of the scale are four communities that were all originally on the *dryland decline* pathway. The changes in Ovejeras, the community with the largest decline in estimated resource value, reflect the transformation from being a *dryland* community in the highlands to an *irrigation* community in the valley.

Livestock resources in most communities showed a small to a considerable decline in value. Nonetheless, there was substantial variation between larger and smaller livestock, as some communities experienced an increase in numbers of oxen and cows, and a parallel but often dramatic decline in numbers of goats and sheep. Although this implies an overall loss in value terms, it should not necessarily be interpreted as a negative trend, as smaller livestock was often kept as a form of savings (and households' savings needs may change). Such animals may also have negative consequences for the environment.

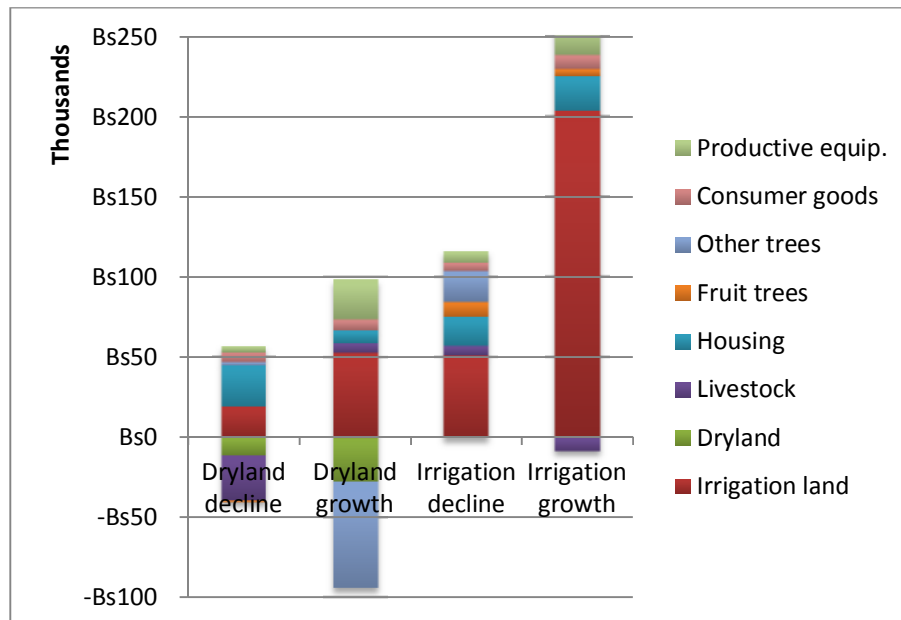
The estimated value of fruit and forestry resources was relatively limited in comparison to the value of land, but trees should not be underestimated as an additional source of household income in some communities. In practically all those communities, fruit and forestry resources increased in value. While fruit and vegetable production was diverse in the *irrigation* pathway, it also formed an additional source of income in *dryland* communities for some households that were able to convert a small plot of land close to their home for horticulture, sometimes even using drinking water for irrigation. Although there were numerous forestry projects in the region, the survey showed few communities with large individual forestry holdings.¹⁵ Where they were in evidence, these resources were often unequally spread among households.

A final element in productive resources is access to equipment such as grinding mills, tractors and water-pumping systems. We observe again a relatively strong increase in value among those communities on the *irrigation* pathway, but also in the pampa communities with their substantial productive potential. For most communities – and certainly for the remaining groups – access to large-scale productive equipment remained negligible.

Access to housing and consumer goods

A simple comparison¹⁶ was made of the quality of housing and access to services like electricity, drinking water and in some cases improved latrines or kitchens. Housing construction was traditionally done by households themselves or by working together with neighbours. Some large-scale housing improvements had taken place in the recent decades, mainly to combat *chagas* disease (discussed in chapter ten). Practically all communities showed an increase in housing value, with the largest rise in Tuero Chico, which received support in building and upgrading houses three times over the period.¹⁷

Figure 3.5
Changes in resource values, 1996-2011



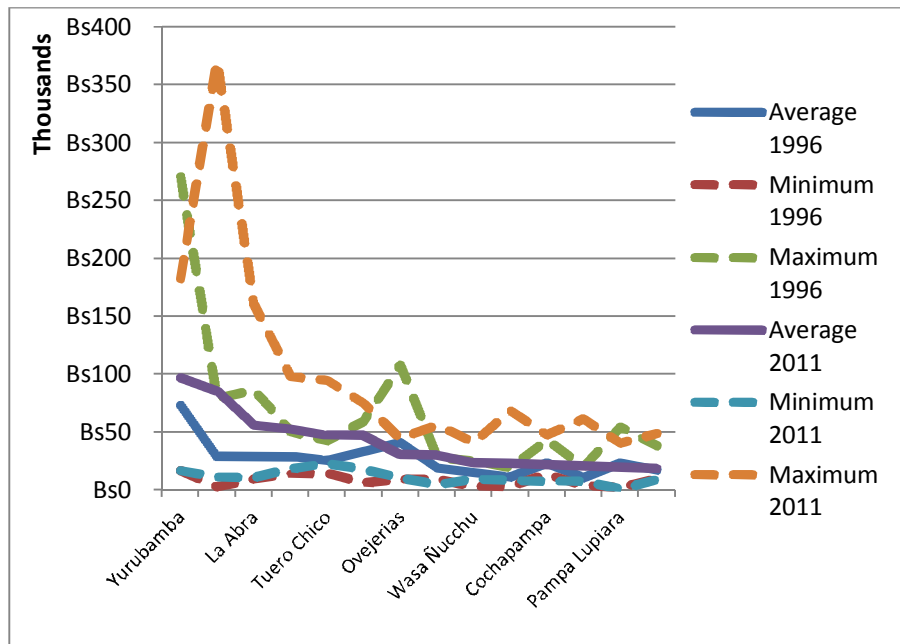
Source: PIED studies. Note: Based on 24-32 households per pathway per survey year.

For many households the main changes over the 15 years under study were obtaining access to a water source on the *patio* or close to the home and implementing roof improvements with the use of tiles instead of straw. Communities varied in their possession of ‘luxury’ consumer goods like refrigerators, televisions and radios, but levels were invariably higher in those communities that had gained earlier access to electricity.

Internal distribution of resources

While the majority of communities showed an increase in their total resource value, large differences remained in terms of the internal distribution of resources within communities (figure 3.6). The wealthiest communities (the top four on a *growth* pathway) showed the largest differences between socio-economic strata. This can partly be explained by the greater opportunities for accumulation available in communities with higher resource potential. Changes were furthermore observed in the ranking of the communities in relation to their internal differentiation in resources. Substantial ‘upward’ shifts were registered for La Cañada, La Abra, Tuero Chico and Escana – all *irrigation* pathway communities with high incidence of international migration.

Figure 3.6
Internal resource differentiation, 1996-2011



Source: PIED studies. Note: Based on 112 households in both surveys.

Overall, the difference between the richest and poorest households remained fairly constant between the two points of measurement.¹⁸ The poorest households experienced marginal changes in the resources they possessed. The richest households increased their wealth on average by Bs 33,000 (roughly US \$5,000), while the poorest came no further than Bs 2,600 (roughly US \$400). The poorest residents of 5 of the 14 communities even experienced a decline in their total resource value. These figures are evidence of the difficulties that development interventions face in reaching out to the poorest households and addressing persistent inequality.

Changes in access to public services

Beyond resources at the *household* level, this study assessed the availability of public services at the *community* level. This comparison provides a general picture of the degree of pathway differentiation or convergence with respect to access to public goods (discussed in more detail in chapters nine and ten). Table 3.5 presents data on educational levels,¹⁹ school attendance rates, access to boarding facilities and health care provision. Seven communities attained access to secondary education during the study period, of which five communities had access to education up to the *bachillerato* level (the last year of secondary school). The year of school establishment provides an indication of how long it took these communities to reach these levels. For San Juan de Orcas and Yurubamba this process went relatively fast, while for others (Escana and Pampa Lupiara) the change was more gradual. In 1975, none of the communities had access to secondary education, while in 1996 only Escana had a secondary school. Few communities had access to a boarding facility.²⁰ For health care, no comparative picture can be drawn for 1996, though Pampa Lupi-

ara and Escana had reasonably well operating health centres at that time. Most communities had access to a health centre in 2011, implying a major improvement for most.

Table 3.6 presents a valuation of public services and access to them (also expressed by the extent of settlement concentration). The valuation includes not only the provision in itself, but also an assessment of their quality and accessibility to all community members, as housing, electricity and drinking water (and latrines) were often partial in coverage. While the average value was rated at 3.4 for the *dryland* pathways, it was double, at around 6.8, for the *irrigation* pathways. This implies that the higher rates of service provision had limited impact on the distinction between *growth* and *decline* pathways, as both pathways show almost opposite tendencies in relation to population growth and public service provision.

Table 3.5
Public service provision in education and health

Pathway	Community	Year of first school	Educational level in 1996 (1-12)	Educational level in 2011 (1-12)	Change in school attendance (%), 1999-2010	Boarding facilities 2011 (distance km.)	Health care facilities in 2011 (-/+)
Dryland decline	Ovejerias Alto	1986	6	0	-56%	No	None
	Cochapampa	1990	4	5	nd	No	Health centre -
	San Juan	1991	8	8	-16%	No	Health centre +
	San Juan Orcas	1995	5	12	89%	Yes	Health centre +
Dryland growth	Talahuanca	1980	3	3	20%	Yamparáez (6)	None
	Pampa Lupiara	1954	6	12	50%	No	Health centre +
	Yurubamba	1995	7	12	nd	No	Health centre -
Irrigation decline	Tuero Chico	1981	5	4	-73%	In Anfaya	Health post -
	La Abra	1995	5	6	-50%	Yacambe (10)	Health post --
	Ovejerias RC	nd	nd	12	nd	In valley	In the valley
	Sundur Wasi	1993	5	6	-21%	No	Health post --
Irrigation growth	Quila Quila	1985	7	12	-7%	No	Hospital +/-
	Wasa Ñucchu	1983	5	5	-44%	In Anfaya	In neighbouring community
	Escana	1975	10	12	-15%	Yamparáez, (5)	Health centre +
	La Cañada*	1973	12	12	nd	Redención Pampa (2)	In town

Source: PIED studies, own elaboration. Note: * La Cañada has no school of its own, but it has easy access to educational facilities in the neighbouring town of Redención Pampa.

Several communities experienced major changes, not only in the level of service provision, but also in settlement concentration. Two communities (Talahuanca and Ovejerias Alto) even faced a deterioration in public service provision, while Pampa Lupiara and Quila Quila experienced few changes.

Table 3.6
Access to public services, 1996-2011*

<i>Pathway</i>	<i>Community</i>	<i>Drinking water</i>	<i>Housing</i>	<i>Electricity</i>	<i>Settlement concentration</i>
Dryland decline	Ovejerías Alto	0 (0)	0 (0)	0 (0)	0 (0)
	San Juan	6 (3)	4 (3)	8 (0)	6 (3)
	Cochapampa	7 (4)	5 (1)	5 (0)	6 (3)
	San Juan de Orcas	4 (1)	4 (1)	6 (0)	8 (2)
Dryland growth	Talahuanca	2 (5)	2 (2)	0 (0)	2 (1)
	Pampa Lupiara	3 (2)	2 (2)	5 (0)	4 (3)
	Yurubamba	5 (1)	4 (1)	6 (0)	8 (3)
Irrigation decline	Quila Quila	6 (4)	2 (2)	4 (0)	6 (4)
	Sundur Wasi	6 (2)	4 (2)	4 (0)	6 (3)
	Ovejerías RC	8 (nd)	8 (nd)	9 (nd)	8 (8)
	La Abra	8 (6)	10 (6)	8 (0)	10 (3)
	Tuero Chico	8 (9)	10 (6)	10 (8)	9 (6)
Irrigation growth	La Cañada	4 (2)	7 (4)	6 (0)	6 (3)
	Wasa Ñucchu	4 (4)	8 (7)	8 (7)	8 (8)
	Escana	9 (5)	8 (9)	9 (0)	10 (8)

Source: PIED studies, own elaboration. Note: * Values in parentheses are valuations for 1996.

Patterns of change

In addition to the classification in development outcomes and structural factors, pathways can be described in terms of the process of change itself. As illustrated by the short history of Tuero Chico referred to earlier in this chapter (section 3.1), change processes can be rather complex and even imply territorial and identity changes over longer periods of time. Such change processes will be reflected in many of the indicators mentioned above, such as population developments, rates of temporary or permanent migration and settlement concentration. Nonetheless, additional events may occur – like a major drought, hyperinflation and changes in central government policies – that affect all communities, but to different degrees. Irrigation communities suffered far less from severe drought than most of the dryland communities.

External shocks might dislodge communities from an existing trend, or conversely lead to *lock-in*, and strong internal agency might have similarly substantial consequences, as pressing for change may in fact lead to *path creation*. Some external factors, like ‘minor’ natural disasters (flooding, frost or recurrent crop diseases), changes in labour opportunities in the region, fluctuations in the prices of certain crops and the presence of particular external organizations, may impact some communities and not others. In addition, processes such as the splitting up or joining together of communities may dramatically impact community pathways. These changes, however, are difficult to capture in comparable indicators and require detailed analysis in relation to the different domains and main pathways. The following chapters present such analyses. Appendix 11.1 provides a summary overview and assessment of the main trends for each pathway and community.

3.7 Conclusions

The summary pathway classification elaborated in this chapter relates in particular to demographic changes and major production systems. The more detailed classification scheme includes migration patterns, changes in resource values at the household level and access to public services. Consideration of these factors enables us to make a clear differentiation between the communities under study. Among these communities, certain levels of convergence as well as increasing internal differentiation were found, for instance, between those with access to primary and secondary education and those without.

The preliminary results indicate an overall decline in household size between 1996 and 2011 across all research communities, while the changes in the population pyramid indicate high rates of outmigration of younger households. Temporary migration remained high almost everywhere, but declined in the *dryland* pathway, while increasing most among the *irrigation* pathway communities. Migrants from the first group tend to go to urban centres within the country, while those from the latter group tend to depart for destinations abroad. As the following chapters will show, this is largely explained by differences in agricultural calendars as well as the higher monetary income derived from agricultural production under irrigation. Communities on the *irrigation* pathway, particularly those in the *irrigation growth* pathway, also experienced the strongest increase in value of household resources. The 'richest' communities in terms of household resources were all *growth* pathway communities, reflecting their higher potential and also greater opportunities for accumulation, though they also exhibited higher levels of socio-economic differentiation within communities. The poorest households in practically all communities remained almost as poor in terms of resources as they were 15 years earlier. Higher levels of service provision had very little impact on population retention, and may surprisingly even have led to increased outmigration. *Irrigation* pathway communities benefited substantially more from higher levels of service delivery. Finally, a number of communities that at first appeared to be doing reasonably well, were still struggling to retain their population, while a community that was practically at the bottom of our list in relation to all of the main criteria (Talahuanca) managed to retain a relatively stable population.

The following two chapters review in more detail the institutions and forms of agency driving changes at the community level and the main changes in the external environment, in particular related to the differentiation and changing presence of both governmental and non-governmental development organizations. Chapter six and further relate pathway development, differentiation, and community responses to access to land, productive circumstances, education and other services.

Notes

¹ One of the more remote communities not included among these 14 was also briefly visited, in order to obtain an impression of changes, while archival data was collected for the other two communities. Various chapters refer back to our findings in these three communities (Llavisá, Pampa Yampara and Sijcha).

² This happened, for instance, in Ovejeras (see section 1.1).

³ In the earlier years (1990-1994) I worked for the Communication Assistance Foundation with NGOs involved in radio communication in the region. Among the NGOs included in this study only ACLO was involved in one of those programmes. During my stay at the embassy in La Paz between 2005 and 2008, I vis-

ited Sucre regularly (about twice a year), but in relation to the projects and programmes discussed in this study I was only directly involved in the financing of the National Watershed Programme (PNC) discussed in chapter eight, of which the Rio Chico programme formed an important element in the initial years. That programme was entirely designed and managed by the national and regional government and local municipalities involved.

⁴ Nonetheless, with hindsight, and based also upon our 2011 review, we can conclude that three of the communities that were ranked as having a favourable external context in 1996 should probably have been classified differently. Both San Juan de Orcas, Quila Quila and La Abra suffered from continuous interruption in road access to major cities due to major rivers, the absence of bridges and generally bad road conditions.

⁵ The distinction between primary and secondary education is of course also a reflection of size (and sometimes other factors such as political weight).

⁶ Secondary education also largely coincides with additional services, such as boarding facilities and (higher level) health centres. Six of the seven communities with secondary education have a health post or even a hospital in the community, while this is the case for only two of the other communities.

⁷ Bolivia experienced very low population growth of only 0.5% in the second half of the 19th century. With gradually improving sanitary conditions and vaccination campaigns, the rate increased to about 1.1% over the first half of the 20th century (Pearce 2011).

⁸ Sources: Community leaders, health centres, census data for 1992 and 2001.

⁹ Community sources and estimates indicate that San Juan had a population of around 1,000 in 1983, 720 in 1996 and only 289 in 2011. The community lost population over time, partly as a consequence of external shocks. This happened both after 1983 as well as in 1987. In 1983 roughly 50 families left the community to colonize new areas in the province of Hernando Siles. While most of them returned after two years, because they didn't find sufficient conditions to build up a living, this initial action signalled the start of a constant migratory outflow. In 1987, as a consequence of a conflict regarding the construction of a new church, 30 families separated from the community and established a new community of their own, Uru San Juan. In 1996, another 15 families left the community, due to adverse production conditions.

¹⁰ Talahuanca experienced migration outflows after the droughts of 1983 and 1998 and in 2011, when land titling took place and 8-10 young families with limited perspectives left the community.

¹¹ We have no figures for the 'new' community of Ovejerias Rio, as the population of Ovejerias Alto is in fact distributed among eight different communities in the valley.

¹² Some respondents suggested that permanent migrants might have returned to their villages of origin for the population census of 2002, due to pressure from the municipality (fearing a loss in funding otherwise). The overall figures do not seem to confirm this, as only Quila Quila and Talahuanca show a temporary rise in population in 2002. For Quila Quila the pressure to gain direct access to municipal funding (see chapter six) might have been a reason to maximize population presence during the census.

¹³ This largely coincides with national data. Due to the increasing survival rates, birth rates started to decline in the late 1970s, and recently reached 3.7 children per fertile women. Infant mortality declined from about 547 deaths per 100,000 live births in 1980 to less than 180 in 2008 (Pearce 2011).

¹⁴ Total time expenditure does not necessarily reflect productivity, especially for the younger age groups.

¹⁵ These figures exclude other forestry resources that might be accessible at the community level, for example, firewood that can be collected. Valuation of such resources is quite complex.

¹⁶ Such assessment is to some extent arbitrary, as it is difficult to define the incremental value of improved access to electricity, the establishment of new or adapted drinking water systems and the value of kitchen stoves or improved housing for individual households.

¹⁷ This was not without reason, as the community experienced destruction of infrastructure due to severe flooding.

¹⁸ The outcome of the survey confirmed the internal differentiation that community members themselves had indicated in terms of access to land and other resources.

¹⁹ Educational levels start from first class of primary school (1) up to finishing secondary school (*bachillerato* = 12).

²⁰ Although this may be of limited relevance for those living within the community, establishment of a boarding centre guarantees more sustained school participation from neighbouring communities and indirectly the long-term sustainability of the school itself.



Tuero Chico, preparing the land with the yunta in the higher areas (1996); Source: PIED Andino, Miriam Vargas.



Tuero Chico, the concentrated settlement along the Pilcomayo river (1996) Source: PIED Andino, Miriam Vargas.

4

Community institutions and agency

4.1 Introduction

Community institutions define and influence norms, rights and access to resources within and between communities. Cultural norms, local practices, institutional arrangements and other ‘rules of the game’ are nested in community life. They underlie interactions with external actors and forms of collective action, and therefore structure community development pathways. This chapter discusses the dynamics of the main institutions at the community level, the main organizations responsible for those institutions and for defining them, and how these translate into community practices. Finally it examines factors that affect the operability and effectiveness of community institutions and agency over time, reflecting various levels of path dependence and differentiated outcomes and impacts on pathways.

Much of the literature on community institutions in the Andean region (Boelens 2008; Kristjanson *et al.* 2007; Kessler 2006; Rist 2006) and elsewhere (Ostrom 2000; Agrawal & Gibson 1999) emphasizes institutions related to natural resources or common pool resources (predominantly land, water and forestry). Within a community, the joint sharing of natural resources obliges community members to constantly define and redefine rules to maintain or improve levels of well-being. Collective rules regarding access to land, water and other natural resources help to reduce tensions and address conflicts in an orderly manner. Rules are needed not only for internal fine-tuning, but also to cope with externalities, like natural disasters and external pressure on community resources. Over time, conditions may change and rules may need to be adapted. In the communities under study, historical and more recent globalization pressures led to changes in the role of community institutions, sometimes strengthening, but often also undermining them. This chapter examines in more detail common mechanisms for decision-making and collective action and the organizations involved in their implementation, but first the case of Quila Quila is presented to illustrate the continuing impact of historical developments on community institutions. The research question addressed in this chapter is as follows:

How are institutions or ‘rules of the game’ defined, what are the main organizations involved in decision-making and implementation, and what are the implications for (initial) pathway differentiation?

4.2 Quila Quila: a story of changing identities and institutions

Most of the communities under study were established directly after the land reform of 1952-1953, which marked the beginning of a period of transition from working in *servitude* on the hacienda to establishment of autonomous communities. For the *ayllu* communities or so-called *comun-*

idades originarias, the transition process was completely different, however, even though they were also affected by the Spanish occupation and the presence of haciendas in the region. In Quila Quila those processes came together and continue to influence developments today.

Quila Quila is a community of extraordinary diversity and cultural heritage.¹ Close to Sucre, but hidden by the magnificent Obispo mountain, the community is home to ancient rock paintings, dinosaur skeletons and smaller archaeological findings such as stone axes, spearheads, terraces and pottery, as well as several hot springs along the Cachimayo river and an overall rather attractive landscape. Overlooking the old nucleated centre of the community is a historical cathedral, established in 1612 by the Spanish conqueror and viceroy Toledo in an attempt to concentrate the population into one of the so-called *reducciones* (a mission town established by the Spanish). The community even has its own museum.

Quila Quila is in fact a grouping of several communities having features of the historical roots of the *ayllu* while also retaining influences from the presence of the hacienda in the region. These communities suffered under constant pressure from the Sucre elite, who sought to gain access to land occupied by *comunidades originarias*. This process is analysed in detail by Langer (1987) and by Klemola (1997), an anthropologist studying the 'reproduction of community practices' in the years just before and parallel to our first fieldwork period in 1995-1996. Indeed, Quila Quila is illustrative of the complexities of community and identity formation, of representation and of decision-making processes involving a group of communities in a more extended region (currently defined as a canton). Its boundaries extend beyond the natural boundaries of the valley, implying a mix between 'original' *ayllu* communities and a group of communities of *forasteros* (residents who are not *originarios* and have no access to hereditary land), another reflection of colonial institutions.

Klemola (*ibid.*) identifies four organizational levels in his analysis of Quila Quila (or Kila Kila):² the *mink'a* (at the level *ranchos* or hamlets, often kinship-based relations), the *minor ayllu* (community level), the *major ayllu* (the three core and main *ayllus* together, i.e., Tajchi, Picachulo and Lecopaya) and the level of the *canton* (also including four other communities, and in the past an even larger group). Before the land reform, and certainly in the period until the end of the 19th century, the presence of the *ayllu* structure was the predominant feature in the region, with the three main *ayllu* communities and their leadership taking most of the decisions for all of the communities involved, under the 'absolute' leadership of the *kuraka* (at that time still a hereditary function).

According to Pilar Lima Torrez (cited in Alconini 2008), before the Spanish conquest the Inca imperium probably managed to gain indirect and delegated control of the area in around 1470, by establishing an agreement with *Yampara* leaders over control of this territory. The *Yampara*, an ethnic group that is still dominant in the surroundings of Tarabuco, indeed established the eastern capital of its empire in Quila Quila. The Inca reign was short-lived, however, as the colonial powers entered the region after 1540 (*ibid.*). The Spanish *conquistadores* again established a historical 'alliance' with *Yampara* leader Francisco Aymoro at the end of the century, reaching a similar situation of indirect rule (Barragán Romano 1994). Already before 1575, Quila Quila had been paying tribute to the colonial state. In 1580, Toledo attempted to establish a *reducción*, but the effort remained without much success. It proved arduous to bring all of the 27 villages together in the nucleated centre of Quila Quila around the main cathedral. Nonetheless, the remnants of a small concentrated settlement are still visible and also still partly occupied.³ In order to remain in

charge under Spanish colonial domination, the *kuraka* had to play an intermediary role in collecting taxes (*tributo*) from his own *tributarios*.⁴ Barragán Romano (1994) cites data from archival sources regarding the ‘tributary’ population of Quila Quila in 1595. The three main *ayllus*⁵ were already registered at that time with a tax-paying population of 161 for Tajchi, 93 for Picachulo and 171 for Lecopaya, giving a total population of roughly 440 for the three *ayllus* together. In 1877, the tribute list showed only 120 *originarios* and 77 *forasteros*, distributed among five *ayllus* (Langer 1989), indicating a substantial decline in population. Nonetheless, although we know that over the past four centuries this area suffered occupation and oppression, forced resettlement, prolonged drought and epidemics, the population figures – and even the distribution of residents between communities – is very similar to the current figure of around 1,100 for the three communities together. According to Klemola (1997: 66), the Spanish occupation “had a territorial, economic and symbolic impact on native societies”. This translated into the imposition of economic rules, taxes, Christian symbolism and recurrent land and labour claims (*mita*). The Spanish conquest spread the use of Quechua as the ‘official language’ in the region. Before the conquest, the region’s population was probably Aymara, as Aymara was spoken there until recently (Pilar Lima Torrez, cited in Alconini 2008).

Successive *kurakas* continued to be responsible for the collection of tribute until 1952. After the land reform, here, like almost everywhere else, *sindicatos* were introduced in parallel to the *ayllu* structure, basically assimilating the function of external representation, but not really affecting the existing processes of internal decision-making. The position of *kuraka* was abolished in 1960, as it had lost much of its influence by that time, with the *sindicato* representatives gradually gaining strength.

Our research in the PIED-Andino project (1995-1996) was concentrated mainly on the organizational structure of the three principal *ayllu* communities in Quila Quila and the parallel *sindicato* structure. For the main *cargos* (community functions) we found at least 16 different people involved, most of them under the *sindicato* structure (with a *secretario general*, *secretario de actas* and *secretario de relaciones*⁶ for each of the three communities), but already including the new (elected) *kuraka* and *kuraka mayor* chosen among the population of the three main *ayllus*. In addition, Quila Quila had an *alcalde* (a kind of internally nominated police) and a *corregidor*, the latter function being formally nominated by the regional government (at least until 1995). In addition, the community counted a number of committees (e.g., related to irrigation, housing, drinking water and tourism) and various representatives of the parent-teacher association, a cooperative oriented towards the commercialization of salt and an association for mineral production (limestone in particular). This bewildering list of authorities and functions may give the impression of a rather complex organizational structure. In practice, however, all of the main decisions were essentially made during community assemblies.

In 1995, the Quila Quila communities decided to revive the *Centralia de Ayllus Originarios of Quila Quila* and to demand recognition as an ‘indigenous district’. Their main objective in doing this was to obtain direct access to municipal funding under the recently promulgated *Law on Popular Participation*.⁷ The function of *kuraka* was reinstated, but this time was to be chosen by direct election and rotated, in principle, every two years. The existing 13 individual representatives at the level of the involved communities were returned under the leadership of the *kuraka* and a *segundo* (*deputy*), to increase the level of unity and efficiency in decision-making (Klemola 1997). Klemola (*ibid.*) is of particular relevance to the current pathway analysis in Quila Quila and in some of the

other communities under study as well, not only because of its very detailed review of community-level decision-making processes, but also due to the possible impact that this researcher's presence and findings may have had on the 'reinvention' of community identity and subsequently on more recent community developments, ending in internal conflict and prolonged stalemate, as we will read in chapter six.

4.3 Community and community institutions

Under the influence of internal dynamics and external pressure Quila Quila went through many different phases and conceptualizations of its internal organization and external identity. The community's sphere of influence and domination over territory and other resources were affected by various forces, from the establishment of the original *ayllu*, through to various forms of direct and indirect control, the imposition of *reducciones*, the process of land 'confiscation', changes in population and productive potential, and the more recent interaction with the parallel *sindicato* structure. Although we have no hard historical evidence, Klemola (1997) confirms a certain level of continuity in institutions and decision-making processes, principally under the umbrella of the community assembly. From a path dependency perspective, the long-term institutional changes, for instance, related to organizational hierarchy, identity and territory reflect the difficulty of defining 'initial conditions' and the subsequent range of endogenous and exogenous events or shocks affecting the future development of Quila Quila as a community.

For most of the other communities, their roots of origin and the formation of community institutions are more recent, but in some cases they also experienced several transformations in a relatively short period of time. Before turning to these processes in more detail, we return to the concepts of community and community formation.

The description by Albó (1985) with reference to the Aymara culture provides a good overview of the main elements of community. Thus, a community

- shares the same territory with collectively defined borders and often pastoral areas;
- shares the same services, like a school, health post, church, cemetery and soccer field and defines collective services and maintenance;
- strives for collective decision-making on numerous issues and therefore maintains authorities, norms and principles;
- provides a joint sense of identity reflected in common festivities and rituals related to the agricultural calendar and life cycle (*ibid.*).

This description indeed covers the main aspects of rural communities in the Altiplano and Andean valleys and is appropriate for the analysis of practically all of the communities included in our survey. Elements that are missing from the description are the more dynamic aspects of community formation, including the splitting up of communities or the joining together of formerly disparate communities⁸ and the possible organizational complexity at different levels. These sometimes rather unexpected dynamics and complex forms of interaction may result in internal tensions and conflicts and in some cases may complicate external actors' understanding of the dynamics of community representation and decision-making.

The analysis of the 'community' of Quila Quila highlights some of the complications: the three main *ayllus* in the community and their authorities have more influence than the adjacent

communities which form part of the same territory. Some of the main services are concentrated in the central (*ayllu*) area, and the broader organizational structure operates through a system of parallel authorities, originally under the leadership of the *ayllu* structure, but currently increasingly leading to separatism and internal conflict and to expressions of distinct identities, not only between communities, but even within communities and within households.

The case of Ovejerias, discussed in the introduction of the previous chapter (section 3.1), is another interesting example of a community that originally exhibited more or less the main elements of Albó (1985). Now, however, it has been transformed into a virtual network. Ovejerias is today an informal but still active (monthly) gathering of families living in eight different communities in the Rio Chico valley. They no longer share a common territory (except for their abandoned homelands of Ovejerias) or public services, and they no longer have any formalized collective decision-making, but they still share a sense of joint identity because of their origins in Ovejerias and reflected in their continuing claims to the territory in the highlands.

The community assembly: the decision-making process and establishing the ‘rules of the game’

In his PhD dissertation about Quila Quila, Klemola (1997) examines internal processes using an anthropological perspective, concentrating on the dimension of social power in decision-making and the importance of social practices in the reproduction of community. Although the link with the *ayllu* structure and its mixing with the parallel *sindicatos* led to a more complex picture here than for most of the other communities, the essential elements are much the same for all of the communities surveyed. They are also in line with the in-depth case studies by Albó (1985) and Carter and Mamani (1982) on the Aymara culture and individual communities.

The community assembly is the main forum for decision-making in all of the communities under study, both *sindicato* and *ayllu*. The main objective of these generally monthly meetings is to reach consensual decisions regarding the community agenda and collective labour efforts. The rules and routines of these meetings are oriented more towards providing equal space to the different segments of participants than to individual members as such. Although the decision-making process is in principle open, democratic and more or less transparent, the internal rules of interaction clearly limit the space for ‘lone operators’. For outsiders, community meetings may appear rather disorganized (they always start late and invariably take place in cramped school rooms, small community centres or under a tree, often full of noise – moving chairs and crying babies – and generally poorly illuminated, if lit at all). The meetings, however, follow rather specific routines, including the systematic registration of participation, the making up of *actas* (minutes), a clear hierarchy in speaking order and even a more or less defined seating pattern.

The main authorities are generally located behind a small table, seated on a bench or simple chairs, often equipped with some minimal symbolic representation (either in clothing or in attributes). Men and women are generally seated separately, but at the same time often grouped together by individual *ranchos* (hamlets), or extended family networks (in the case of Quila Quila’s *mink’a* groups). Community meetings are generally long (8-12 hours being no exception) and burdensome for participants. Chewing coca leaves (and at a later stage sometimes consuming alcohol, although often formally prohibited) helps to keep modicum of momentum and attention, but meetings often end in rather cumbersome and repetitious procedures and discussions, in which around half of the participants remain silent. “One can’t sleep, talk as one wishes, move

freely around, sit where ever one wants, interfere in the discussion in an unordered fashion, or even go to relieve oneself without permission” (Klemola 1997: 238).

Another element of community meetings thoroughly reviewed by Klemola (*ibid.*) is the use of discourse. Discourse is intended to underline the importance of unity, to make proposed actions more explicit, and to make decisions subject to community control. Discourse is also important to motivate both leaders and members of the community to embark upon collective action or collective work and/or to sanction undesired behaviour. Klemola (*ibid.*) suggests that specific elements of discourse may help to align community members or to achieve obedience if needed. The public scolding of outliers as *k'ullu* (tree trunks) or being ‘as stubborn as a mule’ are often effective means of sanctioning inappropriate behaviour.⁹ The ‘Western’ logic of striving for quick decision-making and refraining from repeating remarks previously made is sometimes completely inverted: community discourse is a way to share and to consensuate opinions, to accumulate social knowledge and also to allow for participation of all segments of a community, even if this implies constant repetition or reframing of arguments.¹⁰ Establishing ties, building trust and working towards common perceptions and a unified discourse are indeed important elements of community life. In fact, the absence or gradual erosion of these characteristics may lead to internal conflict or even a complete internal fissure, as eventually happened in Quila Quila.

The community assembly decides on all major issues affecting community life. This includes participation in collective work, workshops and events, delegation of labour among community members or the different segments of a community, different forms of contributions, payments of quotas or fines, as well as who should attend meetings and other obligations that community members must fulfil. The community assembly decides upon possible participation in projects and the positioning of the community in relation to political developments, including ‘instructions’ received from the national farmer federation (CSUTCB) or from the *Council of Ayllus and Markas of Qullasuyu* (CONAMAQ), or invitations received from third parties. Even issues such as voting in elections may be discussed during community assemblies.¹¹

Community meetings are in principle also used to define who will participate in different committees and in the parent-teacher association (JAE) and to propose candidates for functions both within or outside the community. While both the JAE and the ‘mothers clubs’ are a remarkably consistent phenomenon in most of the communities studied, many of the ‘parallel’ committees have a rather more focused objective and shorter ‘life cycle’, as their dynamics often depend on (continued) external support. Nonetheless, these entities certainly depend to a large extent on decisions taken within the community assembly. Some farmer associations and cooperatives are similar in this respect to these parallel committees. However, in a few cases those organizations have proven more sustainable, extending their mandate beyond individual communities and practically overriding community institutions such as the *sindicato* or *ayllu* in their decision-making process, as will be explored later.

The community assembly is the principle forum for defining collective rules. Those rules are important in many areas of community life, especially agriculture. The constant interaction and interdependence between agriculture and livestock, the introduction of new technologies and the appropriate use of water all require basic agreement regarding agricultural practices. In the Andean valleys, agricultural production and livestock management often take place within the same production zone and are mutually dependent. Clear agreements are required in such a context, and *free-rider* behaviour has to be minimized. This is perhaps even more true in the case of the

communities with irrigation, where wandering cattle could damage infrastructure and high-value crops. Conflicts may arise due to inappropriate use of water or forestry resources, like firewood, to cattle grazing outside the agreed-upon areas and to land access claims. Rule-setting in such cases is often more complicated than decision-making in the general assembly, and may be the outcome of continuing negotiations over a rather prolonged period of time, eventually leading to adjustments in definitions of use and access rights.

Decision-making processes vary between *ayllu* and *sindicato* communities and between larger, more dispersed and smaller, more concentrated communities. But this general picture and, in particular, the role of the community assembly is applicable for all communities surveyed.

Collective action

The community assembly decides upon a wide range of collective action efforts (in some cases an nice euphemism for ‘collective work’). Collective action can be undertaken at the level of *ranchos*, the *sindicato* or *ayllu*, or even higher, involving several communities or even several *subcentralias* together. Collective action can also be initiated or organized in smaller groups of extended families or between neighbours, within the context of economic organizations, or in any of the committees, ‘mothers clubs’, or the parent-teacher association. Even individuals or small businesses can play a role in preparing, stimulating or driving collective action. The main emphasis of the current analysis is on the group and community level, but in both cases individual agency and relations with other communities are often key. For individual groups and producer organizations, or for communities as a whole, it is important that they share a common interest or at least a sense of common identity. Collective actions often work along the lines of joint labour or reciprocal exchange (e.g., *ayni*, *mink’a* or *faena*) and involve a wide range of rituals and traditions (Mayer 2004; De Morrée 2002).

One of the main purposes of collective action is to gain, improve or guarantee continued access to common pool resources and public goods. After the land reform, communities worked to expand or improve their access to land, land titles, irrigation and production infrastructure, as well as to guarantee or improve road access, availability of some level and quality of education, health care services and drinking water. Topics of collective action in recent years have been the provision of electricity and mobile communications infrastructure. Collective action is also required to improve or gain access to intangible assets. These may relate to community positioning and status, information, knowledge, capabilities, social or exchange networks, legal or financial systems, and influence in external matters (e.g., elections and political demands). While some of these initiatives were taken forward by the community itself (e.g., clearance of new areas for cultivation, road maintenance and building a first rudimentary school), in other cases external parties or organizations triggered or responded to local demands.

Following Ostrom and Ahn (2001), we can classify collective action at three levels: operational, collective choice and constitutional reform. Much collective action takes an operational form, involving direct labour to build public infrastructure or to guarantee access to natural resources. In other cases, communities need to define at what level and with whom they get involved, and what rules and norms will apply to the decision making process (collective choice) and the use of the resources concerned. The ‘rules of the game’ (Boelens 2008) may be defined for a certain area, but may subsequently change in the course of interactions with other involved groups. Relations of power and social capital become important at this more abstract level of rule-making. The

constitutional level considers the basic organizational mandate of a community (here a *sindicato* or *ayllu*) to represent community members internally and in relation to external partners. Although ‘constitutions’ are typically conceived as remaining active over a long time horizon, external community representation, and therefore the internal mandate of the community, has been subject to frequent change in our study communities over the past decades, especially as a consequence of *faccionalismo* (splitting up), as we will see below.

The variety of collective action efforts is enormous: frequent meetings in different fora both within and outside of the community, cumbersome processes of decision-making, co-participation in the building of public or productive infrastructure (contributing either in labour, in-kind or in cash), operations and maintenance, demands for services, building (or even relocating) cemeteries, protecting cultivated areas from cattle incursions, protecting forestry areas from robbery, defining rights and access to irrigation water, organization and participation in rituals and festivities, advocating for joint response in cases of emergencies and – in a few cases – organization of joint migratory efforts. Joint decisions are also made to choose community representatives and even which political party to vote for in elections. Communities may decide jointly to participate in protests, blockades or the occupation of government offices, or – in a few cases – get lost in seemingly endless internal conflicts. The following chapters elaborate further on the intensity, continuity and balance between different forms of agency and collective action in selected domains. Although a substantial share of the traceable collective action efforts were related to activities that also involved external parties, communities have often taken the lead themselves, or operated without external contributions.

Collective action efforts abound in the history of rural communities. Cycles of community involvement may fluctuate considerably in time and space, depending on the specific area of focus and the resources available. The building up of a dedicated infrastructure can be a ‘one-off’ event, but more often than not it is a longer term undertaking, requiring regular maintenance, extension, upgrading and even complete reconstruction. Collective activities in agriculture and livestock often follow the annual agricultural cycle, for instance, crop rotation schemes or the closing or opening of agricultural fields for the entry of cattle. Most household-level collective efforts are defined or contextualized by the agricultural cycle as well, though also by intermittent or ongoing migration projects. At the same time, many meetings, such as parent-teacher association meetings and gatherings to elect authorities, follow a more or less fixed schedule. These calendars and cycles together broadly define the regular pattern of collective action efforts at the community level. The perception of time in relation to the agricultural calendar, *ritos* (ritual practices, including ancestral celebrations) and nominations of leaders is not linear, but essentially cyclical, or even circular, to take a perspective related to the Andean (or Aymara) worldview or *cosmovision* (Van Kessel 1989; Van den Berg 1989; Van den Berg & Canqui 1992). Different perceptions of ‘time’ and ‘timing’ between communities and external stakeholders are just one element of differences in logics, not infrequently resulting in ‘disembedded’ solutions.

In practice, many actions are defined at short notice, either in response to a sudden event or emergency or in train with actions by neighbouring communities or external institutions or claims from individuals. Timing of collective action initiatives is therefore crucial, though this aspect receives little attention in the literature. Willingness and ability to participate in collective action is rather differentiated at the household level, and is often (temporarily) constrained by limits in access to resources, whether it be labour, land, equipment or other.

The conditions facilitating or constraining collective action efforts vary considerably between communities. This relates again to access to both productive and public resources, demographic composition and migration trends – and the resulting availability and composition of labour – as well as to factors such as accessibility, market orientation and broader external orientation and ‘political’ positioning. An important factor influencing the dynamics surrounding provision of public services is the extent of settlement concentration or dispersion. Collective action may require a certain degree of settlement concentration, in turn driving a process of rural ‘urbanization’. Interactions with neighbouring communities or towns, and even communities in other agro-ecological zones or peri-urban neighbourhoods, may influence communities’ possibilities and willingness to embark upon joint collective action efforts.

According to Boelens *et al.* (1998), most effective collective action is based on principles of equity and benefit. Equity relates to ‘fairness’ both in terms of rights and obligations and in taking on the burden or benefit of certain actions. It is linked to rule-making processes (*ibid.*). Equity plays a role in defining degrees and modalities of participation at different stages of collective action efforts and in understanding consequences in terms of access rights and (long-term) implementation and operation. Almost all communities face difficulties in motivating members for collective action, in dealing with free-rider behaviour and in effectively implementing norms and sanctions when applicable.

Consensual decision-making and effective implementation and follow-up, require a level of trust, or at least a sense of being part of a common agenda. For the larger, more dispersed and more heterogeneous communities, this may certainly be a challenge. This is evident in recurrent conflicts (such as those in Quila Quila, described in chapter six) and the ease with which differences in access or priorities lead to the splitting up of communities. Lessons learnt and experiences gained at different levels both within a community and in relation to other communities or external organizations may create precedents for different ways of responding to certain proposals or incentives. The building up of trust within a community is often predicated on shared experiences in small groups, extended family networks or *compadrazgo* relations (Godfather or ritual co-parenthood). The organization and preparation of three-day marriage festivities in Pampa Lupiara illustrates this (Pórceel *et al.* 2002), as do similar practices in Quila Quila (Klemola 1997).

The multiple forms of collective action are an important driver of community change, but the intensity and effectiveness of collective action is dependent on a range of other factors, and to a large extent bounded by existing organizational dynamics. According to Alonso (2005: 66), “religion, colonial and legal heritages and social norms, undoubtedly affect the path of institutional development”. In the Andean region these colonial and legal heritages include elements such as land concentration, forced labour and taxes, as well as the distinction between *ayllu* and *sindicato* communities, with their rather different histories of origin and relations with the hacienda.

4.4 Community organizations: *sindicatos* and *ayllus*

Sindicatos

Sindicatos were promoted after the land reform of 1952-1953 as the main entity to receive land from the hacienda. The *sindicato* was established as the basic unit in a national pyramidal structure coming together in the national farmer federation (CSUTCB). As such, the community organization became almost automatically a part of nationally organized political struggles. At the higher

levels, these political federations could easily be co-opted by the state or political parties (Carroll & Bebbington 2000). This was in fact the intention of the MNR, the governing and dominant national political party at the time of the land reform. Although the *sindicato* structure was initially intended only for ex-hacienda communities, it also quickly became the principle organizational structure for so-called *comunidades originarias*, which had no direct link to the hacienda regime. In most communities, practically all families are a member of the *sindicato*. However, young families, without as yet access to land, are either not yet allowed to join or choose not to become affiliated immediately. In a few cases, households may have a separate status in the community (e.g., as *forasteros, residentes*¹²) or prefer not to be affiliated, for instance, if they have another residence elsewhere.

Sindicatos have become broadly supportive of the MAS party and current president Evo Morales. According to Bebbington (2010: 29), the MAS has its roots in the producer organization, having “emerged out of social movement processes (especially among coca producers and the more historic syndicalist highland peasant movements)”. Historically, *sindicatos* long remained under formal government ‘tuition’. During the first military government of General Banzer Suarez, an *estatuto campesino* was established by law (DS 12314) in March 1975, indicating that the state, through the Ministry of Agriculture and Farmer Affairs (MACA) would exercise tuition with regard to farmer organizations, that those organizations should consist of at least 20 farmers, that 5 or more together may establish a *subcentralia*, and that three or more *subcentralia* could form a provincial federation. Membership of those organizations required at least two years of residence in the community and fulfilment of military service, while excluding membership of a ‘board’ (*directorio*) of any political party. Members had to actively support the army, the *National Service of the Development of Communities* (SNDC, see also chapter five) and other institutions occupied in social work in rural areas. Finally, they had to defend the principles of the *Pacto Campesino Militar*.¹³ Although today most of those conditions are no longer valid, interactions remain similar and – at least under the current government – voting for the dominant political party has become the rule rather than the exception.

The *sindicato* is the most important organization in 12 of the 14 communities under study. The *sindicato* fulfils several important roles in those communities. The first one is to provide a sense of common belonging and ownership of the land, as expressed in the collective definition of boundaries in relation to other communities. The second role is representation of the community in external fora. The third role is related to the internal organization of the community, as the *sindicato* is responsible for appointing authorities, division of tasks, conflict resolution and the mobilization of community members for collective action and maintenance works. Membership of the *sindicato* requires fulfilment of community obligations. In some cases, people living in the community remain excluded from membership, either because they don’t have access to land or on a voluntary basis. Community members with access to land in multiple communities must become affiliates of all the *sindicatos* involved.

The basic structure of the *sindicato* includes a secretary-general, a secretary for external relations and reporting, a delegate for the women’s organization and a number of ‘vocals’. These so-called vocals are often nominated to represent individual *ranchos* within the community, and to inform them of upcoming community meetings and relevant outcomes. A typical *sindicato* may have between 9 and 15 functions (*carteras*). Many communities have an *alcalde*, who is responsible for ritual events but often also acts as ‘community arbiter’. Some functions, like the *alcalde*, are

burdensome both in time and in resources (from the function-holder's perspective) and are, for lack of candidates or interest in the continuation of certain rituals, being abolished in some communities (De Morrée 2002). Most *sindicatos* meet on a monthly basis or when required. Some communities set a fixed date for their community meeting or *general assembly* (e.g., the 6th or 30th of each month). This assembly, as noted earlier, is the most important decision-making forum in the community. The assembly is often preceded by a meeting of the community leaders, who indeed also gather between meetings for urgent issues.

Most communities have a more or less defined system of rotation of the main organizational functions, which allows for a change of authorities every year or two. In principle, all community members are expected to fulfil functions in the *sindicato* and gradually gain experience. This used to imply that the elders of the village would fulfil the more important functions, but this practice is currently under pressure.

Requirements to become a member of the *sindicato* varied slightly between communities, but there were some common principles: having access to land (with the exception of La Cañada), an identity card, payment of a small to medium initial contribution (e.g., Bs 15 in Talahuanca, but this fee was as high as Bs 1,000 in communities like Tuero Chico), availability to fulfil functions in the *sindicato*, participation in community activities and obeying *sindicato* rules. Some communities had even defined a minimum size of land ownership as a requirement for membership (e.g., in Tuero Chico, the minimum was 1,000 m² of irrigated land). Few communities had formal, written statutes, although '*libros de actas*'¹⁴ may fulfil that role. Only a few communities, like Tuero Chico, had formal statutes, in this case formulated with external support.

The *sindicato* in principal supervises other organizational structures within the community. This is, for instance, the case for its relations with the parent-teacher associations (JAEs), the 'mothers clubs', and most of the committees established in the community. The economic or producer associations, political parties and religious organizations were generally not subordinate to the *sindicato* or *ayllu* structure. The dynamics between the cooperative structures in, for example, Pampa Lupiara, La Cañada and Wasa Ñucchu are examples where the relation with the *sindicato* has not been very fluent. This may be due to the fact that those organizations sometimes had a supra-communal mandate.

The *sindicato* has become the principal window of interaction with external actors in most communities. Even in the two *ayllu* communities, external authorities often favoured direct dealings with the *sindicato* structure, perceiving it to be the external representation of those communities. The *sindicato* works relatively well as a filter and overall coordination mechanism and in defending the integrity of the community. Communities may indeed become rather suspicious if external parties deal directly with individual members. When community leaders are not 'readily' available, external parties may, however, tend to bypass community institutions.

The current *sindicato* structure is still quite similar to the original and largely externally imposed organizational structure, reflecting high levels of path dependence. Nonetheless, as will be elaborated later, numerous smaller changes have occurred over time in the different communities.

Ayllus

The *ayllu* organizational structure is still present in two of the 14 communities, although even in these communities the *sindicato* structure has been introduced in parallel, with the *sindicato* acting either as the external representation of the same structure, or partially supplanting the existing

ayllu structure. According to Albó (2009), suggestions have recently been made to establish the *ayllu* structure in the *subcentralia*, or group of communities, surrounding Pampa Lupiara, though our fieldwork found no evidence of its previous existence in the region.¹⁵

The *ayllu* structure is built upon the concept of extended family, but has different connotations in dealing with territory, agricultural production zones and in the organization, nomination and rotation of authorities. In some communities, *ayllu* authorities were nominated for life, but due to changing internal and external economic circumstances, this practice is eroding.

Due to the extended nature of the *ayllu*, we often find in them a more complex organizational structure covering a range of communities or *ranchos*. Both Quila Quila and San Juan de Orcas have *de facto* a double or even triple layer of authorities. One layer deals with the broader *ayllu* structure and is in principal responsible for external relations, while the second layer deals with internal community affairs. In both cases, the *sindicato* was adopted at some stage alongside the *ayllu*, with varying degrees of importance and recognition. Making this institutional setting even more complicated, San Juan de Orcas recently requested autonomous status for its central *nucleo* or concentrated settlement area, as it intends to use this status to request additional public services.

Through both the *sindicato* and the *ayllu* structure, communities articulate demands towards municipal and higher governmental levels. The *sindicato* structure has historically been built up to the national level via the CSUTCB (farmer union) and provincial federations, but a similar tendency is visible among the traditional *ayllu* communities, which use ‘revitalized’ pre-Hispanic organizational structures to articulate *ayllus mayores* like the Qara Qara, with its pre-Inca historical roots (Platt *et al.* 2006). National-level *ayllu*-derived entities have also been created, such as CONAMAQ. The importance of such ‘organic’ structures differs at the community level, but the extent to which they articulate community demands at the central government level is similar to that of the *sindicato*. In both cases demands tend to be related to access to land, natural resources, ‘municipal’ funding and the issue of general autonomy.

Ayllus represent a historically enduring internal and external organization, but their institutional genesis and processes of ‘reproduction’ are probably far more diverse than the more recently introduced *sindicato* model. The subsequent and parallel adoption of the *sindicato* structure, although on a voluntary basis and largely for ‘external’ purposes, led to some unforeseen interaction patterns between both models, as we will see in the following chapters.

Other organizations

In general the parent-teacher association (JAE), the various committees and the *club de madres* are subordinate to decision-making in the general assembly, with the implication often being that they must report to the general assembly. These organizations certainly play a role in negotiating and shaping external support in a number of areas. Moreover, in at least 11 communities we found farmer associations or cooperative structures, often linked to irrigation or commercialization efforts. Such organizations tended to be externally supported or introduced by and remaining largely dependent on external support (De Morrée 2002). Although they never replace the *sindicato* or *ayllu* as the main interlocutor for external parties, parallel structures may generate confusion and lead to conflicts of interest between groups within the community. These organizations are examined in more detail in the following chapters.

4.5 Processes affecting institutions and decision-making

The previous sections reviewed the institutional setting, various forms of collective action and the organizations involved in establishing and implementing rules and actions. To analyse and understand pathway differentiation, we further need to consider the ‘initial conditions’ and review the factors affecting processes of institutional change and influencing the effective implementation of decisions and different forms of collective action.

The ‘initial institutional conditions’, taken as ‘living memories’ and the relevant timeframes encountered in the different communities, differ substantially. As indicated, the *ayllu* communities still preserve their historical roots and even pre- and postcolonial legacies. In the *sindicato* communities, many elders have recollection of stories of the hacienda regime, though in most cases community foundation is considered to begin with the establishment of the ‘*sindicato*’ shortly after the land reform of 1952-1953. Chapter six deals with these ‘living memories’ of land, identity and encroachment. Taking, for instance, the land reform as a starting point, although most communities were relatively small, there were indeed substantial differences in land areas, in terms of accessibility and also in terms of population size. In addition, and as noted in the previous sections, both the current *sindicato* and *ayllu* structures reflect strong levels of path dependence, evident both in their persistence as an organizational form and in the remarkable continuity of the role of the community assembly in all communities. Nevertheless, due to both endogenous and exogenous developments, events or shocks, numerous smaller and larger changes occurred over the past decades.

Ostrom’s (1990, 2000) contributions on the principles underlying effective collective action¹⁶ in common pool resources provide practical guidelines for reviewing these processes. According to Ostrom (2000: 16), “when the users of a resource design their own rules... that are enforced by local users or accountable to them... using graduated sanctions... that define who has rights to withdraw from the resource... and that effectively assign costs proportionate to benefits..., collective action and monitoring problems are solved in a reinforcing manner”. Ostrom further adds three additional principles: (i) that effectiveness of collective action may depend on availability of rapid and low-cost conflict resolution mechanisms, (ii) that the capability of local users may be enhanced or undermined by (local) government recognition or regulation, and (iii) in the case of larger resources, capability of local users may be enhanced or undermined by a supra-community level of governance and coordination. These principles reflect some of the main conditions needed for local organizations to manage their resources in a sustainable manner. Among the communities under study, these conditions are often only partially fulfilled. Differences in internal membership status (related also to internal ‘accountability’), and internal differentiation between households are an important bottleneck for effective resource management. While our communities seemed to be relatively effective in ‘monitoring’ participation and free-rider behaviour, the definition of access rights – especially regarding irrigation – and the application of ‘graduated sanctions’ often remained problematic, as chapters six and further will examine in more detail. As a consequence, the communities sometimes suffered resource deterioration, internal differentiation, lack of willingness to participate in collective action and, in some cases, internal disputes and break-up.

Agrawal and Gibson (1999) critically analyse common perceptions of the role of community in natural resource conservation. They highlight views that consider community to be a hindrance to development, but also those that overly praise the role of community “in bringing

about decentralisation, meaningful participation, and conservation” presupposing high levels of internal cohesion and homogeneity (*ibid.*: 629). They note that the expected homogeneity is “assumed to further cooperative solutions, reduce hierarchical and conflicting interactions, and promote better resource management. Outside the community conflicts prevail; within, harmony reigns” (*ibid.*: 634). These authors propose a more political approach, highlighting power relations, interests and incentive structures, and the influence of these on processes of decision-making. Following this line of analysis, the current study highlights six main elements influencing processes of institutional change, defining also decision-making modalities and community involvement in collective action efforts in the research communities. These six elements are the following: (i) size, identity and critical mass; (ii) demographic change; (iii) shifting parallel and hierarchical structures; (iv) group boundaries and internal differentiation; (v) social capital; and (vi) external interventions.

Size, identity and critical mass

The first element relates to (changes in) the size and structure and the representation and identity of the community organization. This may relate to the coverage of a larger area, cases where a number of communities or *ranchos* are included under the same umbrella, and also to processes of splitting up or joining together and – the sometimes related – changes in status or identity. Identity formation is a complex process that is here used in line with the concept of Healey (2009: 83), who defines ethno-ecological identity as “a sociopolitical identity shaped by the unique human-environment relationships and struggles of highland and lowland peoples”. According to Healey (*ibid.*), identities are formed not only on the basis of ethnicity, but also in a process of continuous reconstruction, intimately related to the particular ecological context and relevant constraints and struggles and related ‘grievances’.

The communities in the current study that show more complex organizational settings are, in particular, Quila Quila, San Juan de Orcas and Pampa Lupiara. For Quila Quila, the differential status of the central *ayllu* communities, systematically providing the main authority (*kuraka*) and taking decisions regarding or also affecting the surrounding communities, as well as differences between households in status and in access to land, have been part and parcel of recurring difficulties in retaining a strong and collective organization. Klemola (1997), however, identifies only one major conflict between one of the constituent communities and the major *ayllu* in the period prior to 1997. Nonetheless, a conflict being experienced at the time of this writing (see chapter six) reveals the increasing prevalence of tensions not only between communities but also within them and even within households. The current conflict has become profoundly ideological, and is strongly related to differing perceptions of identity and external representation.

In Pampa Lupiara and San Juan de Orcas, internal tensions are less pronounced, but differential access to services certainly underlies some of the existing internal frictions. Before 1982, San Juan de Orcas belonged to the *subcentralia* of Sapse. Sapse did not take much account of its needs, however, and the community decided to separate, establishing a new *subcentralia* made up of its six main *ayllus*, but with only one *sindicato*. In 1995, a new national statute was defined for the general *sindicato* structure stipulating that any *subcentralia* would need to be composed of at least four *sindicatos*. The provincial federation subsequently proposed that San Juan de Orcas again would join with the neighbouring *subcentralia* of Sapse to reach the requisite number of communities, but San Juan de Orcas refused and instead decided to convert the six *ayllus* in four *sindicatos*. This change had little influence on community organization, as the *sindicato* is very similar to the

ayllu structure, containing more or less the same functions. It does, however, serve to reveal the sometimes ‘con-fusing’ elements of formal and informal external identities. As indicated by Boelens (2008: 500), these multiple layered identities imply that “communities ‘are often not what they appear to be’. They strategically fuse and confuse at once”, reflecting elements such as passive resistance, active representation, manipulation and mimicry. Developments in Quila Quila may well have influenced perceptions in San Juan de Orcas:

Our brothers from Quila Quila showed us the importance of preserving our indigenous origins through training and workshops and now we are again *ayllu*, just as before 1996 (*comunario*, community workshop 2011).

In all municipalities, some of the larger and more centrally located communities (e.g., Escana, San Juan de Orcas and Pampa Lupiara) received the status of *nucleo*, implying the location of secondary schools serving a broader range of communities. The status correlates perfectly with higher levels of investment in education and health care, as will be discussed in chapters nine and ten.

Like Quila Quila, practically all communities experienced some form of division or joining together at some point in time. This process of splitting up or joining together was in fact common occurrence, and it might be the rule rather than the exception in the Andean valleys and in the Altiplano. The process of splitting up was documented by Albó (1985) for the Aymara region, but for the Quechua region few studies have recorded these trends and their possible implications. Albó (*ibid.*) framed this process as *faccionalismo*.

This ‘factionalism’ affected Talahuanca, Escana and Tuero Chico shortly after the land reform. In the early 2000s, La Abra (and the neighbouring community of Situri) and La Cañada (and San Julian) were affected, and more recently Ovejerias, which as noted earlier still exists in name and territory, but with its original population spread over at least eight villages and new *sindicatos* in the valley. San Juan de Orcas requested additional and specific recognition for a new urban core settlement, while Pampa Lupiara, Quila Quila and Sundur Wasi in a few cases joined together previously separate *ranchos*, but these seem to be rather exceptional cases. With the possible exception of Wasa Ñucchu these processes of communities splitting had impacts on community territory and population size and on their actual or symbolic external representation. When I visited Yurubamba in January 2013 the community had decided the day before to break up, apparently as a consequence of jealousies regarding access to the main services, but motives like ‘inappropriate’ land sales and disagreements about dealings with the regional government were also mentioned.

Most communities are therefore no longer the same in size and territory as they were at the time of the land reform, or in some cases even only a few years ago. The process of splitting up or joining together may have originated around conflicts about access to services or resources (schooling, teachers, church buildings and water for drinking or irrigation) or regarding access to funding from external sources. Nonetheless, to remain viable and get access to basic education, communities needed to retain sufficient critical mass in terms of a minimum population level. Immediately after the land reform, pressure to acquire a salaried teacher (*item*) often went in parallel to efforts for community recognition. Community status, identity and recognition remain important for attracting municipal projects. Recognition as a (new) *sindicato* might allow a former segment of an old community to draw municipal resources directly and, after a split, to request ‘another’ school building for the new community. Recognition as an *indigenous district* (which the *ayllu* groupings in Quila Quila were advocating) would even allow control of all municipal re-

sources for the population concerned, but as of this writing efforts to this purpose had thus far been in vain.

The splitting up of former communities again emphasizes the temporal dimension of the second element of Albó's (1985) definition of community. Splitting up or joining together obviously impacts 'collective labour' availability within a community and also changes access to services. For collective action efforts involving major public works, such as road maintenance, extensive and complicated coordination may be required between people who previously were part of the same community but were now separated due to conflict or a lack of internal coordination. Although in the short run splitting may be beneficial for either of the two resulting communities – enabling it, for example, to gain access to new services (e.g., a school of its own), in the long run both communities are negatively affected in terms of their critical mass or minimum population levels. This is especially worrisome with respect to access to primary and secondary schooling and higher levels of health care. Finally, splitting up is seldom a consensual process. Often it is the result of previously existing internal differences, factions and dormant conflicts, which may culminate in persisting disputes over time between the separated communities, involving not only the leadership but also households related through kinship ties with members of the other side. In Cochapampa, community members even decided to transport recently buried family members from the old cemetery to the new one established for the recently formed community.

Among those that split early on, both Talahuanca and Tuero Chico have faced the recurrent challenge of being small and therefore remaining ineligible for larger public investments (such as a secondary school). Talahuanca has faced by far the greatest difficulty in obtaining access to public services. Yet both of these communities, and also Cochapampa and La Abra, which split at a much later date, now face the threat of a loss of *items* and the possible closure of the primary school. Meanwhile, none of the larger communities, such as Escana, Yurubamba and La Cañada, that split due to internal conflicts regarding access to services face any such problems. These might in fact be able to acquire additional resources in their new forms.

Changes in expressions of identity and in external representation, and in status or size are often accompanied by or are the consequence of minor or major internal struggles. These changes, especially those due to communities splitting up, are among the most frequent and most impactful events in processes of institutional change and in relation to communities' abilities to maintain a critical mass of population. At the same time, the continued acceptance of the *sindicato* and *ayllu* structures reflects their perceived legitimacy, which indeed is a major factor explaining their persistence (Mahoney 2000).

Demographic change

The second element we noted as being of influence on processes of institutional change is demographic change and population characteristics. As indicated in chapter two, in the 15 years under study about half of our communities declined in population. The average household size declined dramatically, communities grew older, a larger share of the youth now migrates and children remain in school longer. Pressure on labour has further increased due to shifts in the agricultural calendar, in particular, related to irrigated agriculture, the increase in double residence, and shifts in migration to destinations abroad. Labour availability and 'capacity' for collective action has therefore diminished substantially. Over time, changes in the level of education and new experiences abroad have, furthermore, altered community members' perceptions regarding cur-

rent practices and decision-making processes. While traditionally the older and more experienced men were the predominant actors and decision-makers, today – and among those still present – both younger men with higher levels of education, as well as (a few) women increasingly assume leadership roles.

Women are also migrating at early ages to work as *empleada* (in an urban household) in neighbouring cities or abroad. But they do tend to return at some stage to take care of children, and many stay in the community to manage a second or third horticultural harvest. In addition, older widowed women are likely to remain, making up for some of the imbalances in labour availability between households. In some of the *irrigation* pathway communities with more intensive migration, including Escana and several riverside communities, women were increasingly assuming the function of *secretary-general*.

Due to the increased migration in most communities, participation in *sindicato* meetings is declining, and many *sindicatos* – at least on paper – have become stricter in demanding participation in meetings. Sanctions for absenteeism have been raised, often taking the form of fines or fulfilment of community obligations. Willingness to participate in collective action efforts, and especially to assume demanding leadership roles, is also diminishing.

Demographic changes have thus affected the composition of the community organization, necessitating modifications of the existing ‘rules of the game’ and undermining capacity for collective action.

Shifting parallel and hierarchical structures

The third element impacting community institutions and collective action efforts is the creation of parallel structures within and above the community level. These parallel structures generally remain subordinate to the existing community organizations, but in a few cases may also affect the latter’s ‘mandate’ and even result in mutual competition.

In Quila Quila, for example, internal tensions between the *ayllu* and the *sindicato* structure were recently a main obstacle to collective mobilization and even led to a complete paralysis. The problem here is particularly difficult, as both organizations profess to assume full responsibility for the internal organization within a certain territory.

This element of competition is less a factor for parallel structures such as farmer associations, parent-teacher associations, cooperatives and committees, as these have generally proven to be far less persistent than the *sindicato* and *ayllu* structures. Nonetheless, the increasing weight of supra-communal irrigation associations (e.g., in Escana) and cooperative structures (e.g., in Pampa Lupiara and La Cañada) surpass the level of individual communities and certainly may affect the space for and effectiveness of decision-making within the communal assembly. The acceptance or temporary inclusion of these parallel structures may fit within both the functional and the utilitarian explanation of path dependency, as these parallel structures are often oriented towards a specific domain, and even suboptimal solutions may be accepted when the possible benefits exceed the expected costs (Mahoney 2000). The overall number of parallel organizations, or the ‘institutional density’, may not necessarily reflect the capacity for collective action, as many of these structures act as extensions of the community organization, as discussed further below and in more detail in the following chapters.

Finally, both *sindicatos* and *ayllus* were becoming more and more enmeshed with national ‘organic’ structures – as is the favoured political term in the context of social movements in Bolivia

– like the CSUTCB and CONAMAQ, both of which are largely focused on influencing the national political agenda. This process has led to a blurring of the dichotomy between the ‘internal’ and the ‘external’ part of community organizations. Communities assumed and adapted an externally defined organizational model (*sindicato*) as their own and – supported by external actors – were able to capture state institutions. After the election of the MAS party and President Morales’ rise to power in 2005, those structures in turn became a channel for governments to provide *downward* ‘instructions’, effectively working to capture ‘social movements’ for political objectives. Although this process of interaction is a two-way street, the MAS party has clearly been able to mobilize indigenous communities in multiple ways at key stages of political developments, for instance, in relation to approval of the new constitution, a new land law and all of the major elections that have taken place since 2005 at different levels of government (Salman & De Theije 2011).

Group boundaries and internal differentiation

A fourth element, also emphasized by Agrawal and Gibson (1999), is existing or increasing internal imbalances and differentiation. As pointed out by Ostrom (2000), for collective action to be successful, the boundaries of the group – who belongs and who doesn’t belong – have to be very clear.

Internal differentiation¹⁷ exists along several lines: individual households may have different positions within a community and therefore also with regard to community decision-making. In communities like Wasa Ñucchu and Pampa Lupiara, young couples were not considered a full part of the community unless they had married and had inherited land from their parents or gained access through another modality. In Quila Quila and San Juan de Orcas, differences in status persisted between *originarios* and *forasteros*. This was often reflected in differentiated access to land (see also chapter six). Even households that have ‘full member’ status may be unable to access sufficient resources (including labour) to participate and benefit from collective action efforts. This is particularly the case for widows or households with more prolonged absenteeism. In a few communities, long-time ethnic and economic power differences persist between *mestizos* (mestizos) and *tatitos* or other indigenous groups (e.g., in Sundur Wasi, Pampa Lupiara, Redención Pampa and La Abra). In some communities the recent entry of ‘new community members’ (e.g., in Rio Chico, Escana, La Cañada) has affected internal cohesion and coordination. The relatively new communities in Rio Chico are often composed of households originating from places higher in the valley, but also of richer urban residents of Sucre or elsewhere. Religious differences, although not very outspoken in the research communities, may affect cooperation between groups or willingness to assume *cargos* (community functions, like that of *alcalde*, the traditional leader of ceremonies) or to participate in certain rituals (e.g., those involving alcohol).

It is difficult to pinpoint long-term, detailed trends in internal differentiation. But especially in the more market-oriented *irrigation* and *growth* pathway communities resource differentiation is occurring between those with and those without access to transport or transformation equipment and between traders and non-traders. A similar distinction occurs between households with a foothold in the new concentrated settlement areas and those with more remote dwellings, with obvious differences in access to public services. These differences translate not only into material well-being, but also in participation in community functions and in benefiting from public resources and the related collective action efforts. Finally, in some communities (e.g., in San Juan de Orcas, Talahuanca and Yurubamba), groups of families belong to multiple *sindicatos* and bala their

‘representative duties’ among them. This may sometimes cause conflicts to arise. The different trends in levels of inequality or internal differentiation also reflect the importance of persistent power relations and vested interests in explaining path dependence in institutional arrangements, often reinforcing the status quo or raising barriers to reform (Mahoney 2000; North 1991; Heinmiller 2009).

Social capital and internal cohesion

The fifth element affecting the process and quality of decision-making is the level of internal cohesion and social capital, defined by Ostrom (1997: 158) as “the shared knowledge, understandings, norms, rules and expectations about patterns of interactions that groups of individuals bring to a recurrent activity”. This perspective views social capital as including previous experiences or *retrospective* memories (Garud *et al.* 2010), leadership roles and the ability to resolve conflicts. Social capital may therefore also depend on existing levels of differentiation and inequality.

The literature distinguishes between *bonding*, *bridging* and *linking* social capital (Woolcock 1998; Stone & Hughes 2002). Bonding social capital refers to relations of trust and reciprocity within the community (closed networks) and supports its internal ‘survival’. Linking or bridging social capital facilitates access to external networks through members’ own networks and through social relations with authorities or others with access to resources (Putnam 1995). These forms of social capital can either be formalized (e.g. through established parent-teacher associations) or created via informal exchange networks.

Using data for Bolivia, particularly communities in the valleys of Cochabamba, Grootaert and Narayan (2004) assessed social capital based on households’ participation in a variety of groups and associations, including supra-communal organizations. Although there may certainly have been added value for individual households to participate in these organizations, their benefit was found to be far from uniform. Parent-teacher associations, project committees and even mothers clubs and the *subcentralia* were generally associated with or subordinate to the *sindicato*. Data regarding membership and affiliation with these types of institutions therefore provides only limited information about the levels of social capital within a community.

Social capital can be an important driver of collective action. Social capital is not a fixed asset, however, but multidimensional and variable over time. Elements such as knowledge, cohesion, trust or built-up capacity may have varying repercussions for collective action dynamics. Increased schooling levels within a community may lead to greater social capital. Similarly, formation of migration networks (linking social capital) related to a particular destination may be useful in facilitating further migration, offering earnings and remittance opportunities rather than providing knowledge relevant to increasing productivity at the community level. Obviously, this does not exclude the possibility that knowledge and innovations generated abroad can be useful or applied at home, but this did not seem to be common practice in the research communities. *Irrigation* pathway communities, like Escana, Tuero Chico and Wasa Ñucchu, had relatively well-educated populations with much experience abroad, but they were still suffering internal cohesion problems and difficulties in defining and redefining their ‘rules of the game’. Escana has faced difficulties related to the rise of a parallel irrigation association, and Wasa Ñucchu has experienced leadership problems. *Dryland growth* pathway communities, such as Talahuanca and Pampa Lupiara, in contrast, present greater internal cohesion and a strong cultural identity; they

appear to have faced less difficulties in dealing with absentee membership and new community members.

In response to strong declines in population and diminishing ‘community participation’, Tuero Chico decided (with external support) to formulate new community by-laws. This process did not simply imply formalizing in writing of commitments that had previously been agreed upon by community members. Rather, changes in organizational rules and routines were proposed. One of the more significant changes was that leaders would now be elected on a rotational basis, and not merely chosen based on acquired capacity, which had been the case prior to 1996. A second important change was that community members would no longer be obligated to be *sindicato* members. Because the membership fee was relatively high (Bs 1,000), those with small plots could opt to forego *sindicato* affiliation. For those who were affiliated, participation remained obligatory and non-participation was fined by Bs 50 for regular meetings and Bs 20 for extraordinary meetings. Members who refused to accept the responsibility of leadership roles could be fined Bs 500, and would not receive any contributions during their term as office-holder. Furthermore, only community members could benefit from projects and from the protection of the *sindicato* should problems arise. The renewed focus on external projects and benefits was also visible in Tuero Chico’s new norm that obliges parents to send their children to school in the community (and not elsewhere, or taking them out of school). Those found in noncompliance could be barred from other project benefits or lose their land rights. This example demonstrates the application of graduated sanctions (Ostrom 2000), as well as the increasing difficulties communities face in keeping up ‘community involvement’.

The capacity of individual leaders to garner authority and motivate people as needed is of course important in sustaining change over a longer period of time. In the research communities, perceptions regarding community leadership varied widely. Whilst some were outspoken in their praise, in many cases commentaries were rather disillusioned. Several community leaders of Escana and Pampa Lupiara are still remembered for their active role in the early stages of lobbying for external support. During the drought of 1983, two of them even went to La Paz to request help. The secretary-general of Escana elected in 1995 became a regional government employee in 2008. Luciano Quispe, one of the most active members of the economic association in Pampa Lupiara in 1996, worked as adviser to the regional federation in Sucre in 2008 and became national adviser to the national farmer federation (CSUTCB) in 2011. Both of them were still referred to as important community leaders during our visit in 2011. One of Quila Quila’s advisers in 1996, and author of a rather detailed diagnostic study of the community, had become a senior policy adviser of the UN Indigenous Fund (*Fondo Indígena*) in La Paz and continued to lobby for support for the *ayllu* community structure. In Quila Quila, outsiders from the community – but presenting themselves as community leaders – played an important role in the conflict regarding land access, culminating in the violent occupation of the offices of the national land reform institute (see also chapter six). In other communities, powerful individuals were long able to control community commercialization mechanisms or to assume the function of *alcalde* in the municipality (e.g., in Pampa Lupiara), or to influence the management of the irrigation system (e.g., in La Abra). In Escana, members of a single family dominated for several years all of the main *cargos* in the community and *subcentralia*. The ‘stratified’ decision-making process and persistent conflict in Quila Quila highlight the limited room for manoeuvre community members there have had to adapt to changing circumstances and adverse environmental conditions (Coulthard 2012).

External interventions

The final element relates to how communities interact with external interventions, and the multiple ways in which these in turn influence community institutions. From a path dependency perspective the wide range of sequential and sometimes parallel external interventions can be considered an intermittent stream of 'events', impacting community dynamics in some way, sometimes creating self-reinforcing trends and other times causing reactive or even contradictory developments. We already briefly mentioned the potential impacts of parallel structures, the possible effects of external actors and actions in defining access to services and the sometimes related splitting up or redefinition of community status and identity. The summary analysis presented here focuses on communities' possible perceptions of interactions with external agents.

The principle of rotating authority in community organizations leads to constant changes in leadership quality as well as to frequent interruptions in interactions with external organizations. In a few communities, community leaders were allowed to add a second and third year to their term as secretary-general, in order to be able to finish certain work or negotiations related to some project (e.g., in Tuero Chico), but this seemed to be the exception rather than the rule. Community leaders also lobbied for demands by visiting government institutions and NGOs in Sucre or sometimes in La Paz or other major towns. Quite often, this was done using a so-called *oficio*, a short and formal letter with the signatures of the community leaders formalizing their requests.¹⁸

In one case, reported by Klemola (1997), community members from Quila Quila had prepared for a visit of the director of the NGO Plan International in 1994, to discuss the possibility of implementing an irrigation system. Internally a line of argument had been prepared that community leaders would present. When the director of the NGO asked them "how much money would you be willing to invest", the community had no immediate answer, as the question had caught them by surprise and obviously needed internal discussion first. Plan International, however, erroneously assumed that the community was unwilling to make a substantial contribution (*ibid.*). In another case but similar setting at the start of a community assembly to discuss a proposed intervention the same NGO challenged the gathering to have all members voice an opinion, as opposed to only community leaders. This led, of course, to initial reluctance as the demand did not correspond with the expected speaking order, starting with community authorities and the more experienced community members. Finally, a few members who had not been involved in previous internal deliberations took the opportunity to oppose the proposed intervention, as it would have consequences for their access to land. While the community had internally already decided to compensate those members, the NGO eventually cancelled the operation. Klemola (*ibid.*: 182) reports the internal response of the community after the event: "institutions evidently want to confuse/divide us, is that not so *compañeros*?"

These examples illustrate the intricacies of interaction processes between communities and external parties and the importance of differences in intervention modalities and the use of incentives in defining, stimulating and constraining collective action. These will be elaborated in more detail in chapter six, and thereafter for the specific domains of common pool resources (land and agriculture) and public service delivery.

4.6 Conclusions: institutions, collective action and pathway differentiation

How did community institutions and the ‘rules of the game’ develop? What are the main organizations involved in decision-making and implementation?

Even though *ayllu* and *sindicato* communities come from rather different origins or ‘initial conditions’, the main formal and informal institutions and processes for decision-making identified in this and previous research are remarkably similar for both groups. While the current *ayllu* structure is partly a reflection of historical developments and prevailing memories (Heinmiller 2009; Garud *et al.* 2010), originating back to pre-colonial or post-independence, this institution certainly experienced major transformations and a reduction of its sphere of influence as a consequence of developments after the land reform. Unlike individual *sindicato* communities, however, the *ayllu* retains a certain autonomous internal hierarchy between the communities involved, although this appears to be gradually eroding in the case of Quila Quila. We also observed that various pressures have caused continuous shifts in territory, mandate, external representation and identity and even in the (s)election modalities of community authorities.

The current structure of *sindicatos* was defined shortly after the land reform, and widely adopted after its *de facto* imposition by the dominant political party. The formal organizational structure and organizational routines of the *sindicato* hardly changed during the past decades, reflecting a high degree of path dependence and even a certain level of institutional ‘lock-in’, as *sindicatos* have shown limited responsiveness to issues like climate change, land fragmentation and increasing outmigration, as the following chapters will elaborate.

The external ‘imposition’ of the *sindicato* structure contributed to a more homogeneous and converging framework of both internal and external decision-making and representation. *Ayllus* eventually also adopted a parallel *sindicato* structure, although mainly for the objective of external representation. This could be considered copy-cat behaviour and a form of *isomorphic mimicry*, meaning that they assume the form of another similar organization in order to obtain a similar externally recognized legitimacy, without necessarily adapting their functionality (Pritchett 2010). Legitimacy indeed appears to be one of the most important drivers of the path dependent character of the *sindicato*, probably prevailing above functionalist or utilitarian explanations (Mahoney 2000).

Nevertheless, communities have also been proactive in adapting their institutions to external pressures and to a range of ‘events’ that have taken place since the land reform. At the institutional level, some of these adaptations are the disappearance or survival of certain authorities, changes in the principles of rotating leadership and in means of external articulation of demands and introduction of parallel structures. Although most of these initiatives were *de facto* incorporated under the decision-making process taking place in the community assembly, they have also led to an increase in ‘institutional density’ and to a widening range of community functions and activities, although dynamics differ quite markedly between them.

In addition, several communities have experienced a continuous ‘reconstruction’ of their formal and informal identities and means of external representation, and in some cases corresponding shifts in the areas under their territorial control. According to Boelens (2008: 470), defying externally defined categories or constructed identities is part of consciously elaborated ‘confusion strategies’, used by communities to challenge existing forms of external representation.

Furthermore, community institutions are marked by historical definition of membership, and in many cases related and persisting internal differentiation and power relations.

Institutional changes, in turn, have influenced the possibilities for collective action at different levels of the community organization. Hodgson (2007: 107) defines this as *reconstitutive downward causation* by which “institutions have the power to mould the dispositions and behaviours of agents in fundamental ways; they have a capacity to change aspirations, instead of merely enabling or constraining them. Habit is the key mechanism in this transformation.” The introduction of parallel organizations is often intended to stimulate new forms of collective action, but their limited survival rate also raises questions regarding the intended *habituation*. Similarly, we can also identify forms of ‘upward causation’, in which changes in habits and routines have gradually undermined the effectiveness of certain authorities and the mechanism of rotation. But communities (both *sindicatos* and *ayllus*) have also extended their realms by articulating their demands to government and other external actors through higher-level organizations (e.g., *subcentralias*, the farmer federation and CONAMAQ), and also by ‘capturing’ external organizations, like the vigilance committees or with community leaders gaining positions in municipal organs. In this respect the distinction made by Alonso (2005) between endogenous and exogenous institutions may gradually fade and even lose its distinctive value, as internal institutions like the *sindicato* owe at least part of their structure to externally defined design, while external organizations may come under the direct influence of the community organization.

In some cases, community institutions have been subject to minor or major shocks, for instance, as a consequence of the foundation of a new association or an internal rupture due to conflict and factionalism. Nonetheless, these processes have generally been gradual and incremental. Following Hodgson (2007: 110), these community organizations can therefore be considered “bounded institutions with a relatively high degree of cohesion”. The resulting and mainly collective decision-making processes are the main driver for a wide range of collective action efforts at different levels within the community. Collective decision-making everywhere relates to the existing production system, to collective labour and maintenance efforts and to external relations. Nonetheless, the following chapters identify several constraints regarding the agency or concrete responses of community organizations with respect to certain domains, for instance, in relation to migration, land claims and some of the existing or recently established parallel organizational structures.

What are the implications for (initial) pathway differentiation? As noted by Schneiberg (2006: 48), most pathways are “littered with flotsam and jetsam”.¹⁹ In our case, these refer to elements like political networks and community associations that were abandoned or only partially implemented, to remnants of successful experiments and to outcomes of conflict, all of which may continue to influence initiatives today. Yet, early decisions at ‘critical junctures’, such as *ayllu* communities’ adoption of the *sindicato* structure and a decision to split up a community, may also have long-term repercussions, as we will see in the following chapters. In other cases, *early movers* (e.g., those communities that gained the status of *nucleo*) may have substantially benefited from this position. Mechanisms of reproduction sometimes also lead to patterns of ‘lock-in’, making it difficult to change course, change mandates (as evident regarding the *sindicatos*) or to abandon an existing course.

Among the communities on the *decline* pathway, demographic change as a consequence of increased outmigration and a declining birth rate, led to reduced labour availability and a rise in du-

al residency, complicating collective action efforts. The underlying factors and causality are more complex, however, encompassing declining household size, shifts in men's and women's activity calendars and increasing resource constraints, particularly related to land under irrigation and land fragmentation, as we will see in chapters six through eight.

Some of the communities under study suffered from persistent power clashes, culminating in internal disputes, separation or ongoing conflict. As the current study will show, many of the parallel structures created in the *decline* pathway communities were weaker and less resilient than those in the *growth* pathway. Declining population trends also diminished these communities' 'critical mass' in many aspects, in terms of collective action potential, in gaining access to a minimal level of public services, and especially, in community status and voting power. Nonetheless, many of the *growth* pathway communities also faced increasing pressure on resources and greater internal socio-economic differentiation, eventually leading to processes of internal division or splitting up. During the past decades, communities became more articulate towards higher government levels and towards external organizations. Their external networks and articulation (via linking or bridging social capital) is not unique to the *growth* pathway communities, but it was more effectively exploited by most of them.

Community institutions are a long time in the making; they survive or adapt to continuous internal and external pressures. The wider '*ayllu* structure' and principles of access to multiple ecological zones gradually eroded, and *ayllus* were left with the more marginal lands. Some of the old colonial and even postcolonial (*hacienda*) pressures disappeared. Others, including continued stress on resources and greater emphasis on individual interests and short-term gains, as well as 'globalization' and external interventions are increasingly making a mark. The following chapter discusses external interventions in more detail.

In summary, building upon the principles for sustained collective action identified by Ostrom (2000), this chapter reviewed six elements that impact on decision-making processes within communities and therefore also on processes of pathway differentiation or convergence. These six elements are (i) size, identity and critical mass; (ii) demographic change; (iii) shifting parallel and hierarchical structures; (iv) group boundaries and internal differentiation; (v) social capital; and (vi) external interventions. Except for the 'event' of splitting up, most of these elements reflect slow and incremental change, although certainly not always in the same direction. In a few cases, the communities under study reached 'critical junctures' or thresholds of 'critical mass', from which it was difficult to retreat or to find alternative solutions.

Notes

¹ Pilar Lima Torrez (in Alconini 2008) documented 89 archaeological sites in the community, corresponding to different stages in the occupation of the area.

² Klemola (1997) names this community 'Kila Kila'. Due to the more widespread use of 'Quila Quila' (also on maps and in other studies), this study uses the latter name, as we did in the first survey.

³ This *nucleo* may even gain a new lease on life under current conditions, which is much a historical paradox when we take into account the resistance against forced settlement concentration.

⁴ *Tributarios* are 'taxpayers'. In addition he was involved in 'voluntary' sales of extensive lands to the *haciendas* in the region, including, for example, in Potolo and Molle Molle.

⁵ The term *ayllu* may have different connotations in different studies or settings. Godoy (1985: 54) defines an ayllu as “a corporate cell with strict rules of membership, a fiction of common descent, a land base, and a common cultural denominator”.

⁶ The three most frequent functions in *sindicato* communities are the secretary-general, the one writing the minutes and the person responsible for external relations.

⁷ Legislation regarding municipal decentralization. On this, the next chapter provides more detailed background.

⁸ The tension between internal solidarity and possible internal rupture among Aymara communities (*solidaridad y faccionalismo*) was also the focus of Albó (1985).

⁹ A similar framing was used in the community of La Abra. There, the son of a former landlord assumed the function of secretary-general, according to one of the community members, in order for him to learn to ‘walk’ (which landlords almost by definition would not be doing). Although the new secretary-general has been quite active, it also became clear that he had more impact with his wanderings in project offices in the city than in dealing with fellow community leaders in the *subcentralia* or in the municipal context.

¹⁰ During our first research and fieldwork in 1995-1996, we had to obtain approval of community assemblies in each of the 17 communities. While in some cases this proved to be more cumbersome than in others, once the communities had agreed, follow-up visits and adjustments were relatively easy to make. For the second major round of fieldwork in 2011, we brought with us a copy of the diagnostic study and a photo album of the community from 1996. This greatly facilitated our recognition and acceptance. Nonetheless, even during the second fieldwork period several community members who had been less involved in our initial research raised questions and suspicions regarding the use and validity of our study, not least because part of the team was new to the community.

¹¹ In a few communities, including Escana and Quila Quila, community members indicated the importance of collective voting to reach mutually agreeable arrangements with neighbouring communities regarding representation in municipal councils and the like. A visible result of collective voting is the 99% vote for MAS in Tuero Chico in 2010.

¹² *Forasteros* refers to a colonial category of outsiders living in the community but with a distinct status, depending on land access from *originarios*. *Residentes* are originally from the community and still retain their property rights, but they have migrated to the city.

¹³ This *Militarily-Peasant Pact* was in fact a continuation of MNR policies to control rural areas and, when needed, to mobilize farmers for their own agenda.

¹⁴ According to the minutes of community meetings and registers of participation and membership.

¹⁵ This may fit with the idea expressed by Salman (2006) and others that the existence of *ayllus* as “traditional space/kinship-combining organisational entities, had been practically lost as orienting community forms in the years before the 1990s”. The revitalization of the *ayllu*, when it resurfaced in the mid-1990s, just as happened in the case of Quila Quila, has been enthusiastically supported by the new and higher educated leaders among both *aymaras* and *Quechuas*, but also by international donors “as a more ‘effective’ system of combating poverty” (*ibid.*: 226).

¹⁶ According to Ostrom’s (2000) design principles of long-surviving, self-organized resource regimes.

¹⁷ Both in 1995 and in 2011 we implemented a self-stratification exercise in which community members themselves indicated factors differentiating ‘very poor’, ‘poor’, ‘medium’ and ‘rich’ households. This process was relatively effective. Through it, we also learned that substantial differences existed between the households in each of the different groupings, often based upon differences in access to land, livestock or other resources, but in some cases also based upon the status of an individual household within a community. See De Morrée (1998) for a more exhaustive analysis.

¹⁸ Our own research project also received quite a few demands, although we had explained several times that the programme would have no funding for activities and that we would only be able to reciprocate with the presentation of a final diagnostic study (which the communities could use to validate their own demands elsewhere). This local perception reflects an engrained image of any external actor as a possible way to access funding.

¹⁹ 'Flotsam' and 'jetsam' are refuse found in the oceans.



Quila Quila, cathedral built around 1612. Picture by author (2011).



San Juan de Orcas, celebration of rotation of authorities, 1996; Quila Quila, community meeting in 1996.

Source: PIED-Andino

5

Changes in the external context: where have external interventions made a difference?

5.1 Introduction

Escaping from government or oppressive external influences has been a driver of rural community action for centuries. As eloquently stated by Scott (2009) in his analysis of the mainland *masif* in South-East Asia, rural inhabitants often do their utmost in the *art of not being governed*. In Chuquisaca, rural communities followed similar strategies in trying to escape from slavery on the hacienda, to avoid forced labour through the *mita*, to prevent further encroachment upon their land and to avoid the payment of arbitrary taxes. Rural communities' distrust of government remained an important factor in their dealings with external actors until far into the 20th century (Goudsmit 2006). The next chapter, on land, discusses these histories in further detail.

This chapter reviews some of the main factors influencing the current structuring of regional development efforts and provides a summary analysis of the main changes in external development interventions in the region and among the survey communities. The implications of these for community dynamics are discussed, both at the level of institutions and decision-making, and in terms of differentiation in outcomes and pathway differentiation. External interventions' main approaches, changes in coverage, intervention modalities and the resulting differences in interactions at the community level are examined. A more detailed analysis of some of those projects is included in subsequent chapters. The main research question posed in the current chapter is the following:

How can we characterize the changing presence and influence of external actors and policies, and how have interactions with local communities contributed to pathway development and differentiation?

5.2 Changes in the national context¹

Before and after independence

Both before and after Bolivian independence in 1825, most of the indigenous population was subject to the presence of *haciendas* in rural areas. Communities suffered under the *encomienda* (a legal system by which the Spanish crown attempted to define the status of the Indian population²), land appropriation and mandatory *servitude* on the haciendas. They were also subject to forced labour arrangements under the *mita*, as communities in the Altiplano and Andean valleys had to send part of their population to the mines every year. The silver-mining boom had a strong impact on the behaviour of hacienda owners in the region, particularly influencing their investment policies. "Large haciendas occupied most of the land and introduced a Spanish-based

land management system; with larger agricultural fields, new crops, animal traction, and new livestock (goats, sheep and cows)” (Kessler 2006: 48).

The founding of the Republic in 1825 implied political independence, but the existing socio-economic structure largely continued. Although the *mita* was abolished before independence, the hacienda system was expanded (Mariscal *et al.* 2011). Langer (1989) describes trends among communities and haciendas before 1900, changes in population both within and outside the hacienda and the process of alienation from community lands.

Until 1952, Bolivia was largely a semi-feudal country, dominated by elites in the mining sector and *hacendados* (landlords). The agrarian revolution of 1952 and the land reform of 1953 resulted in an enormous transformation. The revolution ended in a centralized state, the elaboration of a modernization agenda striving to abolish the existing ‘provincial fiefdoms’ and efforts to establish a more egalitarian society (Dunkerley 1985; Faguet 2006). According to Faguet (*ibid.*) and Klein (1993), import substitution and industrialization policies, alongside *developmentalism*, contributed to the centralization process. From the 1960s onwards, military dictatorships repeatedly overthrew elected governments (Klein *ibid.*).

Recent political developments

Bolivia ended its prolonged period under military dictatorships in 1983 and began a still uninterrupted period of democratically elected governments. That same year the country suffered a severe drought, which led to an 8% fall in GDP (Mariscal *et al.* 2011). The drought had substantial consequences for rural areas, which lost from half to complete harvests. In parallel, the economy rapidly deteriorated as a consequence of a dramatic fall in international mineral prices, in particular tin, leading to the closure of mines and a sharp reduction in labour opportunities in rural areas. The drought and economic crisis together caused a rapid rise in rural-to-urban migration throughout the country. Both in northern Potosí as well as in northern Chuquisaca, migration swelled to destinations in Chapare, Santa Cruz, Cochabamba, Sucre and Argentina.

The economic crisis ushered in a period of hyperinflation (with the inflation rate an astounding 27,000%) and implementation of a series of measures under the *New Economic Policy* (NEP), including introduction of a sweeping adjustment package (*DL 21060*). The NEP and economic shock measures indeed paralyzed hyperinflation, but they also pushed the country into a deep recession (figure 5.1). The NEP focused on liberalization of prices, trade and capital flows (Van Dijck 1998):

It was hoped that the opening up of the economy would attract foreign direct investment which in turn would help modernize the Bolivian industry, improve productivity, increase exports, stimulate growth, and reduce poverty. Despite some positive evolution in the economic sphere, the social and political situation in Bolivia remained extremely fragile (Zoomers & Le Grand 2011).

After 1983 development cooperation became far more important as a share of GDP, with a rapidly increasing presence of bilateral and multilateral donors working with government and with national and international NGOs (figure 5.2). The first government of President Sanchez de Lozada (1994–1997) implemented additional social, economic and constitutional reforms. These included privatization of state companies, strong fiscal decentralization, an ambitious educational reform programme and a new land law in 1996.

One of the most important changes took place at the local level with the start of decentralization policies. The *Law on Popular Participation* (LPP) and the *Law on Administrative Decentralization* (LDA) were approved in 1994, and by 1996 the first impacts in communities were noticeable. The LPP decentralized some government responsibilities, creating 311 (thereafter expanded to 321) municipal governments which were empowered for local governance. The law introduced direct municipal elections for the rural and predominantly indigenous population. Municipalities received 20% of federal spending distributed on a *per capita* basis (Nijenhuis 2002). Municipalities were thus given a much broader mandate and far more resources than in the past. For instance, they began to play a key role in the operationalization and implementation of national sectoral policies. Decentralization also shifted investment from infrastructure to basic services (e.g., education, health and water) and changed the relation between government and local communities.

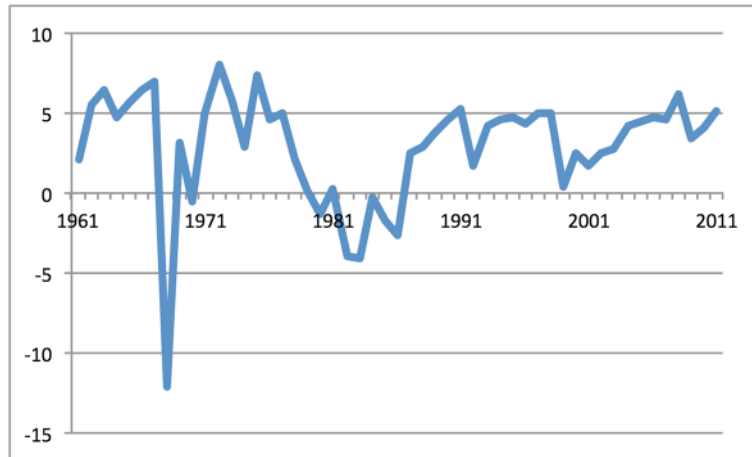
Complementing the decentralization reforms was a programme of *educational reform* (1994) intended to increase involvement of the population in local educational policies. The programme introduced classroom teaching in local indigenous languages while also boosting efforts to increase literacy (Yapu 2011). Finally, the *Law on Land Reform* or *Ley INRA*, approved in 1996, was an attempt to make land markets more transparent while also providing for the defence of indigenous rights.

Central government policies in Bolivia have been marked by the rapid and continuous production of laws and *decrees*. According to UNDP (2007), the Bolivian state enacted 7,539 laws (*decretos supremos*) between 1985 and 2006. This fever of policies led, for instance, to a complete restructuring of the Ministry of Education between 1997 and 2004 and to an bewildering array of changes and amendments to the *Law on Popular Participation*, resulting in an ambiguous, discontinuous and often incomprehensible complex of legislation. These laws were not only the result of top-down policies, but of multiple pressures from powerful interest groups as well as from *social movements*. These latter included teacher associations in the case of the *educational reform programme* and farmer and indigenous organizations in the struggles and debate around the *Land Law*, as later chapters will discuss.

Between 1997 and 2001, Bolivia was governed by Hugo Banzer, a former dictator who died during his tenure. He left the government to Vice President Quiroga, who remained in office for one more year. In 2001, the *Bolivian Poverty Reduction Strategy* was formulated, which basically aimed to reduce the percentage of Bolivians living in conditions of poverty from 63% to 41% by 2015. This objective was to be achieved by various strategies, including job creation, improvement of services like education and health and protecting the most vulnerable groups, such as children and indigenous peoples. Although some progress was made, economic growth remained slow and little benefit reached the poorer segments of the population.

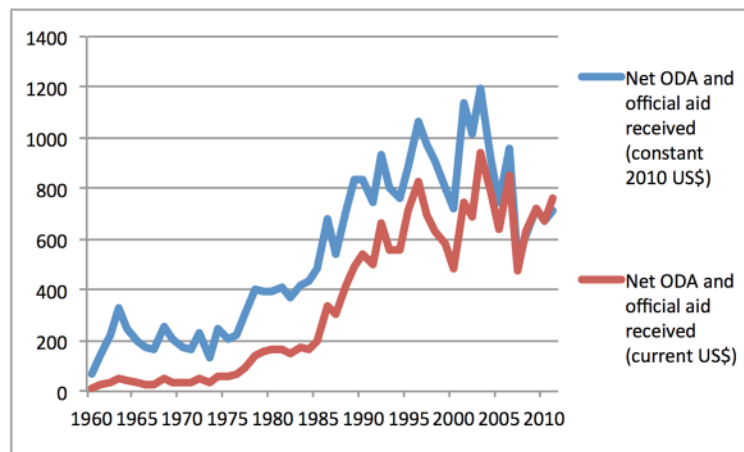
In 2002, Sánchez de Lozada was elected to a second term in office (until 2003), in a period of political unrest and instability. The years prior to 2003 were marked, among others, by the *gas conflict* and the *water war* in Cochabamba, leading to increasing pressure from *social movements* and the forced and rather abrupt departure of De Lozada, who nowadays lives 'in exile' in the USA. This period of political turbulence (and interim presidencies by Mesa and Rodríguez Veltze) ended in December 2005 when Evo Morales, leader of the coca-farmer movement and president of the *Movement toward Socialism* (MAS) (Mason 2009), was elected as the first indigenous president in the history of the country. "*Somos presidente*",³ is an expression that was frequently encountered in rural areas after Morales' election.

Figure 5.1
Economic growth in Bolivia (% of GDP), 1961-2010



Source: World Bank database, own elaboration.

Figure 5.2
Net official development assistance (ODA) received (in constant and current US\$, in millions)



Source: World Bank database, own elaboration.

Immediately after taking office Morales vowed to end ‘neoliberal’ policies and to work towards the emancipation of the poorer indigenous people of the country. The new *National Development Plan* (PND) contained many new proposals, including a significant restructuring of government and a complete overhaul of staffing. The government first acted to take control of gas and oil as Bolivia’s largest natural assets. A range of *conditional cash transfer* programmes like *Bono*

Juancito Pinto and *Bono Juana Azurduy* provided additional and directly available monetary resources to poor families with children and to pregnant women. Increased government attention to *social movements*, particularly indigenous organizations, were a reflection of these policy changes. A new and much debated and disputed⁴ constitution (2009) introduced the concept of *vivir bien* (living well). This notion, often used in the context of the current climate change movement in Bolivia, is usually contrasted with the capitalist appeal to *vivir mejor* (living better); and it certainly differs from the mainstream approaches of development agencies and NGOs towards ‘poverty alleviation’. Proponents argue that living well means having all one’s basic needs met while existing in harmony with the natural world; living better seeks a constant amassing of material goods at the expense of the environment.⁵

Development cooperation

As mentioned, the first more common development interventions in Bolivia can be traced back to the early 1950s, although sporadic efforts related to education and road development⁶ took place even earlier. After 1952, the governing Revolutionary Nationalist Movement (MNR) wanted to expand its ties with the USA, which in turn asked the MNR to abandon the political left. In response, the USA supported development projects, generally however with unsatisfactory outcomes. Food aid sometimes undermined local production, prolonging stagnation of rural agriculture in the highlands and Andean valleys. Under the *Alliance for Progress* the Kennedy Administration supported a six-fold increase in development assistance to Bolivia between 1960 and 1964 (Lehman 1999).

The first major wave of development interventions, however, started only after the drought of 1983. More intensive support became available after inception of the *New Economic Policy* in 1985 under the government of Paz Estenssoro, intended to end hyperinflation and to liquidate a pattern of developments based upon ‘state capitalism’, through the application of economic shock, inspired amongst others by Jeffrey Sachs (Van Niekerk 1994). To alleviate the effects of the macroeconomic policies and structural adjustment, a first *social emergency fund* was created with support from the World Bank, with many more to follow in later years. Even though it supported emergency funding, the World Bank did not promote an active rural development policy. On the contrary, the World Bank pressed the government to reduce the funding available for rural areas to a minimum and to emphasize instead macroeconomic adjustment policies. An entirely different approach was led by IFAD, which proposed an intensive rural development policy based on the existing economic potential in the rural communities of the Andean region (*ibid.*).

From the early 1980s until the second Morales government starting in 2009, Bolivia was quite dependent on donor contributions and various forms of development cooperation. Total *official development assistance* (ODA) increased from US \$1 billion in the 1970s to some US \$3.5 billion in the 1980s and US \$4 billion in the 1990s (IOB 1998). Recent data from the World Bank (see figure 5.2) paint a slightly different picture, but confirm the quick rise in development cooperation after 1983. In the years following the drought of 1983, the number of NGOs increased to around 385 (Durán 1990). Between 1986 and 1988, NGOs channelled some US \$165 million in resources into the country (*ibid.*). This is the context in which rural development efforts ‘took off’ in northern Chuquisaca. During the 1990s, over half of all public investment in Bolivia was financed by development aid, amounting to approximately US \$650 million per year. The Inter-American Development Bank, the Comisión Andina de Fomento (CAF)⁷ and the World Bank were the major multilateral donors.

After the mid-1990s, important changes took place in modalities of development cooperation. Practitioners increasingly acknowledged that isolated projects would not result in sustainable results (Schulpen 2001; DGIS 2003). Some of the more commonly mentioned negative consequences of project-based approaches are the patchwork management of development assistance, inadequate local ownership, the overloading of local capacity to coordinate donor relationships and lack of sustainability and institutional development, all of which resulted in wasted development resources (Euforic 2004; Grinspun 2001; Foster, Brown & Naschold 2000; Mayhew 2002). Aid agencies began to move resources from project funding to *sector-wide approaches (SWAs)*, which require donors to 'pool' their funding and make development cooperation part of the receiving countries' 'normal' government policy. In addition, national and international NGOs received support in many different modalities, varying from long-term institutional support from a group of core donors, to *ad hoc* support for specific projects from a wide variety of sources. Perhaps unsurprisingly, donor cooperation remained almost as fragmented in 2005-2006 as it was in the late 1990s and the early years of the new millennium. Lacking both a consistent government policy and a drive towards harmonization, donors continued 'picking' the more attractive fruits from the tree, which, however, were few and not all of them as juicy as they first appeared to be.

Over the past two decades, the donor community has been involved in a very broad range of programmes with central government (ministries) and local government, semi-autonomous institutions (e.g., SIBTA, INRA, Prosempa), but also executing interventions via support to international and national NGOs or social movements and through direct technical assistance. Towards the end of 2006, partly in response to the National Development Plan and increasing pressure from donor headquarters (e.g., the *Code of Conduct* introduced by the European Commission) and the 'Paris Agenda', donors made some strides towards harmonization. Broadly speaking there has been a shift among major donors towards working more with government counterparts, further sectoral concentration and a gradual reduction of direct technical assistance. But even with increased efforts towards *harmonization and alignment*, donor support has remained fragmented.⁸ In 2007, most donors were still active in six or seven sectors or themes. In 2008, progress had been made in only a few sectors towards more harmonized approaches (in the form of SWAPs and 'basket funds').⁹ Donors welcomed the new National Development Plan, but struggled to find effective ways to support the government, not in the least because of the limited interest and understanding of the international development agenda within 'high-level' government circles. This was expressed particularly in actions by President Morales himself, who frequently invited donors to support 'project-based' initiatives and readily accepted large amounts of 'off-budget' funding from Venezuela under the *Evo Cumple programme*, by which he could freely disburse allocations during field visits to rural municipalities. Morales also manifested a huge resistance against any proposal alluding to economic or political 'conditionalities', leading amongst others to expulsions or *persona non-grata* declarations of US ambassadors and the prohibition of USAID operations in 2013. This political stance also led to a much lower 'public' profile of the World Bank and IMF. The presence of new, non-traditional and non-aligned donors like Venezuela, Cuba and Japan further complicated the picture, as these countries continued financing their separate programmes. In recent years (at least until 2012) donor support was still far from being aligned and in conformity with 'national' priorities.

The continuous changes in the political arena and in government translated into substantial changes to policies, government institutions and intervention modalities over the course of a decade. Clear examples were the introduction and transformation of multiple social funds, but even

more illustrative was the transformation of agricultural extension services and research institutes from the SAI (*Servicio Agrícola Interamericano*) of the 1960s to IBTA (*Instituto Boliviano de Tecnología Agropecuaria*) founded in 1975 to SIBTA (*Sistema Boliviano de Tecnología Agropecuaria*) founded in 2000, to the establishment of INIAF (*Instituto Nacional de la Reforma Agraria*) in 2008.¹⁰ In parallel, rural development policies in Bolivia experienced major changes through the increasing importance of municipalities and the continuous transformation, reforms and overhaul of central government ministries. In the period between 2006 and 2012 at least four new ministries were created while a similar number changed names and mandates (with agricultural and water sector policies being the most evident cases). Thirteen government ministries counted at least four, five or even six ministers in less than six years.¹¹ In Bolivian practice,¹² this often implied changes of vice-ministers, directors and a large part of staffing as well, leading to discontinuities in policies and in implementation.

For better or worse, the development agenda is still part of Bolivian politics. Central government ministries including planning, rural development, health and water remain dependent on substantial donor funding. Notwithstanding the appreciable increase in revenues from the *hydrocarbon tax* the finance ministry has remained unwilling or unable to guarantee sufficient long-term funding even for core staffing in central government offices. The development agenda in Bolivia thus suffers not only from lack of progress in harmonization, but also from multiple internal discontinuities and therefore limited effectiveness in poverty alleviation. Many donors, frustrated by 'low expenditure' rates of their contributions to government, started again to look for alternative channels to spend their funds, which may have further contributed to the complex 'development mosaic' in Bolivia. These historical, political, economic and development trends and widely diverging approaches have had substantial impact¹³ in the country and in the Andean valleys of northern Chuquisaca.

5.3 Changing intervention patterns in the region

The current and main pattern of road infrastructure surrounding Sucre was already visible at the turn of the 19th century, and segments originated long before then. The path dependent character of infrastructural development is evident from the fact that the smaller rural towns around Sucre all originated as *reducciones de indios*, surrounded again by land that remained largely outside of their economies. This had long-term consequences for voting rights, as only the *mestizo* towns were allowed to vote during elections. This differential status changed only after the introduction of the Law on Popular Participation in 1994. Those towns (including Yamparáez, Mojocoya, Tarabuco and Yotala) still play an important role in relation to the surrounding communities. Within their municipal territories they almost always function as the municipal capital and as 'commercial' or transport hubs towards the main departmental capitals like Sucre, Cochabamba and Santa Cruz.

The revolution of 1952 and the land reform of 1953 were in principle good news for rural communities, as they were liberated from the hacienda system and forced labour practices and provided direct access to land. Although this period may already seem remote history for the younger community members, for the elderly generations memories of the hacienda and relations with the former owners of the haciendas are still present today. For *ayllus* and so-called *comunidades originarias* the land reform did not mark an immediate transformation, as they had a certain level of autonomy even before 1952. With the land reform, many of them in fact lost access to

land in other ecological zones. The land reform did not, however, result in a more structured rural development policy, as will be discussed further in chapter six.

As mentioned in chapter one, the start of still rather incidental development cooperation efforts in the Andean valleys probably dates back to the missionary work of the early 1950s. Peace Corps operations started in 1962, involving mainly health volunteers, technical assistance efforts and vaccination campaigns. Only in 1983, more than three decades after the land reform of 1952-1953, did northern Chuquisaca become part of wider-spectrum development efforts. From a historical perspective the incidence of 'development' efforts at the community level is thus a relatively new phenomenon for rural communities. For our analysis we can roughly divide the external presence into three main periods. The first period, up to the early 1980s, was still one of relatively few external interventions. There was the *National Community Development Service (SNDC)*, a still rather marginal presence of other state institutions and government-supported programmes, and a few NGOs, including ACLO (*Acción Cultural Loyola*) and IPTK (*Instituto Técnico Tomás Katari*).¹⁴ The second period started after the end of military rule in 1983. The drought of 1982-1983 affected rural areas across Bolivia, leading to a substantial increase in NGO interventions and a more regular state presence. During this period, a number of bilateral and multilateral programmes started to operate in the region. The third period started around 1996, and is marked by a gradual increase in the importance of municipalities and a parallel decline of the presence of NGOs as well as other state interventions. Table 5.1 shows these three periods and the number of individual projects we counted in the research communities.

Table 5.1
Changing external presence (number of projects per institutional category)

Community	<1983					1983-1996					1995-2011					Total
	Government.	Multi-bilat	Municipality	NGO	Other*	Government	Multi-bilat	Municipality +	NGO	Others	Government	Multi-bilat	Municipality +	NGO	Others	
Ovejera					1			1	8	1			2			13
Cochapampa					1	3	2	1	14	2	1		2	5	2	33
San Juan	1			1	2	4	3		4	2	3		26	2	1	49
San Juan Orcas				1		2		2	7	5	3		30	1	3	54
Pampa Lupiara					2	16	3	2	19	8			32	1	3	87
Talahuanca	1		1	3	1	2			3	4		3	16			34
Yurubamba						4	2	2	10	2	4		4	1		29
La Abra						3	3	1	3	1	2		5			18
Quila Quila	1			1	1	4	2		22	4	2		12	1	2	52
Sundur Huasi		1			1			1	10		4	1	10	6	6	40
Tuero						2	1		14		1	2	16			36
Escana	4			1	1	2	11	1	7	2	1	5	34	4		73
La Cañada						1	2		6	2			4	3		18
Wasa Ñucchu	1					2	1		10	5	1		15		1	36
Total	8	1	1	7	10	45	30	11	137	38	22	12	208	24	18	572

Source: PIED-studies, elaborated by author. Note: * Category 'other' includes church related, cooperatives and own community initiatives.

In the first period we counted only 27 external interventions. Between 1983 and 1996 that number increased to 261. In the final period we counted 284 interventions.

The strong increase in the importance of municipalities since 1996 and the new policies following the national political and constitutional changes had far-reaching implications for funding mechanisms, resource distribution and community involvement and decision-making. NGOs today are more inclined to synchronize their projects with municipal development plans. The changes in municipal development in Bolivia after 1996 restructured interactions between national government, NGOs and rural communities. Most communities started to relate to municipalities via elections and supra-communal organizations like *subcentralias* and increased their bargaining power in setting the local development agenda. The period after 1996 is analysed in a separate section, placing the emphasis on the role of the municipality. Table 5.2 presents a summary typology of the main external organizations operating in the region, most of them also with some presence in the research communities.

Table 5.2
Typology of 'development actors' in northern Chuquisaca and Potosí, 1982–2011

Type	State	Semi-state, bilateral or multilateral agreements	NGOs	Social organizations
Regional	CORDECH (after 1996 <i>Prefecture</i> and after 2009 <i>Gobernacion</i>). Municipalities/ Universities	Chuquisaca North Project/ Escana Project/ Irrigation Plan Chuquisaca/ Cardinal Maurer	ACLO/ IPTK-CYPRES/ PROAGRO-ITRUZ/ ASUR/ Treveris Committee/ PLAFOR/ ETAPAS/ Yacupaj/ CEDEC/ Juana Azurduy/ Catholic Church/ Evangelist Church/ Pastoral Social/ ACLO (radio)/ Caritas/ <u>Regional networks:</u> UNISUR/ CDDS	Federation/ <i>sindicato</i> /OTB/ <i>ayllus</i> / vigilance committees/ irrigation associations ADEPLECH/ cooperatives/ APROCAY/ AGROCENTRAL/ CORACA.
National and international special projects	Sector ministries: e.g. education; health; rural development/ BAB/ SNC/ SNDC/ OFINAAL/ ONAMFA	ESF/ FIS/ FDC/ IBTA/ PROINPA/ PROSABAR/ PLAREG/ PROSEMPA/ PMA/ PAC-EEC-Fertisuelos/ FAO/ UNICEF/ ZONISIG	CARE/ Plan International/ Swiss Red Cross/ PL-480/ SNV/ IMCC/ Fundación contra el Hambre. <u>National networks:</u> UNITAS/ Plan Sequia-PROCADE PRACA/ AIPE-PROYCOM	CSUTCB

Source: PIED-Andino studies. Note: * Based on examples and major institutions; only those appearing in the text are included in the list of abbreviations.

5.4 External presence and intervention modalities before 1996

Early developments

After the initial and still rather scattered missionary presence, one of the first major actors in the region – and in the country – was the *National Service for the Development of Communities (SNDC)*. This institution assisted a range of efforts initiated by a joint multilateral UN programme involving ILO, WHO, FAO, UNESCO, UNICEF and the United Nations Supervision of Technical Assistance Operations. In the early 1960s, SNDC, implemented under the umbrella of the *Ministry of Peasant Affairs*, became the main instrument for the military government of President Rene Barrientos to strengthen his political base in rural areas, with particular emphasis on the Andean valleys and Altiplano (Heilman 1982). The SNDC enjoyed substantial financial and technical support from USAID and Peace Corps, and managed to extend its coverage between 1964 and 1967 in five of the country's nine departments, reaching around 2,000 communities, including many in Chuquisaca. Starting its work in Chuquisaca in 1964 it realized "a fever of constructions which translated in numerous schools and health centres" (ACLO 1975). The guidelines for the SNDC programme were written by Isabel Kelly of USAID in 1959:

In order to guide a community tactfully toward recognition of its problems, without imposing external judgments, a pretty substantial grounding in the local culture is essential. There must be real ap-

preciation of needs, both from the viewpoint of the community itself and from that of the technicians (Heilman 1982: 185).

Initial efforts, however, did not take community involvement very seriously, as the programme was completely designed and implemented by foreign development experts. Evaluation results were disappointing, particularly regarding community participation, and a new 'self-help' village-oriented development programme was elaborated. At a second stage, the programme diversified its enthusiasm for construction works into the building of small dams, rural roads and irrigation channels, and it began to pay more attention to the communal organization and support for co-operatives and committees. The first annual report of the programme reads as a testimony to understanding internal community dynamics and decision-making at the community level, "how people are learning to do something for their own benefits and on their own initiative, and how they can get support from government agencies".¹⁵ The list of projects completed until 1967 included 363 schools, 217 agricultural extension projects, 120 drinking water systems, 63 irrigation projects, 25 roads and bridges, 79 health posts and 120 sheep dips. To some extent SNDC was transformed into a first 'superstructure' professing to cover all the *basic needs* of rural communities (ACLO 1975). Following ACLO's analysis of developments in Oropeza province,¹⁶ SNDC quickly experienced problems of bureaucratization and excessive superficiality and haste with regard to the definition of community needs. According to ACLO's diagnostic survey, "a felt need, did not automatically imply a real need or a basic problem" (*ibid.*). SNDC became the first active institution in the communities of Escana, San Juan and Quila Quila (e.g., in school construction and drinking water projects), and was still vividly remembered by *comunarios* in 1996.

In the context of this initial frenzy of development efforts it is important to note that most communities probably had little or no public services, except for the very minimalist structure inherited from the hacienda or a small school building they probably built themselves. The only other more substantive development efforts relate to vaccination campaigns and literacy programmes, such as those implemented by ACLO. Even in 1985, notwithstanding the agricultural potential of the department of Chuquisaca, there was not one agricultural centre linked to either IBTA or any other government institution (Schulze *et al.* 1988). The handful of communities with access to a primary school in the early 1960s and 1970s received no assistance or supervision.

Changes in focus

The history of ACLO (a Jesuit-led NGO) and its own changing modalities reflect the changing modes and perspectives in international development cooperation. ACLO was founded in 1966, only a few years after SNDC. It started working in literacy and radio communication from the late 1960s onwards. The organization quickly expanded into demonstration farms and research and began to support community organizations, cooperatives and establishment of rotating funds in the 1970s. After the drought of 1983, the main emphasis shifted again, initially to emergency relief under the *Plan Sequia* programme. In the following years, together with a range of other national NGOs involved in PRACA (an emergency relief programme) and PROCADÉ (a rural development programme), ACLO worked towards more systematic analysis of approaches in production and commercialization. Towards the end of the 1980s and 1990s, ACLO focused on food security in *micro-regions* and support for producer associations, providing them equipment

and commercialization assistance. In 1996, it shifted attention to municipal developments and producer associations in the centre of the department of Chuquisaca.

Other 'early' national and international NGOs in the region included IPTK (founded in 1976), Proagro, Plan International (starting its operations in Chuquisaca in 1978) and CARE. These NGOs exhibited similar evolution in approaches over time, but each with its own emphasis. Changes in their policies were influenced by a wide range of principally external factors. Opposition against military regimes (in the late 1970s and early 1980s), the emergency situation arising from the drought of 1983 and the impact of structural adjustment policies led to subsequent changes in objectives and operational modalities. As most NGOs depended almost exclusively on external donor funding, they also subscribed – at least on paper – to international donor objectives, such as rural development, basic needs, 'capacity building' and food security. IPTK, which was still one of the larger NGOs in the region in 2011, was active during most of the 1980s and 1990s maintaining a strong political focus linked to the opposition *Movement for a Free Bolivia* (Bebbington 2002). In the first two decades of its operations, IPTK even established what could be termed a 'parallel government' in a few provinces in northern Potosí. Before the start of the municipal development process, the organization was the most dominant political and development actor, delivering basic services, but also providing training for young community leaders at its training centre in Ocurí. Other NGOs manifested similarly 'leftist' political affiliations.

The political focus had obvious implications for the relationship with the state, both in terms of NGOs' political stance vis-à-vis the last military governments and in their regular cooperation with the subsequent democratically elected governments, especially as they had largely taken over regular government responsibilities, such as health and education, or assumed these responsibilities in the state's absence. According to Bebbington (*ibid.*), the political focus also led to selective support for economic organizations.¹⁷ While NGOs like IPTK, Proagro and CEDEC contributed to alleviating shortages of 'basic needs' in rural areas, their continued and dominant presence might have led to subsequent distortions in government resource allocation. This picture changed only with the introduction of the *Law on Popular Participation*, although NGOs still operated as important advisers and 'caretakers' of municipal development plans.¹⁸

The larger NGOs basically defined their own – sometimes overlapping – territories. Some of the smaller NGOs followed suit, again with their territorial coverage often partly coinciding with those of larger NGOs. Political party linkages played an important role here too. Even after 35 years, IPTK still worked in the same region following an 'integrated rural development' perspective, although its community-level activities did not always reflect a comprehensive approach. Other NGOs were more sector-focused and 'moved on' through the region after 'finishing' operations in a certain sector. Only in a few cases did NGOs remain more continuously involved with the same community. Examples were the presence of ACLO in Pampa Lupiara, IPTK's presence in Yurubamba and Cochapampa, and Plan International's involvement in Quila Quila. ACLO's efforts were relatively well received and consistent over time; the others were more fragmented and interrupted, particularly in the case of IPTK, with relationships in several communities becoming heated over time (Guerrero, cited in Bebbington 2002).

On the operational side, differences were found in field presence. As is still common practice among NGOs, CARE requested its staff in the 1990s to reside in rural areas three consecutive weeks every month. Relatively low pay and harsh circumstances, as well as the attractiveness and conveniences of city life in Sucre, however, led to a high turnover rate in the more remote rural

offices and government institutions. Further, staff motivation was probably reduced over time as work with NGOs gradually transformed from having a rather political connotation (supporting 'social movements' and human rights) to become a more regular employment alternative. Furthermore, better-paid labour opportunities came available for many unemployed urban youths and for those with community origins.

Prolonged fieldwork also complicated the hiring of women with small children, especially in areas with limited schooling facilities. Nonetheless, the gradual improvements in major road infrastructure and access, as well as in facilities in the smaller towns and in project offices led to better 'fieldwork' conditions. Goudsmit (2006: 212) cites the director of a major NGO working in northern Potosí, indicating that its success depended on local staffing, "people who feel at home and at ease in the countryside, who are not continuously thinking of getting out". In a personal interview in 2011, Walter Valda, Director of FPS in Sucre, underlined the complexity of encounters between relatively privileged NGO staff, principally from the white or *mestizo* elite, and rural communities. Problems may result, for instance, from the presence of family members of former regional or local power groups in development organizations. Based on research in northern Potosí, Goudsmit (2006: 214) concludes that "development agencies not only provided landlords with new possibilities to reinforce their asymmetrical relations with peasants, but also a new stage on which to re-enact their symbolic dominance".

Government organizations, such as the regional development corporations¹⁹ (CORDECH, CORDEPO), in principle, had to follow their regional mandate, but their interventions were often influenced by regional and local private interests. According to Irahola (2010), in the municipalities of Monteagudo and Sopachuy, as well as elsewhere in Chuquisaca, CORDECH officials kept close ties with local elites and maintained clientelistic relations with the local population. Many among the higher staff of CORDECH belonged to the white mestizo elite, originating from the haciendas in the region (*ibid.*). Other sources confirm CORDECH's direct and substantial investments in the 'restoration' of former hacienda properties (Valda personal communication 2011). It is therefore hardly surprising that, apart from specific rural development programmes, such as the Northern Chuquisaca Development Programme, initiated by IFAD (described below), the investments of the regional government had limited impact in rural communities.

Changes in the investment focus of the regional government, nonetheless, had consequences for the regional distribution of investments. State institutions like IBTA, Prosempa and the *Agricultural Bank* (BAB) followed nationally defined selection criteria or were aligned with major bilateral or multilateral programmes, many of which focused on areas with higher productive potential, for instance, in potato production.²⁰ One of the major programmes in the region was the aforementioned *Northern Chuquisaca Development Programme*, funded by IFAD. This programme attracted counterpart funding from all these government institutions. Its operations were concentrated in the Rio Chico valley²¹ and, to a lesser extent, neighbouring areas. With the start of the municipal decentralization programme the distribution of funding became more balanced, but it still suffered numerous distortions, as will be detailed below.

5.5 External presence after 1996: municipalities become the main players²²

Changes in municipal mandates and funding

Decentralization policies were one of the most important factors influencing local developments in the communities under study. In 1996, the first impacts of the *Law on Popular Participation* became evident. Although the process was far from straightforward, municipalities gained a broader mandate and far more resources than in the past, and they also came to play an important role in implementing national government and sector policies. Decentralization brought a shift of investment from infrastructure to basic services (e.g., education, health and water). It also changed the relationship between government and local communities, and communities' relations with other actors in the field. Changes in municipal development, therefore, are key to understanding how national government, donor and NGO interventions were influenced or restructured by the implementation of the LPP, and how this restructuring process in turn influenced rural pathways and livelihoods.

On average, municipalities saw a six-fold to ten-fold increase in their budgets over the first decade of the new millennium (Dulon and Weenink 2010). The investment budget of Yamparáez increased, for example, from Bs 1.9 million to Bs 22 million between 2000 and 2008. The increase was especially strong at the final stage when *municipios* received more funds than before, as the resources distributed included additional funds from a redistribution of gas income and debt relief.²³ On top of that, municipalities received extra funding both through NGOs and bilateral or multilateral programmes. Few municipalities experienced a relative increase in locally derived revenues, though in Yotala and Poroma these reached around 10-20% of total expenditures. The registered contributions of other institutions (e.g., development agencies such as JICA, UNICEF and IDB), varied between 0 and 33% in the five municipalities of northern Chuquisaca.

With the additional funding, public service delivery in the form of health posts, schools, drinking water and electricity were steadily expanded. The spread of investments,²⁴ however, was unequal due to distortions in the allocation mechanism, both among government institutions and among municipalities and NGOs. Specified productive investments increased from 1% to 27% between 2000 and 2008 in Yamparáez and from 4% to 21 % in Yotala, but at the same time decreased in Zudáñez from 9% to 7%. Even the share of spending on education was relatively heterogeneous (10-26%). Poroma and Tarabuco experienced an increase, while Yamparáez and Mojocoya suffered an almost similar level of decline.

Although municipal capacity improved due to more and better trained staff, high levels of staff turnover – especially after elections – affected the continuity of their operations and severely limited opportunities for more strategic approaches. Municipalities also remained dependent on NGOs for support. However, discrepancies between programmed and implemented budgets were substantially reduced between 2006 and 2008.

From the available data it appears that much NGO spending in municipal areas was not included in municipal development plans (*Plan de Desarrollo Municipal*), nor included in regular planning exercises. Local governments certainly started to play a major role in coordinating efforts at the regional level (e.g., either municipality or *mancomunidad*²⁵). Municipalities like Yamparáez and Tarabuco typically dealt with 10-20 different institutions working in a more or less 'aligned' fashion (in terms of planning, budgeting, implementation and coordination) under their municipal development plans. NGOs were keen to be involved in the formulation and implementation of

the plans and in coordination with the municipality, but often they still set their own criteria for interventions. The distribution of municipal ‘projects’ also remained skewed towards the bigger communities, perhaps due to their ease of access and greater influence.

One factor that possibly influenced national government, municipal and NGO funding allocations was shifts in donor support. Appendix 5.1 presents an overview, though certainly not an exhaustive one, of programmes supported by the Netherlands that were operational in Chuquisaca or Potosí (although not necessarily in the research communities). Some benefited from substantial institutional continuity in support over time with assistance provided by the Ministry of Education, INRA and the SNV Netherlands Development Organisation, among others. Others faced frequent shifts, both in the orientation of support and in funding levels. Within the framework of the current study it is not possible to analyse these in depth, but broadly speaking there was a shift towards working more with central government (ministries) and local government counterparts (prefecture and municipal), increased concentration in a limited number of sectors,²⁶ a gradual decline in emphasis on the multilateral and bilateral channels and ‘direct funding’ (*fondos*), and a complete phasing out of direct technical assistance. Finally, both the embassy and Dutch co-financing organizations²⁷ drastically reduced their support for NGO counterparts, both in Bolivia and in this particular region. In April 2011, the Dutch government decided to phase out its entire embassy programme and closed its embassy in 2013 for the second time, having also left the country from 1973 to 1983.

Yet the institutional picture in Chuquisaca remained complex, taking into account the many government institutions, counterparts of donors such as Switzerland, Denmark, Germany, USAID, Spain and the UN, and the numerous NGOs that received funding from an array of external sources.

The internal municipal context

The internal municipal context played a large part in defining access to municipalities and municipal funding. The municipal offices of Yamparáez were better accessible than those of Poroma for most communities in these respective municipalities. Accessibility worked in both directions. Less accessible communities had to expend considerable effort to present their demands to the municipal offices, and municipalities could access some communities with much greater ease than others. Difficulty in accessing a community, particularly in the rainy season, was at times a reason to postpone or cancel implementation of municipal projects.

In Yamparáez, the average distance for rural communities to the municipal offices is less than 20 km, while in Poroma the average distance is around 100 km. In Yamparáez, among the most distant communities (>20 km), seven of the sixteen communities (including Talahuanca) received less than Bs 500 *per capita* over the period from 2000 to 2008, far less than the average of around Bs 2,300 for all rural communities in the municipality. For communities within a radius of 15 kilometres from the municipal offices, only two of the sixteen received less than Bs 500 *per capita*. The large share and predominance of spending in the main town and on ‘municipal affairs’ partly explain the limited funding available for rural communities. But location and accessibility were also factors in allocation levels to individual communities.

The increasing availability of funding at the municipal level initially led to a wave of ‘*ad hoc*’ interventions, like the improvement of *plazas* and the acquisition of cars for major projects, often completely unrelated to local demands. After several years the emphasis shifted to social services.

Recently, municipalities started to play a more active role in productive infrastructure. They gradually became better in providing ‘more of the same’ (e.g., schools and rainwater catchment areas), but the adequacy and quality of interventions still varied according to local circumstances. Problems persisted with respect to quality and maintenance. Municipalities did not have well-developed strategies for ensuring equitable distribution of investments. One of the approaches used by NGOs was to ask for counterpart funding, to try to ensure long-term maintenance of project interventions. Municipal or NGO staff was then assigned to technical supervision of the project. While this may have worked in some cases, such *earmarking* of funding is in the short term not conducive to equitable municipal policies and in the long run probably not sustainable. Municipalities had limited abilities to raise local revenues, which in turn weakened their accountability towards these communities.

Changes in local and regional power relations are largely beyond the scope of this study, but in the past decade a loss of influence among traditional parties could be noted in both the prefecture and municipal seats (probably also influencing their relations with major NGOs, like IPTK). At the same time, the MAS party built upon rural alliances with the *Provincial Farmer Federation* linked to the CSUTCB and finally won the ‘battle’ between rural and urban voters for power during the last elections for regional government (ending the traditional dominance of Sucre elites). These changes quickly led to major changes in staffing within the regional government and also influenced relations with both central government and rural municipalities.

Changes in the central government after the election of President Morales further strengthened the farmer federation, while also reinforcing the federation’s political connectedness at the national level. The MAS party provided the federation with new buildings for meetings and activities, often close to municipal offices, in exchange demanding political loyalty in elections and in the process of drafting a new constitution.

5.6 Trends and implications for pathway differentiation

The abovementioned changes in external presence were reflected in rural communities’ developmental pathways. Although the external presence was sporadic in the more distant and isolated communities, like Llavisa,²⁸ the majority of the research communities gradually established a pattern of more frequent interactions with government institutions and with NGOs. Since the drought of 1982-1983, which marked the more permanent entry of a substantial group of NGOs, most communities have engaged in a rather intensive agenda encompassing a broad range of both *demand-driven* and *supply-driven* projects and programmes and technical assistance. Among the 14 communities under study here, we counted roughly 600 different external interventions in the period from 1983 to 2011. This figure, however, should be interpreted with a degree of caution.²⁹ While a few interventions were indeed large in scale,³⁰ most were quite small, both in terms of beneficiary numbers and in investment. In addition, some interventions are difficult to quantify, such as *conditional cash transfers*, vaccination campaigns and various other services and programmes delivered by the municipality (such as SUMI, an infant and maternal health programme). These activities were generally not noted as individual projects during community workshops. Tables 5.3 and 5.4 and appendix 5.3, therefore, provide only a rough indication of the distribution between projects in the productive and public sphere.

Over a longer period of time, the distribution of external interventions between *decline* and *growth* pathway communities appears to have been relatively balanced, but there were substantial

differences in the timing, sequencing and, in particular, also in investment levels, as we will see in the following chapters. Taking into account the almost absolute lack of services and infrastructure until the early 1960s, the question may be asked as to how communities ended up with this rather heterogeneous pattern of interventions. Initially the more accessible communities and those with more evident productive potential attracted most external interventions. While the *decline* pathway gradually caught up in service delivery interventions, reflecting somewhat of a delayed ‘trickle down’ effect, in the productive sphere the balance, particularly in investment levels, remained far more favourable for the *growth* pathway.

The first communities to benefit substantially from external interventions were Escana, Pampa Lupiara, Quila Quila and to a lesser extent Wasa Ñucchu and Tuero Chico. This comes as little surprise, as the first three communities are relatively large, not far from Sucre and well known historically, and the first two have clear productive potential. The first three furthermore benefited from an early presence of either SNDC, Plan International or ACLO, which were among the foremost actors in the initial phase of interventions in the region. The other two communities are close to Sucre and along the main road to Potosí, respectively. Talahuanca and Cochapampa are examples of communities that received less attention in the early decades. These *dryland* communities still faced accessibility issues in 2011 and did not exhibit the same ‘potential’ as, for instance, Pampa Lupiara. While Cochapampa benefited from IPTK support in the 1980s, IPTK’s interventions were more ‘spread out’ and less intensive than those of ACLO in Pampa Lupiara or of Plan International in Quila Quila.

The differentiation in external presence confirms to a certain extent the distinction and often resulting differential treatment between *high-potential areas* and *less favoured areas* (Ruben *et al.* 2007). This reflects a self-reinforcing pattern, related to the existing presence of other institutions (Koch 2007), the possible complementarity between different actions, recurrent needs for maintenance, extension or upgrading of existing infrastructure, and the growing capacity of communities in dealings with external institutions and in attracting additional support.

Initial NGO presence resulted in support for basic services, food aid, seed supply and in some instances to a search for more structural alternatives (e.g., new irrigation systems). The introduction of new seed varieties began long before 1983, but a strong increase took place after 1983, especially among communities on *growth* pathways and in potato-specialized communities, like Pampa Lupiara and Yurubamba.

Table 5.3
Projects in the productive sphere (number of projects)*

<i>Pathway (total)</i>	<i>Community</i>	<i>Agriculture</i>	<i>Irrigation</i>	<i>Storage, transf.</i>	<i>Forestry-fruit</i>	<i>Live-stock</i>	<i>Credit</i>	<i>Capacity build.</i>	<i>Emergency</i>	<i>Total</i>
Dryland decline	Ovejeras	3	1							4
(36)	Cochapampa	4	1	2	1	4	2		1	15
	San Juan	4	4	1			1	2	1	13
	San Juan Orcas	1			1			1	1	4
Dryland growth	Pampa Lupiara	17		6	3	5	2	3	1	37
(66)	Talahuanca	2	1	2	1			2	1	9
	Yurubamba	2	1	1	5	2	2		1	14
Irrigation decline	La Abra		4				2			6
(53)	Quila Quila	2	4	5	2	1			1	15
	Sundur Huasi	6	2	6	2	2	1	2		21
	Tuero	1	7				1	1	1	11
Irrigation growth	Escana	2	12	1	3	2	2	1	1	24
(47)	La Cañada	4	5	1	1		1		1	13
	Wasa Ñucchu		6	1		2			1	10
	Total	48	48	26	19	18	14	12	11	196

Source: Community surveys. Note: * The absolute number in no way reflects investment levels; rather it provides a rough indication of the number of actors involved in the various communities and sectors.

Early road access and the building up of school facilities influenced the later definition of *nucleos* (communities with extended schooling facilities, like Escana and Pampa Lupiara) and the subsequent benefit of easy access for children in those communities. With the gradual extension of interventions in basic education, roads, emergency aid, health centres and seed supply, the development process gradually became more than the sum of, in many cases, institutionally unrelated development interventions, leading to positive *externalities*, *economies of scale* and regional *agglomeration* effects (Koch & Ruben 2008). This process was evident, for instance, in the productive sphere and in education in both Pampa Lupiara and La Cañada/Redención Pampa (to be detailed further in following chapters). Early road access influenced the ability to travel and market agricultural products and also facilitated access to schools, the entry of other institutions and the gradual expansion of other services. It is therefore not surprising that those communities which tended to attract more projects and services also ended up with a wider range of public services and a more concentrated settlement pattern. This will be discussed in chapter ten.

Table 5.4
Projects related to provision of public services (number of projects)

<i>Pathway (total)</i>	<i>Community</i>	<i>Educa-tion</i>	<i>Roads bridg-es</i>	<i>W&S*</i>	<i>Health</i>	<i>Other</i>	<i>Trade</i>	<i>Ener-gy</i>	<i>Hous-ing</i>	<i>Total</i>
Dryland decline (113)	Ovejerias	2	1	2	1	1	1	1		9
	Cochapampa	3	2	4	4	3	1	1		18
	San Juan	9	8	5	5	5		3	1	36
	San Juan Or-cas	23	5	5	5	11			1	50
Dryland growth (90)	Pampa Lupiara	19	2	6	9	9		5		50
	Talahuanca	9	4	3		4	2	1	2	25
	Yurubamba	4	2	2	3		3	1		15
Irrigation de- cline (93)	La Abra	2	1	3	2	1	1	1	1	12
	Quila Quila	8	5	4	4	7	9			37
	Sundur Huasi	3	4	2	4	1	1	1	3	19
	Tuero	4	1	6	5	2	2	2	3	25
Irrigation growth (80)	Escana	13	12	6	6	3	6	2	1	49
	La Cañada	2		1		1	1			5
	Wasa Ñucchu	4	9	6	2		3	1	1	26
	Total		105	56	55	50	48	30	19	13

Source: Community surveys. Note: * W&S = water and sanitation.

This intervention pattern resulted in an extremely unequal distribution of support in the period between 1983 and 1996. Among the 17 research communities of the PIED-Andino first phase the difference between the extremes was as large as 50:1 in the number of external interventions. While communities with the largest numbers of projects in the first phase continued to receive substantial support after 1996, following the start of the decentralization process the overall distribution gradually became more balanced, with previously rather marginal communities showing a substantial increase in external presence. San Juan de Orcas and San Juan experienced an almost doubling of external interventions, while Quila Quila, Cochapampa, La Cañada and Ovejerias faced a reduction in the number of interventions to less than half or only about a quarter.

For Ovejerias Alto, this was the logical consequence of the community being abandoned, and the figure for La Cañada shows a 'quantitative' distortion. The number of projects indeed declined, but total investment increased considerably, both in the community and in the region around Redención Pampa. The same held true for Wasa Ñucchu. It hosted 20% less projects in 1996-2011 than in the previous 15-year period, but on *per capita* basis the community received by far the highest municipal contribution of all the surveyed communities.

Finally, the continuous shifts between government institutions, NGOs, municipalities and other actors were translated into changing sectoral policies. Nonetheless, as appendix 5.3 illus-

trates, all of the different institutional categories distributed their attention over a broad sectoral spectrum, though central government was the dominant player in energy provision; multilateral and bilateral programmes spent more on road construction and housing and less in health; municipalities were involved more in water and sanitation and less in forestry; and NGOs were active in virtually all areas. The apparent fragmentation among these channels indicates the complexity of comparisons of effectiveness between the different institutional channels' implementation.

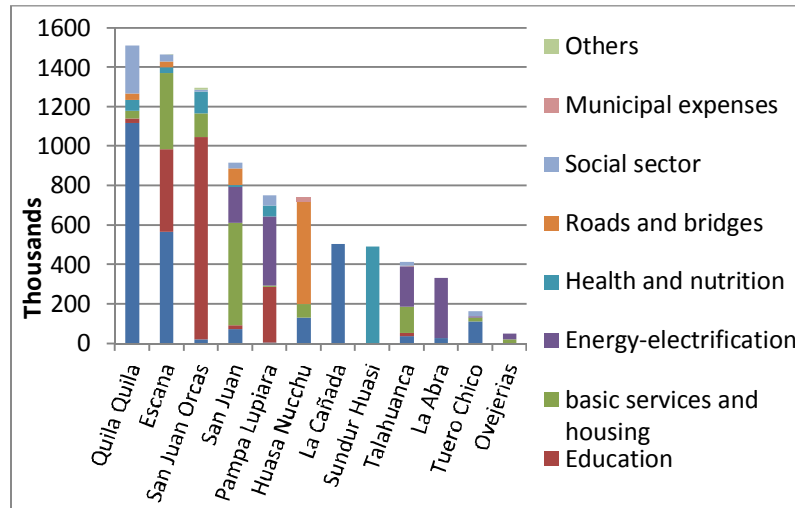
Interaction between communities and municipalities

As indicated above, after 1996, municipalities came to play a dominant role in the local development agenda. Over the 15 years from 1996 to 2011, community participation in municipal decentralization increased immensely, as did the overall responsiveness of municipal governments to local demands. Communities became reasonably well acquainted with governance processes. They prepared their own internal planning cycles and launched their own candidates for municipal office. Overall, municipalities spent more than Bs 7.5 million in 12 of the survey communities between 2000 and 2008. Comparing expenditure levels, appendix 5.7 ranks communities according to (i) the total amount of funding received (figure 5.3), (ii) the number of projects implemented and (iii) average expenditure *per capita*. Escana scores the highest, while Ovejerias ranks lowest. Average *per capita* expenditure over the period reached only Bs 1,400 (approx. US \$250) for these communities, with Wasa Ñucchu scoring almost three times the average and Pampa Lupiara just half the average.

Communities articulated their demands towards municipal and higher levels through both the *sindicato* and *ayllu* organizational structures. As indicated in chapter three, though these structures differ, the means by which they conveyed demands to the central government level was very similar, with most demands in both cases relating to access to land, natural resources, 'municipal' funding and, in some cases, claims for autonomy.

Municipalities were in the past dominated by the main town and a small urban mestizo elite. After the change process initiated with the *Law on Popular Participation*, and especially after the entry of the MAS government, communities, or groups of communities together at the level of *subcentralias*, had greater capacity to influence the composition of the municipal council and the election of the mayor. After internal consultations, they reached basic agreements regarding candidates and the final voting and election. Smaller communities, however, generally had less chance to present eligible candidates for *consejal* or mayor. This political 'capture' of municipalities by a number of communities or local power groups may further erode communities' confidence and enthusiasm for presenting demands or delivering their share in project implementation.

Figure 5.3
Sectoral distribution of municipal expenditures in survey communities (in Bs), 2000-2008



Source: Own elaboration; data provided by the Ministry of Planning.

In many communities voting was strongly influenced by the *sindicato* or *subcentralia*. This happened, for example, in Escana and neighbouring communities, which jointly chose their candidates for several municipal functions. Influence was also evident in the strong shift towards support for the MAS party, especially in La Abra and Tuero Chico (see appendices 5.7 and 5.8). That latter community voted almost unanimously for MAS in the 2010 municipal elections, after receiving substantial support from the central government for housing improvements. The figures also exemplify the complete demise of traditional parties, like the MNR (*Movimiento Nacional Revolucionario*) and MIR (*Movimiento Izquierda Revolucionario*), which had still played an important role in the previous municipal elections, and the surge in popularity of a range of new local parties in the municipal elections of 2010.

Another and probably still more effective way for communities to gain access to municipal funding was to have their leaders elected either as mayor or in the municipal council, or even as leader of the *subcentralia*. This latter, in effect, became an almost indispensable step towards the position of mayor. At least four of the communities were able to access municipal functions as mayor or *consejal* between 2000 and 2010. Some of these leaders later jumped to jobs higher in the hierarchy, in Sucre or even La Paz. Although several communities succeeded in nominating their candidate, their subsequent experiences and benefits were mixed. In 2010, Pampa Luplara managed to get two candidates elected for two opposing parties.³¹ Its municipal vote was indeed clearly divided between the MAS and MSM. The community was disappointed with the outcome however. The relatively small vote for MAS in Quila Quila is not surprising, considering the prolonged conflict there regarding land issues (see chapter six).

Similar efforts to capture political power were evident in La Cañada and around the town of Redención Pampa. The *Law on Popular Participation* originally envisaged so-called *vigilance committees*. In practice, these were virtually abandoned and transformed into a mere extension of the *sindicato* structure, linked to the national farmer federation (CSUTCB). Their relation with the municipality thus became 'organic', as is the favoured political term in the context of social movements in

Bolivia. Indeed, as a technical staff member of the municipality of Mojocoya expressed, “for affairs related to agricultural production, you need to talk to the [Office of the] Federation”. Although the *sindicato* and *subcentralia* structure was certainly more embedded at the community level, it turned out to be less effective than expected in reviewing municipal accounts and in taking measures against failing municipalities or corruption cases.³²

Communities thus became more than mere recipients of external resources provided by the municipality. They increasingly perceived the municipality as a rotating funding machinery, with an almost implicit guarantee of projects in the next couple of years. Municipalities were viewed as vehicles for resolving basic problems and supporting communities whenever, for example, road maintenance was due, when an additional *item* (new teacher) was needed or to forward local demands to central government. Communities needed active leaders to gain access to municipal resources and to lobby NGOs and other government institutions. As these leaders were unpaid – and often hardly compensated for their time and travel costs – interest in assuming these functions declined. As a logical consequence, the selection of leaders became increasingly based on simple rotation instead of leadership qualities, hindering, in turn, communities’ abilities to embark on long-term strategies.

5.7 Encounters and con-fusion

Just as development organizations have their policies, philosophies and established ways of interacting with rural communities, communities have their ways and practices for attracting development projects and transforming external proposals to serve their own agendas and expectations. Bringing demand and supply together at the ‘interface’ is therefore in many cases a rather intricate exercise (Long & Van der Ploeg 1989; Long 1990). This section focuses principally on those elements of development policies and intervention modalities that may affect the long-term relations between external organizations and communities.

Intervention areas

While external organizations negotiate with individual *sindicato* or *ayllu* authorities, particular programmes’ areas of intervention were generally larger than an individual community. Some programmes worked with all communities in a certain district, valley or watershed; others negotiated their activities at the level of the *subcentralia*. In a few cases, they initiated work based on the sum of individual community demands in a certain region. Intervention areas and modalities also differed between actors and sectors. Multiple and overlapping domains, from both an administrative perspective and a community perspective, in some cases led to cumbersome compromises and contradictory approaches.³³ While some NGOs changed their focus from extensive coverage in a wide number of communities to more intensive work with a smaller group, others turned the other way, expanding their intervention area. Some NGOs eventually promulgated more integrated approaches, others continued to concentrate on one particular sector, which generally allowed for faster implementation or *scaling up* of interventions. Their approaches towards community organizations differed in all of these cases, with the latter approach often being more supply-driven and based upon ‘fixed design’ modalities.

Conditionalities, incentives and beneficiary selection

Organizations have taken a variety of approaches to community participation, beneficiary selection and use of conditionalities or incentives. Conditionalities, incentives and beneficiary selection have been the subject of discussion in daily practice and in the literature (e.g., Stokke 1995; Martens 2002; Posthumus 2005), although much of the debate regarding conditionalities has remained at the macroeconomic and political level. The use of incentives may favour participation in the short term, but it might also create dependencies and distort communities' or individual households' motivation to take ownership of project implementation. Conditionality can be used at different levels, and may lead to adjustments in beneficiary selection or in the contributions or resources that beneficiaries are asked to deliver. The use of conditionality can appear appropriate from an external perspective,³⁴ but individual communities and households often have a different perception of their validity.

In the study area, external projects often defined up front their criteria for beneficiary selection.³⁵ Interactions between external organizations and communities transpired to determine not only whether an intervention would be realized, but under what conditions, when and with whom. Minimal conditions were often required in terms of access to resources or community participation. For the external organization, interventions were sometimes part of an annual work plan following an internal organizational calendar or predefined 'logical framework'. Or they were efforts to respond to incidental demands from communities and incorporate them into ongoing cooperation. External organizations often pressed *sindicatos* to identify direct counterparts for them, or they might request parallel organizations to be established, such as committees or associations that could lead project implementation through its various stages. This process was oftentimes rather fuzzy, and did not automatically lead to a balanced participation of community members.

After initial contacts and elaboration of a work plan, external organizations often continued to deal with a few *dirigentes*, a new committee, so-called community *promotores* or 'health care workers' or directly with intended beneficiaries. The community assembly was consulted only on major issues and events. There were few cases in which NGOs had refrained from deliberate efforts to plan up front, instead investing more systematically in long-term relations with a community or group of communities. As discussed in chapter four, *sindicatos* played an intermediate role in defining community participation in larger public works. In principle, community members had to contribute equally, but due to differences in household composition, some (like those of widows) were allowed to fulfil relatively lighter jobs or to delegate their work to others. Interactions regarding community participation were often complex, as external parties may define labour days according to their own schedule and finalize implementation plans themselves. For community members, however, labour participation was often an important measure to establish subsequent access and user rights to services (like irrigation or drinking water).

Incentives can play a productive or counterproductive role in relations with communities. While the appropriateness of food aid under certain circumstances has been extensively discussed (e.g., Maxwell 1978; Madeley *et al.* 1991; Abdulai *et al.* 2005), more complex incentive systems to motivate people for collective action have received less attention. Indeed, food aid or provision of basic equipment was oftentimes used as an incentive for road construction or the building of major public infrastructure in communities. An argument for its use in such cases was to compensate farmers for the time dedicated to project implementation, which they could have

spent in other productive activities. To participate in larger and more time-consuming infrastructure construction, which may take anywhere from 10 to 200 days, households may face real constraints in their regular production efforts. In a few cases³⁶ labour participation was compensated in cash.

Incentives may be provided up front as community members receive seed supplies, fertilizers or fruit or forestry seedlings, under condition of partial recompense after harvest. If production is good enough the farmer benefits, if harvest results in failure it may lead to complicated negotiations, indebtedness or refusal to pay. Surprisingly, some institutions requested repayment in the form of part of the harvest or production in forestry far beyond their own institutional lifespan. Apart from the formulation and possible negotiations with the community regarding conditionalities and incentives, misunderstandings were frequent in the actual follow-up. Among the different credit schemes, many outstanding loans were never repaid, sometimes due to lack of payment capacity, but more often due to the perception that the product or loan received would probably be converted into a donation, or would be cancelled anyway. Non-payment by a group of recipients, of course, undermines the willingness of the remaining population to fulfil their obligations. As mentioned by various authors (e.g., Zutter 1994) and as we found in the PIED-Andino study (Le Grand 1998b: 386), translation mistakes and misunderstanding of the meaning and significance of certain words in Quechua frequently led to divergent perceptions of the 'status' of benefits received.

External interventions rarely succeeded in reaching out to the whole of the community. For most, a counterpart contribution was requested, in the form of either labour or locally available materials. Providers expected to obtain a multiplier effect through the piloting of certain activities or the use of *demonstration plots*. Indeed, most external organizations faced budget constraints, but as they still wanted to fulfil certain targets, cost-effectiveness considerations played a role in priority setting, selection of beneficiaries and definition of intervention modalities. The result was in some cases that more marginal groups were left out of the picture. Selection criteria may be based not only on calculations before an intervention, but also include already realized investments or *sunk costs*, which might make it more attractive to continue investing or to rehabilitate prior investments, even when the overall investment is hardly profitable in purely economic terms. This was the case for several irrigation-related interventions in Escana and in the Rio Chico valley, as we will see in chapter eight.

Apart from direct incentives or conditionalities, communities considered the balance between their own and the external contribution in deliberating on proposed interventions. In line with existing informal exchange practices, community members expected something in return for their labour efforts. Moreover, their perception of the balance in exchange mechanisms generally referred back to previous experiences. If house-building was previously accomplished through the practice of *mink'a* (a collective labour arrangement in which community members assist one another in exchange for food, alcohol or other products), involvement and participation in subsequent collective housing improvements were likely to be measured against a similar standard, even if the benefits were to accrue to themselves. Finally, modalities for gaining access to land and seed supplies were diverse and in some cases did not coincide with external proposals.

Communities differed markedly in their internal constraints and abilities to contribute to collective action efforts. Agricultural calendars varied hugely between those with and those without irrigation and in relation to complementary activities and migration. With the gradually shifting

and ageing populations and increasing school enrolments, communities faced an overall decline in the availability of labour, complicating the possibility to motivate or 'to move' (Kessler 2006) communities to participate in collective efforts to build infrastructure and to be involved in their subsequent operation and maintenance. Partly in response, external organizations developed new modalities, such as *obra vendida* (paid services, with contracts awarded via a tendering process). This largely precludes community members from participation, but it also complicates the subsequent definition of access rights, as we will see in the following chapters.

Further complications arise when different organizations apply different incentives or conditionalities in the same community or in nearby areas. This happened with surprising frequency, both in the productive sphere and in public services. One organization may try to convince community members to invest time and labour in infrastructure, thus increasing community ownership, while others do just the opposite. In Ovejerias a bilateral programme donated improved-breed goats to a number of individual households while in a similar effort another organization – an NGO – requested households to reciprocate by giving offspring to fellow community members in a 'pass on the benefit' mechanism. The NGO's aim was to extend the overall impact and lifespan of the project and motivate future beneficiaries to keep an eye on progress made by those already involved. Another area in which contradictory incentives were frequently applied is the forestry sector. Examples were documented in Pampa Lupiara, Yurubamba and Escana (Le Grand 1998).

External institutions' *ad hoc*, uncoordinated and sometimes contradictory use of incentives affected the willingness of community members to invest systematically in agricultural production and innovation. This was especially the case when external institutions provided all of the main inputs. The Bolivian government's recently implemented investment modalities may further reinforce this process. The rapid expansion of *conditional cash transfers* (to keep children in school or to attend reproductive health care) may further affect community members' incentives to provide labour for collective efforts. This is a pertinent question for future research.

Beneficiary selection and internal differentiation

As indicated in chapter three, several communities experienced a substantial increase in resources, but we also noted differentiation between as well as within communities. The poorest families in all communities remained just about as poor as the families in the lowest income strata selected for the more in-depth study 15 years ago. In the 1997 study we noted the difficulty of reaching the poorest households. This raises questions regarding the interaction process with external institutions and the process of beneficiary selection. One obvious reason why external organizations tend to favour the intermediate or richer households is their need to show results (Martens 2002), but also the fact that those families have better access to resources, in the form of land, equipment and labour, enabling them to participate in projects, to build upon prior experiences and to benefit from interventions in multiple ways.

Development projects generally do not expect to work with all households or to raise overall production levels in a community. Rather, they focus on community leaders, on innovative farmers and on others who may be able to absorb innovations more rapidly. In this respect, *selectivity* and *routines* (Boschma & Lambooy 1999) lead to self-reinforcement of focus on the same beneficiaries. The principles of extension work (e.g., *demonstration plots*) or learning from best practices

have long been dominant among rural development projects in the Andean region, but have overall not been very effective (Palao Berastain 1988).

External organizations may also apply very specific criteria. Back in 1996, Plan International selected only families with small children and with prospects for facilitated interactions with *foster parents* abroad. This NGO's community selection criteria related to accessibility of the community, the travelling distance from Sucre (less than 4 hours), the presence of other institutions, *limited* internal dispersion (relating to the settlement pattern), a minimum population size of 35 families and at least one child below 12 years for every participating family. Finally, the community needed to have access to minimum resources and an 'acceptable'³⁷ rate of outmigration. While this level of detail is uncommon in selection criteria, many organizations apply similar criteria. Plan International gradually adjusted its approach in the region and has made major efforts to provide support to the broader community level, but the confusion and contradictions arising from the selection process had persistent repercussions among the participating communities and households. Moreover, only a few programmes in the productive sphere have been oriented towards the community as a whole, such as the soil and water conservation programme in Talahuanca (see chapter seven).

Other factors in the selection of beneficiaries were expectations regarding the potential dissemination of lessons learnt (within and outside the community), groups with a specific characteristic (like pregnant women) and self-selection among community members, leaving it up to the community to decide who should be selected or wanted to participate. That last modality at least allowed for minimum levels of interest and motivation, while at the same time the community organization could try to balance benefits among different segments of the population. Yet self-selection can have *self-reinforcing* effects too, as community members who have already experienced the benefits of involvement in different projects may again volunteer to participate, while those who are more constrained in their participation, like households with limited labour availability or lower levels of literacy, continue to face a higher threshold.

After the initial selection, external organizations generally continued to deal directly with those individual households. They established so-called working groups, often pertaining to a certain section or *rancho* of the community, *de facto* reconfirming the bias of attention to a small selection. Considering the feedback we received from the different households spread across the communities surveyed, many of them were hardly involved or even aware of how further implementation took place and were dissatisfied with the lack of involvement of their *rancho*.

Horizontal interaction?

Interaction between external actors, households and the community organization is dependent on the perceived added value of collective action, as well as on constraints imposed by other activities and the agricultural calendar. Proactive involvement of households and the individuals within them thus depend on existing practices and habits, expected benefits and the strength of the community organization in defining the internal 'rules of the game' and sanctioning members' non-cooperation. The process of establishing priorities and the choice for specific interventions may be marked by uncertainty, differences in perception and lack of adequate feedback mechanisms, resulting oftentimes in 'con-fusing' interactions.

From the perspective of the external actors, most interventions must fit into annual plans and are therefore predefined to a large extent. Furthermore, the geographical separation between

'beneficiaries' and 'taxpayers' (funders of development aid) often blocks effective feedback mechanisms. According to Martens (2002: 14), "beneficiaries may be able to observe performance but cannot modulate payments (rewards to agents) as a function of performance".

External organizations sometimes initiated discussions with the community via the regular meetings of the community assembly, or in some cases they approached a smaller group of a few community leaders. In a number of cases, they conducted a 'rapid rural appraisal'. In a few municipalities, development organizations had prepared *community diagnostic plans (PDCs)*. Those plans were realized among others for La Abra, La Cañada and Sundur Wasi and summarized community features including, for example, organization, main crops, population size and migration destinations. However, most diagnostic studies followed a predefined format and left little space for issues such as existing power relations and exchange mechanisms. These are, of course, difficult to analyse during a quick appraisal. One NGO in the region had specialized in analysis of the demands of different segments of populations, which allowed activities to be fine-tuned in relation to specific groups. This certainly helped develop a more nuanced picture, as a small segment of a population or vocal group of community leaders can dominate priority definition, but it may also go against existing community practices, as evident from the case of Quila Quila described in the previous chapter.

Once priorities (often in the form of a 'shopping list') are established, with or without an extensive 'participatory appraisal', the question is whether these can be effectively addressed. Within their mandates, NGOs were generally more able than state institutions to accommodate specific interests and adjust budgets to local circumstances. Communities followed an entirely different process when submitting demands to their municipality. This is elaborated in more detail below. For the more specialized agencies (e.g., BAB, IBTA, Prosempa, Proinpa), support was predefined and focused on specific interventions, such as extending credit, reforestation projects and seed improvement programmes. We found such interventions principally in the *dryland growth* pathway communities of Pampa Lupiara and Yurubamba. There they certainly benefited a segment of the population, but one of their main objectives was to test new production techniques and disseminate lessons learnt, instead of raising agricultural productivity overall. The possibilities for communities to influence actual implementation remained often limited to discussions regarding project locations, possible participants and minimum resource and labour availability requirements.

The arena for municipal decision-making

Most decisions regarding the distribution of municipal funding were taken during annual municipal summits or so-called *cumbres*. Communities typically prepared for these meetings in a number of steps. Preliminary to them, internal community sessions were held as well as meetings at the district level (every municipality had between 4 and 6 districts), involving community leaders and often delegates from the *rancho* level for larger communities. During these meetings, main priorities and each participating community's overall list of demands were expressed and discussed. Other participants in the municipal summits were government institutions, NGOs and regional producer associations. During the summit, community demands were ranked and prioritized with participation of different municipal actors. Finally, a long list of demands was incorporated into an *annual plan of operations (POA)*. The process was more or less open and transparent, and most communities were able to submit demands for inclusion in the POA. Nonetheless, a number of factors tended to limit effective and inclusive decision-making, of which the main ones are briefly mentioned here.

First of all, POAs did not necessarily follow the *municipal development plans* (PDMs), which established the five-year strategic priorities of a municipality. In the first year, the PDM may still guide activities. But in subsequent years the strategic goals became blurred and immediate political or community demands often came to override the initial objectives. Although the elaboration of recent PDMs has become more participatory, determining their final content is still often in the hands of external actors such as NGOs or consultants.

Second, inclusion of community projects in the POA did not guarantee funding. Lists of demands (e.g., for the 86 communities of the municipality of Poroma) were often extensive, and available funding was insufficient for all of them, as the POA was generally based on a too optimistic scenario regarding possible additional resources. As the first challenge for a community leader was to get his or (occasionally) her proposals into the POA, this simple step was a rather effective way to give communities a sense that their demands were being taken seriously. Inclusion in the POA, however, was no guarantee of implementation.³⁸

Third, pressure to respond to the broad range of community demands led to substantial fragmentation in the allocation process. In addition, and in order to get major investments (e.g., for large schools or sports centres) into the budget, these activities were often artificially cut into pieces, spreading investment expenditures over several years, but without guarantees that funding would actually be available in the second or third year. As many proposals lacked detailed underpinnings, communities were sometimes awarded a 'pre-investment' study, which in following years might result in funding. Municipal archives abounded with such studies, but the expenditure figures 2000-2008 from the municipalities in the region, and interviews with municipal council members in Poroma and Zudañez in 2011, indicate that follow-up was far from guaranteed.

Fourth, much of the budget was predefined. A substantial share was spent on maintenance or recurrent costs, while another segment was either 'conditional' due to central government restrictions, or tied as counterpart funding to external funding.³⁹ A review of expenditures in the six municipalities under study here showed that each had between 15 and 40 such agreements⁴⁰ for the 2000-2008 period. Municipalities typically bore 20-80% of the cost of externally supported activities. The central government sometimes came up with unexpected funding requirements of its own, or the regional government may be unable to fulfil its obligations.

Fifth, in practice communities received funding allocations on a rotational basis. At the investment levels found over the study period, this implied for the majority only one or two major investments every decade or so. Investment in a new school building may thus exclude the community from investments in health or in the productive sphere for some time to come, or vice versa.

Sixth, internal community demand formulation varied widely, making it difficult to assess the validity of community claims. Several NGOs (in particular Plan International) were working with segregated demand analyses for men, women, the elderly and children. Promoting these demands later in the municipal process was another challenge. The level of funding required, the number of projects for which a community may be eligible, the feasibility of implementing projects, and the possibility for undertaking joint action involving a number of communities together might all influence the final chances of implementation. Municipalities were often unable to respond to real or 'constructed' community demands. This was, for instance, the case in multiple housing improvement programmes,⁴¹ for which the municipality typically needed additional support from either the central government or NGOs.

Seventh, and finally, the gradual increase in the available funding, and the discovery that groupings of rural communities together actually could influence the election of the major and the *consejo municipal* led to a dramatic change in involvement after the late 1990s. But even with 'equal' possibilities for representation in elections and *cumbres*, the position of rural communities is in practice far from equal. Due to their location, historical ties and power relations some regions and communities benefited far more from municipal resources than others. Although there were some shifts, this was particularly valid for the main town in most municipalities.

As a consequence of these limitations, decision-making processes were less open and transparent and more fragmented than one might expect. The fragmentation of funding over a range of rather small projects also reduced possibilities for embarking on more strategic regional programmes that extended beyond municipal boundaries, such as watershed management. Some of the poorest communities, which only benefited to a limited degree, remained justifiably sceptical and 'con-fused' about the municipal allocation process. Although they were part of the decision-making process, and involved in the new 'organic' decision-making structure among communities, they noticed that other communities obtained better access to the municipality, occupied influential functions, and were better able to obtain funding for their demands in the annual operational plans. While the 'better-off' communities already received more benefits, they still got higher *per capita* allocations than some of the poorer communities. The frustration with the decentralization process was clearly expressed in Cochapampa:

In this entire period the municipality has only realized two projects in the community, and that due to our pressure. We never see the money from [the Law on] Popular Participation that corresponds to us, whether projects or any other form of help. When we ask the municipality, for example regarding expenditures of the health centre, they did not want to inform us, they get angry and they deceive us with anything, we're tired of being treated like this (community leader Cochapampa, workshop 2011).

Cooperation and conflict

When we consider individual community cases, it is surprising to observe that many have a conflictive relationship with the municipality – or other development organizations. The reasons have been manifold and the examples below just give an illustration of the complexities involved. Following the new logic of municipal summits and a gradual shift in implementation modalities, community members increasingly claimed that they had a right to certain services being arranged for them, even when their counterpart contribution was either minimal or almost non-existent. The implementation of public infrastructure has often remained partial, however, not covering the people living in the extremes lower in the valley or uphill. This was a recurrent cause for internal and external conflict.

Municipalities also faced internal inequalities and struggles. For the municipality of Mojocoya, local residents forcibly moved the municipal seat from Mojocoya to Redención Pampa. After several years of protests, blockades and the occupation of municipal buildings, members of rural communities in the area (including La Cañada), physically transferred the contents of the municipal buildings from one location to the other, though the move was later approved by the central government. The outcome of the struggle also led to a rebalancing of resources. The people living in the communities surrounding Redención Pampa felt that the *mestizos* in the town of Mojo-

coya were representing the old elite, and not defending their interests. The relocation of the municipal seat gave the communities in the *pampa* (flatland) area around Redención Pampa a far greater ability to interact with the municipality than those down in the valley.

In Yamparáez the opposite happened. The higher and mostly dryland communities uphill, including Talahuanca, felt that they were receiving less attention than the valley communities south of Yamparáez, which had greater productive potential due to the availability of water for irrigation. An important factor in the allocation game is the overall share of population, or *critical mass*. The larger valley communities generally operated as a group, for example, in electing authorities and presenting proposals. The smaller hillside communities faced greater difficulties in getting their voices heard in municipal deliberations and obtaining an equitable share of project resources. Over the period between 2006 and 2008 budget execution levels were significantly lower in the highland communities than in the valley communities.

Probably the most persistent case of conflict is the one among the communities and *ranchos* forming part of Quila Quila. While on paper Quila Quila is among the communities receiving the highest *per capita* investment, most of the funding goes to only a tiny segment of the population. A grouping of *ranchos* surrounding the core settlement was the sole beneficiary of municipal funding between 2000-2010. A conflict developed between communities in the centre, claiming *sindicato* status, and communities in the more distant settlements, which predominantly adhere to the *ayllu* representation structure. As the *ayllu* segment of Quila Quila applied for recognition as indigenous district, it initially refused municipal funding. In response, the municipality of Sucre, under which Quila Quila falls, supported only the *sindicato* segment of the community, which led to unbalanced allocations and infrastructure development, amplifying the existing conflict between these parties. Chapter six discusses this case in greater detail.

Other communities with reoccurring conflicts with the municipality are San Juan, La Abra, La Cañada, Pampa Lupiara and San Juan de Orcas. San Juan de Orcas⁴² may in the future threaten the position of the municipal capital in the town of Poroma, located far away from Sucre and also at a long distance from most communities. Thus, while the decentralization process did lead to increasing community involvement and a more 'intimate relationship' than in the past, clashes and marginality remained the rule rather than the exception. Many communities still feel they are not treated as they deserve.

Initial, externally defined *accountability* mechanisms, such as the *vigilance* committees did have some impact in the first years. For example, they enabled communities to block municipal budgets and to cast disapproving and blocking votes against mayors. Today, however, most vigilance committees in the region have been taken over by the predominant position of the *sindicato* structure under the leadership of the *national farmer federation*.⁴³ The Morales government also opened the possibility of direct municipal funding for 'social organizations' like farmer associations, which may have strengthened these organizations initially, but also implied the risk of 'co-optation' and external dependency.

5.8 Conclusions: external interventions and pathway differentiation

How can we characterize the changing presence and influence of external actors and policies? If we analyse those changes from a path dependency perspective, we can distinguish trends at the macro, meso (region/municipality) and micro (community/households) levels. External actors differed in their institutional background and mandate, their objectives, intervention modalities

and, in particular, in their way of operating on the ground. From this perspective, external interventions can be viewed as a range of external ‘events’ interacting with different forms of community agency and influencing community pathways to various degrees. In many cases, those events had only limited or even negligible impact; in others, they led to major shocks or transformations.

Starting at the macro level, and looking back, Bolivia transformed over time from a semi-feudal country with a dominant white elite, a rather centralized state structure (Faguet 2003; Klein 2011) and the longest succession of military regimes in history to become a democratic country with far-reaching decentralization policies. Today, it can be characterized as a ‘developmental state’, led by an indigenous president who is ‘reaching out’ to the poorest communities. Most of the recently introduced ‘conditional cash transfers’ favour rural communities, independent of their location or characteristics.

At the meso and micro levels, very little was done in terms of development-oriented external interventions in the period before and after the land reform of 1952-1953, up to the early 1980s. Only after the end of a succession of military regimes and the drought of 1983 did development ‘take-off’ in many communities, mainly in the form of a gradual expansion of public services and some productive infrastructure. The ‘initial conditions’ were quite similar amongst communities, except for their differences in accessibility and the occasional effort related to school-building (see also chapter nine). Since then, a wide range of policies, programmes and interventions involving multiple actors (Pritchett & Woolcock 2004) in as many sectors led to different and constantly shifting rhythms of interaction with rural communities.

At the macro level, it took years and even decades for some of the relevant legislation to evolve and mature. As evidenced by Boelens (2008), and as chapter eight will bear out, national irrigation policies contributed to the imposition or propagation of externally defined norms and rules. A parallel can be drawn here with sectoral policies related to land, education, drinking water and even housing, as well as with intervention modalities in many other areas. Normalization policies reduce the space for agency and the degree of freedom for individual actors (Boelens 2008; Archer 2010) and are therefore often contested. Similarly, local development planning may create both synergy and contradictions between project approaches or lead to discontinuities between projects and different actors by predefining modalities or beneficiary selection. Planning, from this perspective, can also be perceived as a negation of agency, as it may limit communities’ capacities to act, transform or mediate between different projects (Long & Van der Ploeg 1995).

This chapter examined the continuous shifts at the macro and meso levels in government policies as well as in the geographical presence and focus of NGOs, government programmes and *social funds*. These transformations were often supported by bilateral or multilateral institutions, and stimulated by the rapidly increasing importance of municipalities after 1996. According to Bebbington (2004: 725), the resulting distribution patterns of NGOs must be analysed from a historical and a political economy perspective: “resulting geographies of intervention pattern the uneven ways in which NGOs become involved in reworking places and livelihoods, though this reworking is also structured by the dynamics of political economy”.

The concentration of NGO activity in selected ‘high potential areas’ is confirmed by Koch (2009). Using an evolutionary economic geography approach, this author highlights the limited explanatory value of demand and supply in the provision of aid, and instead focuses on increasing returns to aid, labour mobility of staff and path dependence as possible drivers of external

interventions. Path dependence is evident in the networks, personal contacts and institutions that often predefine the selection of intervention areas (Koch & Ruben 2008). Koch (2009) also suggests that existing bilateral support may attract NGOs to the same countries. This was to some extent evident in the bilateral cooperation of the Netherlands in Bolivia and the regional concentration of NGOs⁴⁴ in northern Chuquisaca.

In the survey region the more prolonged presence of some of the larger NGOs had a profound impact on a number of communities by attracting a range of other external actors and leading to self-reinforcing processes with either positive or negative *externalities*, like *agglomeration* effects (Gunatilaka 2000; Plummer & Sheppard 2006) and contradictory approaches. Yet, fragmented operations and shifting political objectives and modalities led to discontinuities and limited the impact of the external presence (Long & Van der Ploeg 1989). Except for a few sector ministries, such as the ministries of Education and Agriculture and social investment funds like FIS, many central government institutions and programmes have been erratic and discontinuous in their presence.

This picture changed fundamentally with the implementation of the *Law on Popular Participation* (LPP), which changed the mandate and funding of local municipalities, effectively restructuring and ‘normalizing’ the relevant external institutional context, also leading to different dynamics and *routines* of interaction (Frenken 2009) among rural communities. This major shift in external presence influenced not only the relations between communities and municipalities, but also the positioning of other development actors involved at the local level. A review of recent changes in aid modalities indicates that municipalities respond today far more than in the initial years to a structured demand approach from communities (IOB/Le Grand 2012). As Pape (2008: 42) indicates, the planning process (involving the setting of priorities among local demands at the community, district and municipal levels) led to “articulation between community organizations and the representative democracy of the decentralized state”. NGOs, *social funds* and sectoral programmes had to fine-tune their operations and make more consistent efforts to synchronize their interventions with municipal development plans and meetings (*cumbres*), or at least to coordinate their interventions at the community level.

Nonetheless, even with the substantial increase in participation of communities under municipal decentralization, gaining or guaranteeing access to municipal finance or to complementary NGO support remained a headache for many local communities, as evidenced by the multiple obstacles to approval and effective implementation. The stronger ‘institutional complementarity’ and improved demand-responsiveness did not automatically lead to more substantial impact, as we will see in the following chapters.

After a few years of relatively limited impact and persistent distrust regarding the LPP, communities gradually grasped the possibility to influence electoral outcomes and even to directly influence the composition of the municipal council. With the introduction of the LPP, community members were transformed from mere ‘consumers’ of development, as it was offered by a wide range of government institutions and NGOs, into ‘citizens’, at least being able to elect their own local governments and making direct and often competing claims in public spaces of deliberation. However, they did not yet pay even a minimum level of direct taxes on property or land, probably undermining a sense of ownership and shared responsibility (e.g., for maintenance of public infrastructure) in the long term.

How did the interaction with local communities contribute to pathway development and differentiation at the micro level? Following Koch (2009), the resulting ‘spatial evolution’ (Boschma & Lambooy 1999) of interventions was rather unequal, in its regional and sectoral distribution, in its sequencing over time and in its mutual complementarity or the distribution of benefits among community members.

Taken together, community access in terms of the quantity of ‘external interventions’ over time mattered little.⁴⁵ On average the *growth* pathway communities counted around 46 ‘projects’, compared to 36 on average for the *decline* pathway communities. For public services, numbers of interventions were practically the same (28 versus 25) for both pathways. In the productive sphere the difference was greater however, with 18 projects in *growth* pathway communities versus 11 for the *decline* pathway communities, reflecting also substantial investments in irrigation and interventions such as seed provision in the former, as we will see in the following chapters. The current, more balanced distribution of public services appears to contradict the bias and uneven distribution found by Koch (2009), but as we will see in chapter ten, the initial patterns were far from balanced, and certainly favoured the more accessible communities. The introduction of the LPP and the increase in municipal investment contributed to a ‘rebalancing’ and more equal distribution, correcting some of the prior distortions and uneven distribution, in particular, in the public sphere and towards the marginal *dryland* pathway. This trend was further strengthened by the extension of conditional cash transfer programmes after 2005, for which municipalities acted as intermediary. Finally, municipal intervention modalities in several cases effectively reduced or even undermined community participation in implementation and maintenance.

The differentiated presence and impact on community pathways can largely be ascribed to predefined objectives and intervention *routines*, partly as a consequence of *principal-agent* behaviour (Martens *et al.* 2002) among local development organizations. Due to their financial dependence, their day-to-day operations were often oriented more towards the fulfilment of policy priorities agreed with donor agencies than community demands. The strong results orientation of those policies initially favoured the more accessible communities with their perceived better potential (principally the *growth* pathway communities) and led to a range of self-reinforcing feedback mechanisms and path dependence at subsequent stages, as it remained easier to obtain results in those same communities. Coverage was gradually extended to several *decline* pathway communities, which gained access to irrigation. These self-reinforcing patterns can be traced back to the relatively high transaction costs incurred by NGOs in changing intervention policies or areas, due to the substantial effort entailed in building up knowledge of and networks in local communities and the need for a prolonged NGO presence in order to work effectively towards institutional change (North 1990).

Differences in *routines* and *selectivity* (Boschma & Lambooy 1999), for instance, in territorial or sectoral approaches, in beneficiary selection (or criteria for selection), in the use of incentives and conditionalities and in ways of interacting with the community organization all had an impact on the distribution pattern. To illustrate this, development institutions with a thematic specialization (e.g., on seed distribution, drinking water provision or credit programmes), generally worked with communities for a shorter time period than those working in ‘integrated rural development’. The initial experiences of communities also proved important in redefining their perceptions and positioning towards new actors entering the field, reflecting the importance of ‘living memories’ (Garud *et al.* 2010).

Some interventions, either individually or as a group of complementary efforts, had substantial impact on community pathways. This happened either through patterns of technological innovation, the building up of productive or public infrastructure, increased market integration or the gradual adaptation of local institutions. Other interventions had limited impact or synergies, and may even have contradicted the effects of earlier work, increasing internal inequality or leading to outright conflict.

The following chapters examine how changes in external presence translated into practice in various domains – in relation to land, the productive sphere, education and provision of other public services – and how they, in turn, influenced interactions between structural conditions and agency in each of these areas, determining pathway development and differentiation between communities.

Notes

¹ The text in this section is based in part on Zoomers & Le Grand (2011).

² According to *Encyclopedia Britannica*.

³ Translation: “We are president”.

⁴ Preparatory discussions regarding the new constitution took place in Sucre, which became a battleground due to heavy resistance from opposition against the ‘hegemonic’ approach by MAS.

⁵ See www.yesmagazine.org.

⁶ The USA had begun its negotiations in 1942, when a report was submitted to the Secretary of State proposing a development programme with three main components: development of a national highway connecting consumption centres, agricultural sector development with emphasis on rubber and quinine, and investments in mining and petroleum. Even with the land reform occurring halfway it took some 20 years before the USA took any serious interest in the Andean valleys and Altiplano (Heilman 1982).

⁷ The Investment Corporation of the Andes Pact.

⁸ A quick count of major donor programmes in 2007, based upon a survey among 20 of the main donors, resulted in the identification of over 400 different projects and programmes, distributed over 22 sectors, with total commitments running over US \$2 billion and approximate expenditures between US \$300 and \$500 million a year.

⁹ In the context of the GRUS (the G-20 or development partners of Bolivia) different sectoral analysis were prepared, but further fine-tuning on ‘cross-cutting’ issues and mutual coherence still required substantial work.

¹⁰ Bolivia’s agricultural innovation system followed a rather discontinuous evolutionary process. In the 1950s, Bolivia received support from the USA through the *Servicio Agrícola Interamericano* (SAI), which was responsible for research and extension. The SAI faced budgetary problems and qualified researchers left the institution (Godoy & De Franco 1993). IBTA (*Instituto Boliviano de Tecnología Agropecuaria*) was founded in 1975, and replaced in 2000 by SIBTA (*Sistema Boliviano de Tecnología Agropecuaria*), a largely donor-funded programme, principally relying on competitive funds to manage technology generation and dissemination. SIBTA was abandoned in 2007 and a year later INIAF was established. INIAF’s goal is to contribute to food security and ‘sovereignty’ of small and medium producers in Bolivia (World Bank 2011).

¹¹ According to the Centre for Latin American Studies of Georgetown University’s political database of the Americas (2011).

¹² This was also the case before the MAS party entered government, largely as a consequence of political deals between the major parties in different coalition governments (the main actors being ADN, MIR and MNR).

¹³ While it is difficult to relate the outcomes of adjustment policies to changes occurring in rural areas, the macroeconomic policy context after 1985 was negative for agricultural development, as the agricultural sector declined by 3% between 1985 and 1989 (Van Niekerk 1994).

¹⁴ These organizations have different backgrounds (ACLO was founded by Jesuits, while IPTK had strong political ties). They received support from Dutch organizations like Cebemo (nowadays Cordaid) and Oxfam Novib.

¹⁵ The first annual report noted the core of community development as being within the community organization: its application of procedures to bring people together in meetings, organizing these in a democratic way that induces individuals to participate, starting discussions and developing collective analysis, enabling people to determine their needs and prioritize them, facilitating committee work and teaching people to do things for their own benefit and on their own and enabling them to reach government agencies (Heilman 1982: 173, translated and paraphrased by author).

¹⁶ Oropeza is part of northern Chuquisaca. It covers the contemporary municipalities of Poroma, Yotala and rural Sucre (*distrito* 7 and 8)

¹⁷ “One measure of this dependence is that in the one region in which they are absent (Ravelo), IPTK has not encouraged the emergence of such organizations (reflecting its own institutional commitment to sindical organizations, and apparently some of the political affiliations they have tended to sponsor)” (Bebbington 2002: 114).

¹⁸ A recent and very elaborate municipal development plan of Ravelo (2006-2010) was written with substantial support from IPTK, Plan International and FH, all of them named on the cover of the document.

¹⁹ The regional government has been transformed as an institution at least three times over the past decades. CORDECH became the *Prefectura* in the early 2000s and was recently, after the constitution of 2009, again transformed into the *Gobernación*.

²⁰ Including Pampa Lupiara and Yurubamba, see chapter six.

²¹ Including Wasa Ñucchu and several of the ‘valley communities’ of Ovejerías, such as Mojtulo.

²² This section is based on IOB/Le Grand (2012)

²³ Debt relief resources were generally related to the *Heavily Indebted Poor Countries* (HIPC) programme, which implied that national governments in exchange for debt relief had to spend additional funding in areas such as health and education.

²⁴ The exact share of sectoral expenditures is difficult to assess. Municipal budgets include a large amount not allocated to specific programmes (*partidas no asignables a programas*), ranging among five municipalities between 30% and 40% of the total budget, reducing ‘transparency’.

²⁵ A grouping of several municipalities, for instance, those of northern Chuquisaca.

²⁶ After 2005 the emphasis remained largely on the education sector, productive development and environment and water. Governance was dealt with as a ‘transversal’ topic.

²⁷ Organizations like Cordaid and Novib phased out their support in Bolivia. Icco and Hivos still continue on a more limited scale.

²⁸ Reference community of the PIED-Andino research; data from a visit in 2011.

²⁹ The total figure is probably underestimated, because data were collected only in 1996 and 2011, based upon a retrospective analysis with community members in workshops and interviews. Interventions that had taken place in years before 1983 were not always accurately remembered. We also see a gap in the data for

the years after 1997. In addition it is difficult to gain a systematic appreciation of the importance of individual interventions.

³⁰ Examples are the building of major dams and irrigation systems in Escana and La Cañada, land reclamation efforts in Rio Chico, the building of secondary schools, lodging facilities and a hospital in Quila Quila and some of the more complex rural roads.

³¹ As community members noted, if one did not do their job, at least the other might, a clear case of 'risk spreading' at the political level.

³² Lack of transparency (and accessibility) of municipal accounts might explain this. Local revenue collection also remained rather low, which over time may have reduced communities' interest in screening municipal accounts.

³³ This happened, for instance, in Quila Quila, San Juan de Orcas and Ovejerias.

³⁴ To reduce the prevalence of *chagas* disease, for example, it is important that all households in a certain community participate in housing improvements; otherwise the impact may be a rather limited, as we will see in chapter ten.

³⁵ Procapas, Plan International and Prosempa.

³⁶ This was the case for the building of a dam in Escana, but a similar project in La Cañada did not compensate farmers in the same way, leading some to desist after having invested a considerable amount of time (see also chapter eight).

³⁷ This is a rather vague notion considering the variations in temporary and definite migration rates both between as well as within communities.

³⁸ In order to give most projects at least a tentative allocation, they are included under 'third-party' funding, which in effect expresses the hope that an additional donor or NGO will eventually make funding available.

³⁹ The space for discretionary spending is limited due to the inclusion of obligatory expenditures (e.g., for health insurance and maternal and infant care) as well as other constraints on central government resources (a fixed percentage of HIPC resources must be spent on health or education), or funds may be tied to *convencios*, which are agreements with local government institutions, NGO counterparts or other partners.

⁴⁰ Examples are agreements with UNICEF, ProCapas, PASA and the literacy programme *Yo si Puedo Mas*.

⁴¹ Housing improvements to combat *chagas* disease require replacing the straw roof and mud walls of all houses, as well as changes in the management of small livestock (in particular, chicken, sheep and pigs) in and around the house. This requires efforts often surpassing municipal capacity (see also chapter ten).

⁴² San Juan de Orcas has been transformed to become a nucleated settlement with regular transport services, schooling, health care and basic public services, as well as improved housing.

⁴³ In 2012 new legislation was proposed to abolish the vigilance committees and replace them with 'social control' structures, in line with trends in Chuquisaca (www.la-razon.com/ciudades/sustitucion-comites-vigilancia-Control-Social_0_1579042136.html).

⁴⁴ Ironically, even our own research programme was at least partly driven by the same considerations.

⁴⁵ The *growth* pathway communities of Pampa Lupiara and Escana scored, respectively, 87 and 73. These were the largest numbers of projects, compared to only 13 for Ovejerias Alto (which 'collapsed'), 18 for La Abra and 13 for La Cañada (though interventions directed at the town of Redención Pampa also benefitted the community).

6

Land, space and identity: gaining access to land and other natural resources

“This is our land, here is our house, this is where we will die” (community member San Juan de Orcas, 2011).

6.1 Introduction

Gaining and maintaining access to land and natural resources has been a major driving force of community pathways over a long time horizon in Bolivia, from before the land reform of 1952-1953 until the present day. Coming from diverse origins, either as ex-hacienda or *ayllu*, communities have needed to uphold or define their collective rights and access as a group to establish a common territory, a common identity and also to gain a legal title to resources. Legal title, in principle, should allow community members to invest more in production, and to guarantee their land against external claims. The process of land titling, however, has been slow, especially in the Andean valleys, and a large gap remains between formal titles and the informal customary practices on the ground. This chapter examines regional and community histories to determine the impact of land-related issues on pathway differentiation and on community and external responses.

Limited access to land and other natural resources is an important factor explaining poverty in rural areas, in Bolivia as elsewhere in the world. Land fragmentation and limited access to forestry, water and other resources oblige farmers to seek (additional) off-farm income or to leave their communities in search of a living elsewhere, either in the mining sector or in coca-producing areas and in Sucre, Argentina or other destinations (Urioste Fernández de Córdova 2002; Barron & Goudsmit 1997). Nonetheless, pressure on land and other resources is not new, and communities have historically dealt with a range of factors affecting access, control, ownership and use of these resources.

Land and related natural resources are important common pool resources, benefiting communities in multiple ways. Land typically is used for agricultural production, livestock grazing, forestry, collection of firewood, and access to water and subsoil resources, such as minerals. Land is also a mechanism for exchange, to access other resources (e.g., labour, animals and agricultural inputs). It is a source of accumulation and a means of spreading risks. In addition, land may be a precondition for community membership and for status determination, a basis for a common and shared identity and a means to position oneself amongst neighbours and in relation to external organizations and state institutions. Finally, land – as Mother Earth (*madre tierra* or *pachamama*) – is a central element in many Andean religious rituals related to the agricultural calendar (Van den Berg 1990). Through collective action, communities, groups of communities and individual households may gain, conserve or extend access to those resources (Ostrom 2000).

The complexity and heterogeneity of land as a common pool resource in the Andean valleys is reflected in the marked differences in quality and use of land and in the wide array of property arrangements. Landholdings are generally spread across agro-ecological zones and on different hillsides, both within the community and beyond to neighbouring and more distant communities in the valleys and the *puna*. This dispersion reduces households' vulnerability to a multitude of climatic hazards such as frost, hailstorms and drought. While the apparent fragmentation may seem irrational to outsiders, the spreading further reflects the acquisition of a 'multiple resource base' (Murra 1972; Lehmann 1982). As land in the Andes is the basis of many other resources, collective and individual forms of control, ownership and access often go in parallel and are juxtaposed and overlapping. Historically, large differences have existed between the *ayllu* communities and the *comunidades originarias*,¹ which were less affected by the hacienda system, while *sindicato* communities received their independent status only after the land reform of 1952-1953. While the first group also suffered from land confiscation and interference by the haciendas, the second group was established after abolishment of the hacienda structure.

The purpose of this chapter is to analyse the contribution of differentiated internal forms of agency and collective action and of interactions and encounters with government policies and other actors to pathway convergence or differentiation among the research communities. It begins by offering a historical perspective on the struggles with the dominant colonial and post-colonial powers, both before and after the land reform. It then elaborates on the current differentiation between communities in (formal and informal) land access and deals with recent trends and developments, focusing again on community and household involvement and their interaction with external actors. The final section summarizes pathway developments and discusses the theoretical implications. This chapter poses two related research questions:

How and why did pathway differentiation or convergence occur around land and natural resources, and what implications did this have for broader pathway developments? How did internal and external factors and agency influence and respond to these developments?

6.2 Historical changes in access to land

Although most communities were formally established only after the land reform, land occupation by indigenous communities has longer-term historical roots. This pertains in particular to the *ayllu* communities but also to a few ex-hacienda communities. Among the research communities, the *Yampara* culture in Quila Quila and surroundings is the best documented in terms of historical (and archaeological) research, which confirms a millenary occupation. Sources indicate that Quila Quila may have been 'founded' during the passage of the Inca Kapac Yupanqui, perhaps a century before the foundation of Sucre (see, e.g., Pacheco 1996). The establishment of San Juan de Orcas in Poroma has its origins in historical *ayllus* in the department of Oruro (more than 200 km from Sucre), and the area around Tarabuco was originally occupied by *mitimaes*.² These were colonists sent by the Incas from the area around Cuzco and the Titicaca lake to carry out agricultural production (Langer 1989).

The ex-hacienda communities of Escana, Wasa Ñucchu and Tuero also have a remarkably long history of continuous or interrupted occupation. In addition to the many different archaeological findings in Escana, written references to territorial occupation in this valley are found in the writings of Cosme Bueno in his inventory of the region's population and taxpayers in 1769-

1770 (De Querejazu 2001). The foundation of a hacienda in Ñucchu dates from 1581, when it became integrated in the *Mayorazgo* de Cachimayo, a Spanish institution to protect the unity of larger properties.

As these examples illustrate, Chuquisaca is a region with a long history of external involvement and intensive population movements, affecting indigenous communities in multiple ways. With the initial boom in silver mining (*fiebre de la plata*) in Potosí after the Spanish conquest, the northern region of Chuquisaca was almost completely depopulated. In addition, due to the intensive industrial development around the mining sector and the need for wood for construction and firewood, the area was stripped of a large part of its forestry resources in less than 25 years after Toledo's formal establishment of the Villa (Potosí) in 1574. With the establishment of the *reducciones de indios*, community members were in principle prohibited from living outside these areas. Many of the *ayllus* in northern Potosí and Chuquisaca were affected, including Quila Quila, but also some of the current towns in the region, including Tarabuco and Yamparáez. Indigenous groupings were only gradually given permission to cultivate land outside of the *reducciones*, given in *usufructo* (the right of use), initially on an annual basis and subsequently for more prolonged periods.³

Ayllus

For the *ayllu* communities, access to land in different ecological zones has been of great importance throughout history. *Ayllus* traditionally covered relatively large areas and controlled, directly or indirectly, access to land in neighbouring and more remote communities and in a range of ecological zones (Murra 1972; Lehmann 1982; Pacheco & Peñaranda 1994). Land tenure in *ayllus* has historically been rather complex owing to the mixed ownership systems based upon non-exclusive rights (Assies 2006). The collective management of crop rotations and fallow periods (e.g., in *mantas*) and of pastoral areas, but also bi-zonal cultivation are examples of systems oriented towards risk minimization, though also requiring complex social control (Platt 1982; Assies 2006).

The *ayllu* of Quila Quila formed part of a wider dual *kurakazgo* structure, with the *mitad superior* (higher half or *Hatun Yampara*) having its origin in Yotala and the *mitad inferior* (lower half) located in Quila Quila. Yampara rule, however, might have been 'delegated' from the Inca empire (Pilar Lima Torrez, sd). Pilar Lima Torrez (in Alconini 2008) describes probable changes in land use in Quila Quila in the pre-Inca and Inca period including technological sophistication (terraces), the gradual extension of agriculture, and increasing hierarchization.⁴ After the Spanish conquest, land was 'given' to the Yampara by Capitan Ulloa⁵ in 1593-1596, including 10 *ayllus* in Yotala and 9 in Quila Quila (Valda Rivera 2005). As indicated in chapter four, the *ayllus* of Quila Quila were at a very early stage already involved in the payment of *tribute* (taxation). Citing archival sources⁶ Pacheco and Peñaranda (1994) highlight data regarding tribute paid by both the *ayllus* of Quila Quila and *forasteros* (those without access to land) in the surrounding communities and the haciendas in the region for the period between 1806 and 1856, in order to guarantee sustained access to land. Another attempt to break the existing access to different ecological zones was the establishment of so-called *reducciones* (*ibid.*) These "consisted of indian villages within a concentrated area, created with the objective to prevent them [from] living dispersed in the mountains, which complicated the indoctrination in Christian belief, as well as the collection of tribute" (ACLO 1976).⁷

The payment of *tasas* was important to 'guarantee' rights of access to land, but also confirmed internal differentiation. The relatively high numbers of tribute-paying members and prolonged periods of payment indicates the relatively autonomous state of those *ayllus*, but also the persistence and subordinate position of the *forasteros*. One of the main reasons for the differentiation (which continues to this day) between *originarios* and *forasteros* was the greater security in land tenure of the first group, as these paid 'taxes', but were also obliged to fulfil *mita* obligations, while the second group remained free from the *mita*, but missed the benefits of 'guaranteed' land access. According to Albornoz (cited in Lehmann 1982), the payment of tribute by Indian communities constituted an important part of state revenue until the end of the 19th century.

Independence in 1825 hardly changed the position of the indigenous population, even when 'liberator' Simon Bolivar, as president abolished tribute and acknowledged private property for indigenous communities (Assies 2006). This legislation was however never implemented. In 1866, the Melgarejo dictatorship declared indigenous lands to be property of the state and ordered their public sale by auction (*ibid.*). Implementation of the law *de exvinculación de tierras*⁸ of 1874, which facilitated the sale of indigenous lands, was the reason for the strong resistance against the final 'revisita' (inventory of taxpayers) of 1882-1893 by *ayllus* in northern Potosí. The issuing of individual titles also implied a change in the calculation of taxes and ultimately led to the destruction of the *ayllus* (Lehmann 1982). The *ayllus* of Quila Quila also suffered from forced land sales. According to Langer (1989), a single 'townsman' of Quila Quila, Cesar Taboada, was able to acquire in 15 years time eight properties of Indian land worth a total of Bs 47,640, which he bought in 32 different transactions. On several occasions he used debts to force land sales.

During the colonial and republican periods the process of fragmentation and external harassment of *ayllus* continued (Pacheco & Peñaranda 1994). In the early years of the 20th century, a large share of the population of Quila Quila was absorbed into the hacienda labour force (Langer 1989). In 1927, the *ayllus* in the border region between Potosí and Chuquisaca, including those of Quila Quila reacted violently against increasing encroachment on lands and abuse by authorities in the region (Rivera Cusicanqui 1992). The conflict, initially involving only *Llameros*, at a later stage also involved several communities of Quila Quila and even included ethnic groups further east in Tarabuco. The *ayllus* not only got involved in the rebellion, they also put forward their own claims of access to land in the valleys. According to Pacheco and Peñaranda (1994) these actions confirmed the strong relations between Quila Quila and *ayllus* in northern Potosí, as well as the increasing resistance against the payment of *tribute* and the excessive obligations for community members to work on the lands of the hacienda.

Several *ayllus* in the region around Tarabuco survived the imposition of the hacienda, although they lost substantial landholdings through the process of *endeudamiento* (indebtedness). In the region of Tarabuco, they benefited from high demand for barley as fodder for animals used for traction and other livestock products. Tarabuco by that time had already become a meeting point for traders from the valleys of Zudáñez and the planes of Mojocoya (where grains were produced), as well as for those buying and selling fruits and liquors from Tomina and the Pilcomayo region. According to Langer (1985), demand for barley increased rapidly in the first decades of the 20th century, but at the same time the existing *ayllus* and *comunidades originarios* suffered increasing pressure from haciendas in Sucre and Tarabuco. The law *de exvinculación de tierras* led to sales of indigenous lands in this region. While until 1900 only 59 transactions were realized, by 1940 the number had tripled to more than 150 transactions, resulting in a checkerboard of land

property distribution in the pampas of Tarabuco, where the only remaining indigenous lands were those neighbouring the *vecinos* (people related to the hacienda) from the main town. Although the barley trade remained largely controlled by indigenous communities, the *vecinos* controlled access to most land and could make a nice living renting land out in exchange for part of the production (Langer 1987: 590). Meanwhile, the indigenous peoples without land (*forasteros*), became fully dependent on the few *ayllus* still controlling land in the region, especially during the boom in barley production. From this perspective, the existing *ayllus* and haciendas in the region became similar structures, strengthening traditional Andean relations and forms of non-monetary exchange between haciendas and day labourers (*peones*) (Langer 1985).

Izko (1986) summarizes a number of mechanisms through which many of the *ayllus* in the Altiplano, but also those related to the Yampara of Chuquisaca (including Quila Quila), lost access to land in the valleys: (i) the oligarchy of Sucre had an interest in encroaching upon lands which they converted to residential estates or *lugares de recreo*; (ii) pressure from the mining sector increased, with mining entrepreneurs looking for possibilities to reinvest profits in land; (iii) debt cancellation in many cases hinged on permanent alienation from lands; and (iv) there were some so-called 'voluntary' sales of remnants of lands which could hardly guarantee minimum levels of subsistence.

We can still trace some of these historical developments in the research communities. A first example dates from the early days of establishment of the hacienda in Ñucchu, where communities in Quila Quila indeed lost lands in the valleys around Sucre, in particular, along the Pilcomayo and Cachimayo areas (probably including the area of Tuero Chico). A second case relates to losses of lands around the haciendas in Escana and La Abra. A third and fourth example pertain, to Quila Quila, but also to *comunidades originarias*, including sections of Pampa Lupiara. Quila Quila particularly suffered from long-term external encroachment and forced land sales. The *ayllus* of San Juan de Orcas⁹ originally belonged to the *Señoríos* Quillacas from the *ayllu* of Huari located in the department of Oruro, which used the region to produce food for the mining areas around Potosí. They were less affected in terms of land sales. The area around Tarabuco registered a much higher number of sales.¹⁰ Other elements still traceable today are the production of barley (in Pampa Lupiara), the differentiation in status between those with and without access to land (in Quila Quila, San Juan de Orcas and Pampa Lupiara), the continuous, but rapidly shifting, interaction between town and surrounding communities, and the current claims for 'revival' of the *ayllu* in communities like Pampa Lupiara.

Haciendas

The hacienda system covered a very large area of northern Chuquisaca, but managed only limited incursions into northern Potosí. The main haciendas in the region were strategically located in relation to major markets, like those of Sucre and Potosí (Langer 1985). Among the study communities this was clearly the case for the haciendas in Wasa Ñucchu,¹¹ Tuero and Escana.

Indigenous families worked as *arrenderos* on the hacienda, under conditions of near slavery (*pongueaje*). They were assigned a piece of land for their own use, but in return had to give 10% (*diezmos*) or more to the hacienda owner. They also had to work for the hacienda about a week per month and to assist in providing the hacienda with water, firewood, transport and other labour upon demand, often even in the landlord's distant urban residence, without compensation. In a few cases, community members were assigned a supervisory role in agricultural production

or management of livestock. The experience of Ñucchu, which was classified as a *latifundio* (a commercial estate similar to a hacienda), was reviewed in 1963 by Erasmus (1967) as part of a wider sample in Chuquisaca. According to archival records, indigenous families working on the hacienda as *arrenderos* had to pay the landowner rent (Erasmus mentions figures of Bs 35-50, equivalent to 50-100 days of work) and a percentage of livestock production.¹² In Ñucchu, men worked on the hacienda 125 days per year and women 28 days per year. The obligations of *arrenderos* were generally compensated – at least to some extent – by reciprocal obligations¹³ on the part of the hacienda. Agricultural labours were interspersed with festivities like *mink'a*, for which the landlord distributed food and drinks (*chicha* or maize beer) to the workers. This was generally more valued than the rather low monetary payments (Erasmus 1967; Langer 1989).

This system of 'patron-client' relations operated relatively well until the decline in silver mining. According to Larson (1988), the richer landlords with considerable investments in mining then refocused their attention to the estates and tried to extract higher returns by more exploitative modalities of operation, including by claiming lands from the surrounding *ayllus*. The balance between the *ayllus* and estates was affected by these developments, which also impacted traditional labour relations within haciendas and led to increased resistance and labour strikes (*ibid.*).

The hacienda system originally achieved reasonable production levels, but due to population growth and greater demands by the *hacendados*, pressure on the land gradually increased (Kessler 2006: 48). For most haciendas, the basic production factors were land and labour, though a few also dedicated themselves to a minimum level of industrialization with the occasional watermill or sugarcane-based production (e.g., in La Abra).

Just before the land reform, land tenure was extremely unequal, throughout the country and in Chuquisaca. In 1950, 60,000 landholdings (69% of the total) had access to only 0.4% of the land, and 7,000 holdings (8.1%) had access to 95% of the land (Assies 2006). In Chuquisaca there were 1,791 haciendas. According to Schulze (1988), they had access to some 1,700 ha, on average, of which only around 27 ha were under cultivation, less than 1.5% of the total. In northern Chuquisaca, and more specifically, in the provinces of Oropeza, Zudáñez and Yamparáez, the areas under the direct control of haciendas were, respectively, 85%, 78% and 49%. Indirectly, they controlled an additional 5.3%, 21% and 38% of land, corresponding to that given in *arriendo* (to hacienda workers), leaving for rural communities only 8.3%, 1.4% and 11%, respectively. Rural communities therefore had control of very limited agricultural lands. Their survival and subsistence was marked by a long process of resistance against expansion of haciendas and different forms of control by the state in the first half of the 20th century (Schulze *et al.* 1988).

Summarizing developments up to 1952, we can conclude that while *ayllu* communities suffered from forced labour, settlement concentration, land confiscation and forced sales, indebtedness and taxation, and largely had to adapt to regional market structures established by the colonial system, for people living and working on the hacienda, the main memories from this period are those of long-term submission and *servidumbre*, but also of some minimal reciprocal ties binding them to the hacienda and lands they worked on.

After the land reform of 1952-1953

After years of unrest and resistance against haciendas, and following a period of intensive 'peasant mobilization' and occupation of the haciendas of numerous 'absentee' landlords in 1952 and early 1953, the MNR government established an agrarian reform commission in January 1953,

finally enacting the agrarian reform in August 1953 (Klein 2011). This radical measure was taken principally with political motives, without much attention for technical and economic details. The reform resulted in an abrupt rupture with the existing system,¹⁴ affecting even some of the more ‘progressive’ haciendas, causing a drop in production of about 40% in the ensuing years (ACLO 1975). Nationwide the effective redistribution of land was marginal. The agrarian census of 1984 showed that 68% of landholdings still had access to only 1.4% of the land, while 90% of land was still concentrated in only 4% of holdings, hardly different from the figures for 1950 (Assies 2006). The reform mainly gave the former *colonos* of the hacienda the lands they had already been working.

Among the three provinces of Oropeza, Yamparáez and Zudáñez on average 67% of the territory was redistributed, corresponding to 870 *ex-fundos* (haciendas). A total area of 614,000 ha was redistributed among 16,720 households. Households received on average 38 ha, of which in *dotación* (formal titles granted after the land reform) only 18.6 ha of low-quality land. These landholdings underwent an intensive process of subdivision after the land reform (Schulze *et al.* 1988). As hacienda owners often retained the best lands under irrigation, the immediate benefits of the land reform in terms of gaining access to high-quality productive land were limited. According to the agricultural census of 1984, households in Oropeza had average landholdings of only 4.4 ha, compared to 7.8 ha in Yamparáez. These averages do not reflect the internal differentiation, both between as well as within communities, as more than 70% of households in Oropeza had less than 5 ha, and 37% of them had less than 2 ha (Schulze *et al.* 1988).

Land ownership systems in ex-hacienda communities were strongly influenced by the way the land reform was taken forward. The land reform recognized (i) indigenous communities, (ii) ex-hacienda communities and (iii) new communities (Pacheco & Valda 2003: 132). The majority of the survey communities fall into the second category, although, according to Pacheco and Valda (*ibid.*), this definition is not very precise, as many communities were partially or completely of indigenous origin (Pampa Lupiara being an example of the former). Moreover, the legislation stipulated that community land confiscated after 1900 had to be returned to the communities, but this rarely occurred (Assies 2006).

The first group, indigenous communities, including the *ayllu* communities, received scant attention after the land reform. Therefore, for them land reform did not constitute a break with the previous period, although it did contribute to a confusing legal situation (Lehmann 1982), as even tributary obligations were continued for years after 1953. In Quila Quila, the *kuraka*'s duty as tax-collector was abolished only in 1960. According to Lehmann (*ibid.*), the prefect of Potosí even reconfirmed *tribute* obligations for *ayllus* in northern Potosí in 1975. Although the value of the *tasa* had become completely symbolic, various *ayllus* considered the payment to be a long-term guarantee of their access to land (*ibid.*). The other communities that were not part of the hacienda system, the so-called *comunidades originarias*, also paid a nominal fee to the government, indirectly confirming their access rights to land. This system of *catastro* (cadastre) was interrupted after the land reform, which made formal land ownership even more important, as communities remained in doubt about the protection given by their original titles.

Due to the more formalized system of community recognition, and due to changes in areas surrounding them and between the *puna* and the valleys, *ayllu* communities gradually lost some of their traditional access to land in the valleys. An important clause in the Law on the Agrarian Reform of 1953 prohibits “the tenure of land outside the zone of permanent residence” (Platt

1982). As a consequence, the land reform led, for instance, to the complete separation between the *ayllu* Quillakas (in the department of Oruro), and the corresponding *ayllus* in Poroma, including Pojpo and probably San Juan de Orcas. The two *ayllu* communities in the survey and many others in the region (in particular in northern Potosí) did, however, retain (limited) access to land in other ecological zones (cf. Murra 1972). The more or less continuous exchange between *puna* and valley communities was, however, interrupted after the land reform (Pacheco & Valda 2003). Today, many *ayllu* communities are surrounded by *sindicato* or ex-hacienda communities, with re-occurring conflicts regarding land access.

For the second group, that of ex-hacienda communities, households' access to land was to a large extent defined immediately after the land reform. The titling of land was generally based upon criteria for the assignation of personal use and individual property rights for those pieces of land worked by the ex-*colonos* or *arrendatarios*. In addition, people forming the community received collective land titles for the remaining area, generally to be used as pasture. Titles were given on a *pro-indiviso* basis, prohibiting further subdivision, consolidating the existing 'formal' property rights (Pacheco & Valda 2003). In reality, subdivision of lands continued *de facto* for several generations, leading to further fragmentation of holdings. Most communities established after the land reform followed the existing boundaries of previous haciendas. Escana and La Cañada were established upon the existing structure of multiple haciendas (three and four, respectively), again providing land to those who had worked on these haciendas.

In the ex-hacienda communities, the number of families was initially rather small, but probably also relatively stable.¹⁵ Cochapampa was formed around the 12 families working on the hacienda at the time, and they basically maintained the same organizational system and logic of land access and rotation (in *mantas*) that had been applied during the hacienda regime (see also chapter seven). Ex-*arrenderos*, often living in small *ranchos* nearby the hacienda, received documented land titles (*títulos ejecutoriales*), which in the majority of the cases were not actualized by their heirs (Pacheco & Valda 2003). Both *arrenderos* and *hierbajeros* were awarded access to pastoral areas, as they had previously been responsible for the livestock of the hacienda (*ibid.*). In La Abra, families who participated in the construction of irrigation works during the hacienda regime also received a piece of land. The community was 'founded' six years after the land reform, due to delays in the recognition process. Land titles were obtained 10 to 20 years later. Families that received land directly after the land reform, also called *originarios*, were generally the ones with the largest land ownership. Community members who had not worked on the hacienda often received less land. In some cases external people (*forasteros* or *agregados*¹⁶) were also allowed to enter. This initial 'mix' had important consequences for the internal cohesion of rural communities over the following decades.

In the survey communities, depending on the size and status of the hacienda (*latifundio*, *mediana* or *pequena*, i.e., large, medium or small), the land reform affected a smaller (San Juan, Tuero Chico and La Abra) or larger (Escana) share of holdings. Smaller haciendas thus were generally less affected than the larger ones. In practically all cases, former hacienda owners were able to retain a small segment of the best land under irrigation. This implied the continued presence of landowners or their family members in, for example, La Abra, Pampa Lupiara, Quila Quila, Escana, San Juan and Wasa Ñucchu. Some of the ex-*arrenderos* continued to work for the landlord, although now on their own terms (Erasmus 1967). Up to the present day, landlords' presence still constrains land access and is the source of reoccurring conflict. In La Abra, family members of

the former landlord still play a dominant role in the community, renting out access to the best lands and influencing water rights allocation under irrigation. In Quila Quila, in 1996 the son of the former administrator of one of the region's haciendas submitted a claim on a collective land area based upon official titles affecting all three *ayllus*.

In a 1963 review of 335 Chuquisaca properties, Erasmus (1967) confirms that with the land reform very little was done to correct the existing unequal distributions¹⁷ between *arrenderos*. Farmers with less land than needed for minimum subsistence had to continue working through sharecropping arrangements for those with larger holdings. In addition, no systematic investments were realized on any of the farms. On the contrary, machinery was sold or abandoned, and any remaining livestock was "butchered and eaten" (Erasmus 1967). The existing presumption after the land reform was that land distributed among former *arrenderos* would be operated as a collective, but in practice the land was almost immediately subdivided. "In most cases peasants simply went on working their old *arriendo* with no change other than emancipation from previous fee and labour obligations" (Erasmus 1967: 12). Valda Rivera (2005) is even more critical of the non-redistributive character of the land reform in northern Chuquisaca. According to his estimates, while the approximately 5,000 *ex-colonos* received only some 2 ha per household, generally without a formal land title, the about 500 *hacendados* received 700,000 ha, including formal land titles averaging 1,400 ha per property (*ibid.*).

The land reform was never intended to increase overall rural productivity. The predominant production focus (and technology) of the haciendas remained the main orientation in agricultural production in these communities. The main instruments of agricultural production on the hacienda – oxen for ploughing and very simple *arados* (wooden ploughs) – are still common today in most places. In La Abra, the strong initial emphasis on sugarcane for the production of alcohol continued for decades after the land reform. In Pampa Lupiara, cultivation of barley for use in beer by CBN (a brewery) dated from under the hacienda regime.

For the *ayllu* communities and the so-called *comunidades originarias*, land reform offered few positive changes, while further undermining their access to land in other areas. Although the external pressure from the haciendas disappeared, there remained continuous threats to their territories, for instance, claims to land by former hacienda owners in the region. *Ayllus* were *de facto* left with the more marginal lands, as most of the more attractive areas were confiscated or occupied by the haciendas early on.

For the ex-hacienda communities, land reform mainly implied 'personal' liberation from the *pongueaje* system, but it influenced community development pathways in many other ways. It created an initial definition of access rights and a partial or complete recomposition of communities. It also led to differentiation between communities that were more or less affected by the reform (and for some with continued presence of the landlord). There were communities that received mainly dryland areas or minimal irrigation infrastructure, and most experienced limited or no changes in the existing (unequal) distribution of land, retaining the initial differentiation in status between 'old' (*arrenderos* becoming *originarios*) and 'new' members. Ex-hacienda communities, however, had more possibilities to acquire better quality land than did *ayllu* communities, both directly after the land reform and by later acquisition from the landlord.

The Land Law of 1996 and recent developments

Changes in national legislation, in particular, the introduction of the *Law on Popular Participation* (1994), the *Land Law* (1996) and the *Forestry Law* (1997), influenced the position of rural communities in various ways, leading them to make new efforts to secure their rights or to gain access to additional resources (see also Zoomers 1997). After the reinstatement of democracy in 1982, and a quick round of consultation, the new government approved in 1984 a new agricultural law, the *Ley Agraria Fundamental*, inspired by Marxist and communitarian paradigms. Nowhere, however, did the law refer to indigenous groupings or 'territory', and indigenous organizations remained without much recognition (Urioste *et al.* 2007).

The picture changed completely in the early 1990s, in particular after the 700 km march for 'territory and dignity'¹⁸ was undertaken by indigenous peoples from the Amazonia,¹⁹ and which was also widely supported by both Aymaras and Quechuas. After several years of consultations involving the CSUTSB and CIDOB, this resulted in the *Land Law* of 1996 (*ibid.*). The law distinguished between properties fulfilling a 'social function' and those with a 'social economic function'. In the first category were household and individual smallholdings and communal properties, including indigenous territories or *tierras comunitarias de origen* (TCO), neither of which could be subject to any form of market exchange, and which were excluded from the payment of land taxes. The second category included medium-sized and large agrarian properties, which were subject to land tax (Assies 2006). Another important factor affecting community pathways was the formal recognition of more than 12,000 communities and indigenous territories nationwide in the context of the *Law on Popular Participation*, including their elected authorities (following customary law; Urioste *et al.* 2007). The transition (on paper) in the 1990s of *sindicatos* to *Organizaciones Territoriales de Base* (OTBs),²⁰ also had an impact on non-*sindicato* communities, as the *ayllu* communities of Quila Quila and San Juan de Orcas claimed recognition of a (parallel) *sindicato* status.

After introduction of the *Land Law* in 1996 and subsequent adjustments via by-laws, problems continued in the process of land registration. These included the law's rather tedious and cumbersome implementation, which led to prolonged uncertainty among communities and individual households, different approaches to land registration (raising the possibility of disputes over time), and the impossibility of converting collective titles to individual holdings though conversion in the other direction remained possible. The recognition of land as either collective or individual holdings was in fact one of the main problems, as in practice most communities combined both perspectives in relation to local user rights (Urioste *et al.* 2007). In 2006, Vice Minister of Land Alejandro Almaráz went as far as to pronounce his preference for collective titling only. For the highland areas, the law brought little change in terms of land ownership. For territories in the lowlands, it opened far more possibilities for indigenous groups and for new colonization. The widely diverging benefits prompted highland indigenous groups, particularly in Oruro and Potosí, to 'reconstitute' their *ayllus* and establish a parallel and rival organization to the CSUTCB (the national representation of *sindicatos*) in the form of CONAMAQ, principally focused on repeating the success of indigenous territories (TCOs) also in the highlands. Leaders from Quila Quila became very active in this organization.

As noted by Urioste *et al.* (2007), in the *Land Law*'s first 10 years, actual implementation was slow and unequal between different regions of the country, concentrated in the lowlands and with far less emphasis on the Andean valleys, undermining its credibility.²¹ Even with substantial

external support (between 1996 and 2006 roughly US \$80 million was invested through INRA), little progress was made. For Chuquisaca, most implementation effort was concentrated in the central and southern areas, particularly in the lower valleys or *llanos*. These were probably the easiest and least conflictive areas (*ibid.*). Only in the last couple of years, after approval in 2006 of the *Ley de Reconducción Comunitaria de la Reforma Agraria*,²² did INRA become active in northern Chuquisaca, as reflected in the process of *saneamiento* (land registration) in several research communities.

As of this writing, completely new chapter in government policies may be imminent with the approval in October 2012 of a new law on integrated development and ‘living well’ (the *Ley Marco de la Madre Tierra y Desarrollo Integral para Vivir Bien*). Even for the ‘revolutionary’ Morales government, the text of this law implies a radical revision of current government policies. Following the precepts of Andean Cosmovision, the law recognizes the need for a balanced and harmonious relation with Mother Earth, and the rights of the *Madre Tierra* are invoked as a subject of collective public interest.²³ As yet, however, it is unclear what the consequences of the law will be (pending further regulations), but the law may certainly stimulate further autonomy claims, such as those submitted by communities like Quila Quila.

Sixty years have passed since the initial land reform, and in the ex-hacienda communities a third or even fourth generation of community leaders is now becoming involved in land issues. Although a few communities have made progress in land-titling efforts, for most, land remains a sensitive issue. Land is still disputed both within and between communities, in some cases by families related to the former landlord. Furthermore, land under intensive irrigation or located in the valleys surrounding Sucre is becoming increasingly attractive to outsiders. While the threats of external encroachment, confiscation, forced sales and taxation have largely disappeared, *ayllu* communities still suffer from their interrupted access to other ecological zones, and for many communities land access and land use remain uncertain. Due to inheritance mechanisms, climate change and new regulations, landholdings and other natural resources remain under pressure. The following section looks in more detail at the differences between communities in terms of access to land, the path dependent character of some of these factors, and trends that have led to convergence as well as to further differentiation in pathways between communities and households.

6.3 Land access in reality and on paper: a comparative picture of trends and practices

This section analyses and compares available data from INRA and our own surveys regarding access to land and formal land classification and ownership in the research communities.

The process of gaining access to land is difficult to capture in simple indicators. The previous section pointed out that former *arrenderos* received principally dryland areas immediately after the land reform. Later, additional lands (both dryland and irrigated) was acquired or bought from the former landlord. Young families inherited land from their parents or brought new land areas into production, and in a few cases land was given to new community members (*forasteros*). The figures show a mixed picture, with only a few recent processes of land registration (*saneamiento*). Changes in land access are necessarily estimates, as communities have grown gradually in population over the last decades (at least until the early 1990s), and land titles were increasingly ‘out-of-date’, not reflecting the current fragmentation evident in practice. Following the *Land Law* of 1996 and subsequent changes, the two main access modalities were either individual titles (CAT-SAN or

Catastro Integrado al Saneamiento) or TCO titles, referring to indigenous territories such as in Quila Quila and San Juan de Orcas. Most ex-hacienda communities received individual titles.

Table 6.1 presents the land-titling modalities (CAT-SAN vs. TCO) and land access in a selection of the communities surveyed.²⁴ The table includes an overview of data from INRA regarding land ownership in Rio Chico (including Ovejerias Alto, which is a *dryland decline* pathway community) and three of its eight destination communities (all on the *irrigation decline* pathway). In addition, details are given for several communities that form part of 'greater' Quila Quila (four of the *ayllu* communities, as well as the collective title for the *ayllu* Marka Quila Quila), and for three communities in the municipality of Yamparáez. These communities differ markedly in size, but that seems not to have affected their development potential. Ovejerias is about five to ten times larger than most communities surveyed, and about 600 times larger than the new communities in the Rio Chico valley, where many of its former residents live today, including Carapari, Mojtulo and Bella Vista. Some larger communities (e.g., Ovejerias and Talahuanca) scored very low in terms of development outcomes. Lack of access to (irrigation) water is clearly a differentiating factor for these communities.

Data for Ovejerias/Rio Chico, Escana and Quila Quila show substantial differences in the balance between communal areas and space left for individual properties. Differences in size of communal areas between Ovejerias and, respectively, San Juan, Escana and Mojtulo, roughly correspond to 1:10, 1:100 and 1:1,000. Thus, in relative terms, Ovejerias' communal area is about a thousand times larger than that of Mojtulo, one of its 'destination' communities. Communal areas are predominantly used for pastoralism. In 2011, the average comparative value of livestock among Escana, San Juan and Ovejerias was 1:3:9, reflecting only partially these communities' much larger differences in landholdings.

Table 6.1 also shows large differences between regions and between communities within the same region. While average agricultural landholdings are 'greater' in Quila Quila and are more or less average for the four communities in Yamparáez (and almost eight times larger there than in Rio Chico), about 65% of Quila Quila's area is under collective titles, compared to only 20% for the four communities in Yamparáez. The size of pastoral areas partly reflects the size of livestock holdings, but many communities with limited pastoral areas still have access in neighbouring communities or through sharing arrangements.

Land titles do not always reflect realities on the ground. The distinction between individual and communal land and between agricultural and pastoral land is related to the process of *saneamiento* (i.e., land registration, or the process of confirming existing rights through legal title). INRA data often reflect the initial concessions of individual and collective titles, without showing subsequent changes in ownership and use.

Table 6.1
Land titles and land access (ha.) for selected communities

Pathway	Municipality or district	Community	Total area	Total area indiv. titles	Total communal area	Total agric. Area	Total pastoral area
Dryland decline	District 7	Ovejerias	22,373	3,626	18,581	59	3,577
	Yamparáez	San Juan	5,848	2,205	1,250	1,002	1,203
Dryland growth	Yamparáez	Talahuanca	2,643	1,203	14	29	1,174
Irrigation decline	Quila Quila	Marka Quila Quila*	4,407	328	4,035		
		Marka Quila Quila*	2,490	2	2,488		
	Quila Quila	- Tacchi	1,569	1,193	319	604	581
		- Lecopaya	1,879	677	1,132	441	236
		- Chulchuta				97	605
		- Sisipuco				1,026	532
	District 7	Bella Vista**	2,534	205	777	43	166
Carapari**		27	8	18	8	1	
Mojtulo**		32	20	13	20	4	
Irrigation growth	Yamparáez	Escana#	1,865	1,436	118	494	901

Table 6.1 continued

Community	Average hh agric. landholdings	Average hh pastoral. landholdings	Nr. of hh with formal titles	Community title	Households	% titles women
Ovejerias	0.5	31.1	115	72%	28%	56%
San Juan	5.5	6.6	182	36%	64%	70%
Talahuanca	2.6	106.8	11	1%	99%	70%
Marka Quila Quila*				100%	0%	46%
Marka Quila Quila*						50%
- Tacchi	2.7	2.6	226	21%	79%	53%
- Lecopaya	2.7	1.4	163	63%	37%	49%
- Chulchuta	1.5	9.2	66	0%	100%	
- Sisipuco	9.7	5.0	106	8%	92%	
Bella Vista**	0.7	2.8	59	79%	21%	56%
Carapari**	0.3	0.0	27	68%	31%	60%
Mojtulo**	0.3	0.0	77	39%	59%	54%
Escana#	2.7	4.9	182	11%	88%	50%

Source: INRA, own elaboration. Note: The data correspond to figures regarding formal titles as obtained from INRA in 2013, but these do not necessarily reflect current land ownership. * TCO titling modalities, the Marka largely coincides with the shaded areas in figure 6.1. ** Destination communities of Ovejerias Alto in the Rio Chico valley. # Data for Escana includes neighbouring communities that formed part of Escana in the past.

There are at least four factors that cause differences between the titles on record and the actual situation. The first relates to the fact that only a small part of these landholdings is formally classified as agricultural land. In Quila Quila, for example, about 50% is classified as agricultural land. In the communities in the province of Yamparáez about one third is classified as agricultural land, and in the Rio Chico area the figure is only about 4%. Secondly, in only four communities do household titles cover more than 90% of all holdings (which would give a fairly precise figure for individual landholdings). To gain an accurate figure for most communities, communal titles should be included and pastoral areas counted,²⁵ as they are sometimes also used for agricultural purposes. In Ovejerías²⁶ and Talahuanca much of the originally pastoral lands has been converted to agricultural uses. Third, many more households may have obtained access to agricultural land than appear in the table. INRA data show only 11 households with formal agricultural land titles²⁷ in Talahuanca. That community currently has 44 families, of whom most have access to agricultural land through conversion of pastoral areas, inheritance or marriage. Finally, the data do not include alternative access arrangements, both in other communities and through exchange mechanisms. A surprising element in the figures is the already large share of titles (55% for the communities included in the table) given to women. This appears to contradict earlier findings of Pacheco and Valda (2003) which indicated that the majority of women in the Andean valleys had no land titles.²⁸

Considering the actual changes in ownership in relation to the formal titles, a question can be raised as to whether and to what extent changes occurred in the size and quality of agricultural landholdings. Table 6.2 gives the figures for land fragmentation in the survey communities in 1996. A comparison with data for 2011 indicates a decline in landholdings in Ovejerías (as a logical consequence of the transition to the Rio Chico valley), and for most of the *growth* pathway communities. While the *dryland decline* pathway communities of San Juan and San Juan de Orcas reported larger average landholdings in 2011 than in 1996, the opposite occurred in Cochapampa. That community, with its similar decline in population, faced a further reduction and fragmentation in holdings, probably related to the abandonment of the *manta* system governing the rotation of agricultural plots (see further chapter seven). The impact of shifts – and most often declines – in dryland areas is probably less significant than the changes in access to land under irrigation. These changes were considerable for several *growth* pathway communities, while *irrigation decline* pathway communities benefited from land reclamation efforts along the riverside. In a number of cases, however, land was lost again as a consequence of *riadas* or heavy flooding.

Irrigated land might be many times more productive than that in the marginal dryland areas. Having access to 0.1 ha under intensive irrigated cultivation might be more productive than 10 ha of marginal dryland. The large differences in landholdings between, for example, San Juan the Orcas, Ovejerías and Escana nowhere reflect levels of productivity. Ironically, the two communities (Ovejerías and Llavisa²⁹) with the largest landholdings in table 6.2 probably faced the most adverse productive conditions. Although according to Morales (2011), in similar circumstances land size is an important variable explaining overall production levels within a community, generalizations are difficult to make. This is elaborated further in the following chapters.

Data obtained in 2013 from INRA for Quila Quila and for Escana indicate significantly smaller plot sizes than our data for 1996. The differences³⁰ may relate to some extent to different ways of measuring individual or common plots, but the decline in plot size and fragmentation of landholdings is evident for all communities. The data show not only the actual differences be-

tween communities in formal land titles, they also underline the gap between formal titles and the reality in the field.

Table 6.2
Land fragmentation in communities surveyed in 1996

<i>Pathway</i>	<i>Community</i>	<i>Average nr. of plots/hh</i>	<i>Average distance to plot from home (km)</i>	<i>Average plot area (ha)</i>	<i>Average agricultural area per household (ha)</i>	<i>Of which: average irrigated area per household (ha)</i>
Dryland decline	Ovejera	16.5	n.d.	0.65	10.7	0
	Cochapampa	26.3	1.3	0.19	5.1	0
	San Juan	14.6	0.9	0.15	2.2	0
	San Juan de Orcas	13.1	0.5	0.22	2.9	0
Dryland growth	Talahuanca	15.4	0.8	0.25	3.9	0.2
	Pampa Lupiara	13.3	1.4	0.25	3.3	0
	Yurubamba	21.6	1.9	0.31	6.7	0.2
Irrigation decline	Sundur Wasi	12	1	0.31	3.7	0.8
	Quila Quila	18.5	1.4	0.16	3	0.5
	Tuero Chico	9.4	0.6	0.32	3	1.1
	La Abra	7.6	1.2	0.36	2.7	2.6
Irrigation growth	Wasa Ñucchu	6.1	1.5	0.27	1.7	0.3
	La Cañada	13	2.1	0.53	6.9	0.5
	Escana	18.1	2	0.32	5.9	0.2
Reference communities	Pampa Yampara	10	0.7	0.39	3.9	0
	Sijcha Baja	11.3	0.3	0.14	1.5	0
	Llavisá	9.5	5.6	0.79	7.5	0

Source: PIED-Andino community surveys, eight households per community; own elaboration.

Finally, as noted by Erasmus (1967), access to land is an important factor in internal differentiation within communities, which hardly changed after the land reform. Appendix 6.3 illustrates this with an overview of land distribution in Escana,³¹ based on official land titles (therefore not taking into account a possible further subdivision of plots). The 18% largest landholdings (>6 ha) had the same amount of agricultural land at their disposal as the smallest 82% (<6 ha, totaling 237 ha). At the extremes, the largest landholding covered as much land as the 37 smallest ones. Chapter four identified similar differences in access between *originarios* and *forasteros* in Quila Quila. Although some of the differences found in the current analysis – in particular, those regarding the size and value of landholdings – have changed considerably over time, the trends reflect the path dependent character of land access in relation to community origins and location. The next section illustrates the multiple ways in which discussions regarding land access affected community dynamics in Quila Quila.

6.4 Land titling and conflict in Quila Quila

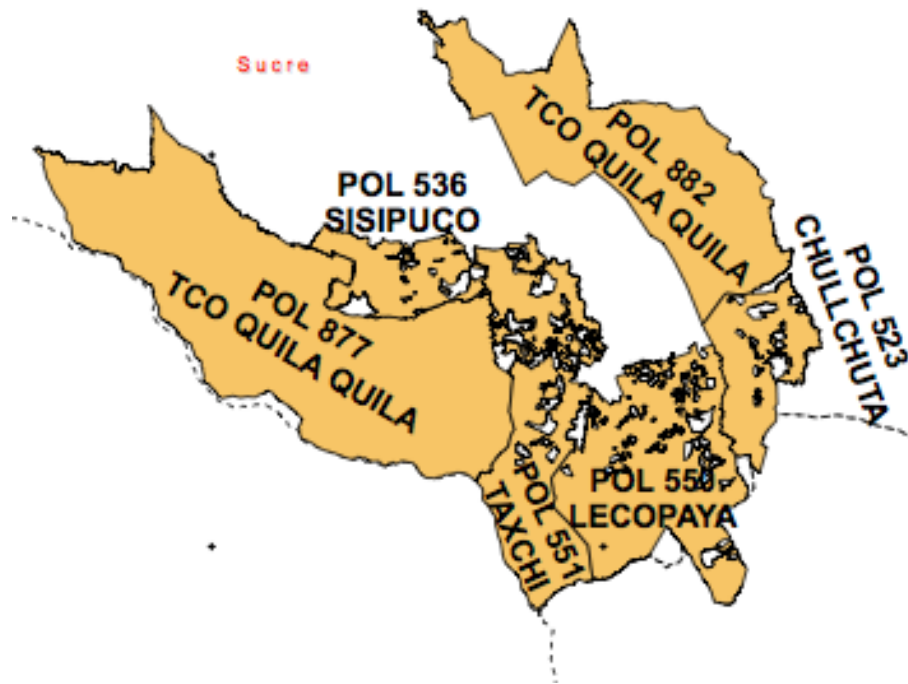
Quila Quila has experienced prolonged conflict around resource access and titling modalities, in part as a consequence of a crisis in leadership. The system of higher-level *ayllu* authorities (described in chapter four) gradually eroded in recent decades, losing its control over the parallel *sindicato* structure. *Sindicato* leadership had gained prominence in the centre of the community and in the area around Tajchi, and had meanwhile been ‘courted’ by the municipality of Sucre. Meanwhile, the *ayllu* structure had been captured by leaders from outside the community. This trend was already visible in 1996, when a trusted adviser from outside the community, living in Sucre, prepared an extensive study and proposal for transforming the communities under the umbrella of ‘greater Quila Quila’ in an ostensibly ‘bottom-up’ and ‘participatory’ process. The proposal contained a long list of actions involving substantial community participation.³² One of the main elements was establishment of a cooperative for management of natural resources and exploitation of the touristic attractions in the community.

In 2008 and 2010 I visited Quila Quila again. Little progress had been made. The plans had been left aside and the community had become internally more divided between the *ayllu* and the *sindicato* groups. The only new effort that could be seen was a small museum established near Pichachulo, where archaeological findings were being exhibited. One of the leaders commented that they had been active in reaching out to the national level through the structures of CONAMAQ. They had also met at intermediate levels to strengthen the representation of the *ayllu* structure, and they continued to forward claims regarding status as an indigenous territory or TCO. They believed that this would provide them full autonomy in the spending of municipal resources. The municipality of Sucre, to which Quila Quila belonged administratively, did not support this agenda. To underline their demands, the *ayllu* group insisted it would reject all municipal funding until the demand for recognition as an indigenous territory was accepted. Other aspects of the demands were the request for recognition of all community lands under a collective land title and furthermore establishment of a separate secondary school focused on ‘indigenous education’.³³ Unsurprisingly, the municipality of Sucre did not support the demand for an indigenous territory. It continued to work with a small group allied with the parallel *sindicato* structure, mainly in the central community of Tajchi. Indeed, this community, within the purview of Quila Quila, received considerable municipal funding in the period 2000-2008 (see figure 5.3).

The *sindicato* group had a clear preference for individual land titles and had mobilized a growing group of community members across the different communities for this position. The tensions between the groups became highly antagonistic. Both groups pleaded their position in Sucre and at the national offices of INRA, but due to a lack of progress, the *ayllu* group also went to La Paz. In 2010, it occupied the offices of INRA and several other state institutions in Sucre. They remained there for about a month, effectively blocking all regular operations of INRA. The *ayllu* group, by this time, was being led by Tata Hilarion Chavez, under the grandiose title of *Curaca Mayor de Qhara Qhara Suyu de Marka Quila Quila*. For a *comunario* not even originating in Quila Quila, and formerly the president of the farmer federation in Chuquisaca,³⁴ this made him a surprising personality to lead an ‘ancestral’ organizational structure, especially as he also quickly traded his (rejected) MAS candidacy for representation of a newly established political party. The turbulence did not bring the parties closer, and finally led to his arrest and imprisonment. Meanwhile, INRA proposed alternatives in an attempt to bring the parties together and break the

stalemate. The outcome of its proposals led to a ‘Swiss cheese’ model, which was finally presented to both groups (figure 6.1).

Figure 6.1
Land titles in Quila Quila



Source: INRA, Chuquisaca. Note: Small unshaded areas are CAT-SAN titles, shaded areas are mainly *Tierras Comunitarias de Origen* (recognized indigenous territories).

While the *sindicato* faction continued to submit claims for development projects to the municipality, the *ayllu* group rejected any municipal support and presented project ideas to the *Fondo Indígena*, the UN fund for indigenous peoples, where the long-term external advisor of the *ayllu* group had become employed as a programme officer.³⁵ According to *comunarios* on both sides, the antagonisms obstructed development and maintenance efforts³⁶ and even led to destruction of some small-scale irrigation infrastructure.

The most surprising element in the story is not the gradually mounting conflict between the two groups and between the two parallel organizational structures (of which the *sindicato* had originally been adopted only as a nominal structure to represent the communities' external interests), but the fact that the conflict descended to the household level. Quite a number of families were split on the different sides³⁷. A local authority expressed his frustration:

The problem of land registration with INRA cannot be resolved, it is a continuous fight, for almost two years now, and titling is being delayed.... The *sindicato* wants individual titling, the *ayllu* members want communal titling, that's the problem (interview with community leader 2011).

Another remarkable fact is that on both sides a substantial group already lived part of the year in Sucre, where many had obtained a second residence, basically for short-term jobs and for their children to attend secondary school there. In 2011, it became clear that the *sindicato* group was gradually winning more souls than the *ayllu* organization, as it had now gained support of the majority in the communities of Lecopaya and Tajchi. The gradual improvement of public services in the 'community centre' and the ideas proposed for housing improvements may have motivated members to shift their position. Klemola (1997: 183) had remarked, "the Kila Kilas are adept at detecting conflicts that are becoming personalised and quickly try to settle them". This time they failed completely.

6.5 Land-related drivers of pathway differentiation

As evident from the Quila Quila case, in relation to land communities embark upon multiple forms of action at the community and household levels. Efforts range from seeking formal recognition and processes of land titling to obtaining or maintaining access to land and natural resources and efforts to counter increasing land fragmentation and degradation and processes of commoditization. This section analyses in more detail the factors and actors that influence changes in formal ownership versus *de facto* land access and land use and implications for pathway development.

The drive for formal recognition

Efforts related to land titling and registration were mainly undertaken at the community level, often delegated to or initiated by active community leaders. In northern Chuquisaca, INRA and some of the municipalities played important roles in land registration. INRA stepped in when conflicts arose between communities, when there was a strong demand to resolve land issues or when communities became divided.

For most communities the process of recognition and receiving land titles took considerable time; for some it remained unfinished business. Land titling happened in several rounds. In the first round a small group of families received titles based on their own demands, while in the second phase new families, or the children of families already living in a community presented additional demands. In a third round, individual families sometimes acquired land from the former landlord, which again required substantial effort, money and additional paperwork. In Ovejerias this process started in 1960, with some families demanding over 300 ha. In 1979, a second round took place, and in 1988 there was a third round, which was still unfinished in 1996. As this community was completely abandoned in more recent years (see chapter three), the community finally started lobbying for a collective title to protect their original (but now abandoned) area from external claims and interference. In San Juan, a similar process was finalized only in 1979, when six families bought the remaining land of the former hacienda owner. Indeed, in none of the communities was titling a straightforward process. Most struggled to achieve different levels of land recognition.³⁸ Receiving land titles and access recognition have also been defining moments for the joining together of *ranchos* or the splitting apart of communities.³⁹ The question here is whether the desire to split up accelerated demands for land titles or whether existing disputes about land might be among the reasons for splitting up. The lack of up-to-date titles and land registration is not automatically a cause for concern. However, in a few cases community members faced long, tedious and costly procedures to get their land titles or confronted conflict-

ing evidence of land ownership due to parallel and incompatible land registration systems (Zoomers 1998; Pacheco & Valda 2003). In addition, increasing land fragmentation and pressure led to recurrent conflicts about access to land under irrigation (as in Rio Chico and La Cañada), access to underground and other natural resources (as in Quila Quila), irregular land sales (as in Yurubamba) and to degradation of pastoral areas.

An important motive for the realization and speeding up of land registration processes in Chuquisaca has been the confusion and suspicion generated among smallholders, communities and the provincial farmer federation regarding modalities of and progress in implementation of the law and its actual impact in the field. The Netherlands supported INRA in its land registration activities and extended support in 1997 to involve Kadaster, the Dutch semi-public Land Registry and Mapping Agency,⁴⁰ which signed a separate cooperation agreement with INRA. Involvement of Kadaster had as its objectives to achieve in three years implementation of the individual CAT-SAN titles in rural Chuquisaca and to design and implement a cadastral and geographical information system, compatible with the systems being developed in INRA. According to the evaluation report prepared for the embassy in 2009, the project document erroneously included only implementation of a rural land registry system. Furthermore, due to delays in revising the relevant articles of the law, the proposed changes did not become operational until April 2000. Kadaster had not implemented land registration following the procedures in the law. This resulted in enormous confusion among smallholders in Chuquisaca regarding the process of land registration, eventually increasing boundary conflicts between communities as well as between individual community members (Fundación Tierra 2000). According to a report prepared by Fundación Tierra (*ibid.*), Kadaster acknowledged that “people know neither their rights nor their obligations” and that the process of land registration was difficult to understand.⁴¹ Kadaster had considered only the formal landowners – that is, those whose rights were formally registered in *derechos reales*. This ignored the effective owners in daily practice, a group that actually constituted the majority of farmers, as most of the registers were not updated following processes of inheritance. These difficulties⁴² led the farmer federation to promote a rapid scaling up of land registration in all communities in the department (Pacheco 2009).

Although most of the initial problems occurred in the southern valleys of Chuquisaca, they certainly had negative repercussions for the northern areas as well. For INRA the main lesson from the experience was that the *Land Law* did not fully cover the complexity of landholding systems in the valleys, and it did not take into consideration the complementarity between different types of property rights, both individual and collective. Early on, INRA, together with companies like Kadaster, had favoured registration only of the external boundaries of communities, which would have allowed for a faster process. Nonetheless, in the majority of cases, community members had wanted individual or family titles. Succumbing to pressure from farmers and *colonizadores* – and with external support from, among others, Fundación Tierra – INRA developed an alternative approach, with a mechanism that would basically reconfirm internal agreements between and within communities. The aim of this approach, referred to as *saneamiento interno*, was to facilitate conciliation attempts, correction of boundaries and recognition of community members following their own principles of customary law. After a few years *saneamiento interno* became integrated into the CAT-SAN registration modalities (Pacheco 2009).

Although practically all communities started to feel a stronger need to secure land rights, only a few opted to apply for a different and more autonomous status as a group of communities.

Most communities today opt for the CAT-SAN modality (see also table 6.1), implying individual land titles, but with a controlling role for the community. A few communities, including Ovejerias, San Juan de Orcas and the *ayllus* in Quila Quila, nevertheless, opted for the collective modality. Their motivations for doing so related, for instance, to their desire for recognition as an *ayllu* or as indigenous territories (TCO), their perception of collective titling as an easy way to protect the integrity of their borders, and the higher costs involved in acquisition of individual titles related also to the often very small size of individual plots. Not all communities came to a straightforward decision. The successes of indigenous groupings in the Aymara region and the lowlands in obtaining extensive land titles under the umbrella of a TCO inspired Quila Quila to submit similar claims for autonomy, but the resulting land conflict (with the two community groups expressing opposite preferences, for CAT-SAN versus collective titling) became a serious impediment to its further development.

The difficulty of synchronizing land registration titles with the multiple practices in the field not only affected Quila Quila, but also led to tensions in San Juan de Orcas (probably not surprisingly, since that community had been advised by leaders of Quila Quila!). Such tension may affect the management of pastoral areas and access to natural resources and lead to divergent opinions regarding the possibilities for sale of land to external actors. In Quila Quila, INRA finally proposed combining the two modalities in the ‘Swiss cheese’ model mentioned earlier. This ‘compromise’ solution, however, was hardly workable for individual community members. Municipalities, silently or openly, opposed recognition of communities like Quila Quila and San Juan de Orcas as *tierras comunitarias de origen*. On the other hand, after the constitutional revision and municipal referendum in 2009, Mojocoja claimed ‘autonomous’ status (*autonomía indígena originario campesina*)⁴³ for the entire municipality, but it remained unclear whether the eventually resulting autonomy would have consequences for land issues.

While land titling gives formal recognition to communities and households, the resulting benefits are uneven. For *irrigation* pathway communities like Escana, La Cañada and those in Rio Chico, formal titles probably stimulated families to invest in irrigation infrastructure, and in a few cases to put their land up for sale. Yet, in *dryland* pathway communities land titles merely served to prevent conflicts with neighbours within the community, or with neighbouring communities, with regard to access. For dryland areas, whether titles were given individually or collectively hardly seemed to make any difference in terms of investment, as there was almost none. Access to land was often informally regulated. In some cases, community members may want to sell land to others within the community, but this also occurred before they received legal titles. In practically none of the communities could land be easily transferred or sold to people from outside of the community. This may become a problem if land increases substantially in value, as had happened in communities with irrigation. In dryland areas, most land had little value and was unlikely to be accepted as collateral for bank credit.

The different modalities of land titling, although theoretically quite different and subject to ongoing debate at the community and higher government levels, are of little practical consequence in most communities. Nonetheless, prevailing conflicts reveal the heightened sensitivities regarding titling, and in a few cases titling may indeed be relevant in relation to the use of underground natural resources.⁴⁴ For individual households, land titles can provide important proof for countering competing claims, and they may eventually also facilitate land sales or even serve as part of extensive compensation arrangements⁴⁵.

As mentioned, the drive for land titling stems partly from the large gap between the formal data regarding land ownership and the day-to-day practices at the community level, in terms of both actual holdings and the multiple informal exchange modalities. The consequences of land titling affect the entire community, although practical consequences in terms of land access may be different, for instance, for *originarios* and *forasteros* or *kanta runas* (Gianotten 2011) and between elderly households and young families facing few alternatives other than migration. This brings us back to the recurrent ideological debate regarding different land-titling modalities, and the heated discussions and conflicts to which this has led (see the case of Quila Quila). The question is why do communities continue to invest so much energy in acquiring certain titles. Our surveys and interviews revealed an apparently continued urge among communities to reconfirm their original rights (realized by the payment of *tribute* a century back or at least several decades ago), to protect their community boundaries – thus pre-empting continuous and cumbersome conflicts with neighbouring communities – and in a few cases to protect individual landholdings against external incursions.⁴⁶ According to Pacheco and Valda (2003), in order to bridge the multiple gaps, better linkages must be created between local practices and national policies, legislation and regulations, while at the same time reducing state interference in the community domain and strengthening the legal weight of customary practices.

Collective action, institutions and shifting land access modalities

The previous section highlighted the gap between formal land titles and actual access practices. Although land access was very much an individual household affair, in cases of disputes the community organization almost always took precedence over the individual. In the ex-hacienda communities, *sindicato* authorities intervened in conflicts about access to land, its inheritance and transfers of land internally within the community or to third parties. In cases involving two or more communities, leaders at the *subcentralia* or provincial level sometimes also became involved. In some communities, the *alcalde* or *corregidor* still played a role (De Morrée 1998). In practically all communities we noted minor or major internal land conflicts⁴⁷, but most of these were resolved by the community authorities, with the *corregidor* or the *subcentralia* becoming involved in a few cases (when several communities were implicated). INRA, the land reform institute, generally acknowledged the community organization as the main authority in cases of disputes.

Over time, community members may gain or confirm access to land through a range of mechanisms. As indicated earlier, after the land reform, people working on the hacienda received almost immediate access to the lands they had been working. Older families expressed profound sentiments regarding their landholdings. For most of their children and other newcomers, land access was possible only by bringing new land into production, by land acquisition (often from the former landlord) or by inheritance. Young families that were not yet formal affiliates of the *sindicato* were often given access – on a temporary basis – by renting or another exchange mechanism. Access to land was generally a requirement for households to be able to participate in the community organization. Tuero Chico even required a minimum landholding size. Having access to land in another community obliged households to participate in that community's activities and collective labour efforts as well. Land access both at home and in neighbouring communities was either inherited or acquired via traditional exchange mechanisms, through kinship relations or through marriage. However, access mechanisms differed for agricultural and pastoral lands, with the former generally obtained via individual arrangements and the latter via both individual and collective modalities. In a few cases, collective efforts were undertaken to ensure access to addi-

tional land, sometimes by establishing cooperative structures, as we will see below. The community may, in exceptional circumstances, force households to reallocate land to family members who lack access, as occurred in Quila Quila:

As community organization, we decided that a woman's family had to give her access to land, so she could have property and produce crops. In the presence of the entire community they were obliged to do so, and since then the women and her family are also affiliated, even though they may not be from this *ayllu*. Everybody needs access to land, this is our way to live together (interview with community leader 2011).

Although we found substantial differences in landholdings of households between 1996 and 2011, the majority of the households interviewed in 2011 had not experienced major changes over the past 15 years. This apparent contradiction is explained at least in part by a life-cycle effect. While about 14% of households faced a decline in landholdings, around 23% had increased their landholdings, attributed to exchanges within households rather than inter-household exchanges. Most of the changes in landholdings⁴⁸ related to inheritance or marriage, land acquisition or a combination of these factors.

More notable were the still substantial differences in opinions regarding distribution of land among heirs. While in Escana, San Juan and Quila Quila most households indicated that they would distribute land equally among their offspring, in most of the other communities only about half of the surveyed households answered the same. This may be because these communities (and Talahuanca⁴⁹) had already gone through a process of land registration or *saneamiento*, which is generally accompanied by a more detailed explanation of the current legislation by INRA or organizations such as *Fundación Tierra*. Inheritance mechanisms indeed traditionally favoured men over women,⁵⁰ as women were expected to live with their husband in another community.

In addition to inheritance a range of informal land access mechanisms were found, for both agricultural production and pastoralism. For agriculture these included sharecropping arrangements (*al partir*), renting, lending, *antiretico* (a system in which the renter pays the owner an initial sum and receives that amount back after returning the land), and land given in exchange for labour or other (De Morrée 1998). Zoomers (1998) presents an overview of the main modalities of land access in relation to economic strata (poor/rich) in the research communities. Exchange mechanisms were used in roughly 8% of the landholdings, with *al partir*, lending and renting being particularly common. The first two modalities were used by poorer families, while richer households rented (*ibid.*).

Today, exchange modalities appear to be important in two cases and with different objectives. The first is in areas with unequal land ownership. This was found, for instance, in La Abra, where the family of the former landlord still held a dominant position. In Pampa Lupiara many households needed access to additional lands in order to obtain a viable level of production, and richer households here sometimes rented additional land for 'accumulation' purposes. The second case in which exchange modalities were more frequently resorted to was in communities with larger groups of absentee members, for instance, in San Juan, where land was given in *al partir* (sharecropping). Indeed, when community members migrated, they often preserved their claims to land by lending it out to family members under relatively comfortable terms for the borrower (*al partir* or sometimes even for free). This enabled them to maintain the – legally required – 'social function of the land'. These systems allow for flexibility and in fact promote cooperation between

households with complementary resources. Sharing land through *al partir* implies an incentive to work, stimulates the use of inputs, reduces risks and problems of illiquidity and could even help reduce soil degradation (Pacheco & Valda 2003).

As mentioned above and illustrated in table 6.1, availability of pastoral areas differed widely between communities. Access to communal areas depended in part on land allocations after the reform. Today, access to pastoral land is generally based on the sizes of the respective herds. Even communities with relatively large pastoral areas (e.g., San Juan, Talahuanca and La Cañada) often still needed the use of pasture elsewhere, due to a lack of fodder. Access to land in other communities was often regulated through customary property rights (e.g., *puestos de pastoreo* or *hierbaje*). This access was often given in rent, by which a fixed amount was paid per year per head (e.g., Bs 50 for a cow). For smaller livestock, other exchange modalities were applied. Justino Alakori, a farmer from Talahuanca, took his goats to land belonging to a family member in a neighbouring community. In turn, he assumed the family member's responsibilities at community meetings, participating on their behalf. Similar sharing arrangements were found in Cochapampa, La Cañada and Pampa Lupiara, but nonetheless appeared to be declining. The riverside communities of Ovejerias had little or no pastoral areas, which forced community members to resort to exchange modalities to access land in neighbouring communities, or to focus on intensive dairy production in the valley, which was also common.

While for the *irrigation* pathway it was fairly evident that intensified irrigation (i.e. more intensive than in 1996) had reduced the space, time and need for livestock, for *dryland* pathway communities the decline in flock may have also been a response to reduced access to pasture or the increased subdivision of previously communal land. The decline in livestock herds alongside valley communities' reduced access to land had, furthermore, led to a decline in exchange practices between highland and valley communities. The decline of previously common property arrangements for pastoral areas may have created disincentives for individual households to care for these resources in an adequate manner. The lack of continuous surveillance of pastures, for example, had led to recurrent conflicts (Pacheco & Valda 2003).

Higher-level organizations or collectives were sometimes called upon to provide leverage in external negotiations and to protect or obtain individual or collective access to land or other resources. Table 6.1 shows linkages between communities. Quila Quila has a large area with individual titles (4,000 ha) but also a few large collective titles (totalling 2,500 ha), which were given to the Marka Quila Quila after prolonged and conflictive negotiations. The collectively titled areas were, in principle, for pastoral activities, but one of the main motives for demanding the titles was related to possible exploitation of underground resources. In Quila Quila a cooperative was established for joint exploitation of mineral resources, however, without much success.

The Rio Chico area is the most visible example of the more complex linkages between communities, especially with regard to reclaimed land. As indicated before, practically all families originating from Ovejerias descended to the riverside at various stages, becoming spread among eight different communities, where they gained access to public services and land and subsequently to irrigation (see also chapters seven and eight). In 1996 around 33% of households in Ovejerias had access to communities in the Rio Chico area (in particular, Mojtulo and Carapari); in 2011 99% lived there. Although some communities in Rio Chico were much older, all were 'defined' to a substantial degree and built up by the reclamation of land from the river. Riverside communities benefited from sequential (and sometimes parallel) external support starting in the early

1980s and continuing until today, reflecting also recurrent losses of infrastructure due to strong currents and flooding. Most land reclamation efforts were realized under the umbrella of the northern Chuquisaca development project (PCHN),⁵¹ which had substantial implications for the local production system (see chapter eight) and organization. As a relatively new settlement area, with new villages and people coming from different origins, there was little cohesion within and between communities at first. Initial collective action related to land reclamation, construction of multiple public works and extension of irrigation canals did create a minimal shared identity. Nonetheless, the relatively high turnover rate of residents, with families migrating into and out of the area and the associated frequent land sales, may have had negative effects. Probably even more detrimental were the numerous uncoordinated or badly planned land reclamation efforts by which projects of one group or community had severe consequences for other landholdings downstream. Land losses have been very frequent over the past two decades. The elaboration of a *master plan* for the Rio Chico area facilitated identification of some of the problems and constraints for further land reclamation, but despite repeated efforts it had not yet led to a strong organization of the more than 22 riverside communities.

Land reclamation – and subsequent land losses – also occurred among the riverside *irrigation* pathway communities, including Tuero Chico, Wasa Ñucchu and La Abra. Due to their more homogeneous composition (with limited external influx after the land reform), collective action efforts here contributed to a stronger collective sentiment and also to a more equal distribution of benefits in the long run.⁵²

In several communities, efforts were under way to define access to services provided in the new ‘urban centre’, to establish a new organizational structure for it (e.g., in San Juan de Orcas and Yurubamba) and to consolidate access in peri-urban neighbourhoods (in Quila Quila). These processes often required a restructuring of landholdings. In Yurubamba and San Juan de Orcas a process of subdividing land in the centre was initiated with external support. Selected community members received small plots, around 80 m² in San Juan de Orcas and plots roughly double that size in Yurubamba. Access to these areas mainly favoured the ‘older’ families of *originarios*. Chapter ten discusses the consequences of such efforts for settlement concentration.

Summarizing, most actions to gain access to (additional) resources were realized at the household level, either through inheritance, acquisition or a range of informal exchange mechanisms. Large-scale collective action to access land or other natural resources remained a challenge, and communities faced multiple constraints. The cooperative in Ñucchu (box 6.1) is a positive example, but this experience took years of building capacity, savings and trust, and will be difficult to replicate elsewhere. The gradual undermining of existing supra-communal *ayllu* structures and the difficulties in building a coherent and effective riverside organization among new and dispersed communities underline the complexity of building up such organizations. At the same time the existing *subcentralias* and national farmer federation are oriented mostly towards immediate political demands, rather than the more intricate elaboration of adaptable practices and regulations.

Box 6.1 The ripio cooperative in Ñucchu

One example of cooperative efforts to guarantee access to resources can be found in Wasa Ñucchu. There, establishment of a cooperative for excavating *ripio* (gravel used as a building material)

from the Cachimayo River resulted in a substantial transformation, not only of modalities for the exploitation of those resources, but also for the community organization itself and the benefits generated for its members. In 1996, the 78 cooperative members (from the three Ñucchu communities) worked in the river using rudimentary equipment to excavate *ripio*, which they subsequently sold to external parties. In 1996 the cooperative provided around Bs 20,000 in annual income to its members, who worked roughly 200 days a year. For non-members, the total benefits for 200 days were less, some Bs 5,000 per year (De Morrée 2002), indicating a substantial differentiation in benefits between members and non-members. With the revenues generated and with additional income from migration, the cooperative managed to acquire more sophisticated equipment, including machinery for dredging, selecting and grading, as well as two trucks for transport. The entry fee for new members increased between 1996 and 2012 from US \$800 (Bs 4,000) to \$5,000. At the same time, principally due to youth outmigration, membership declined to 46, with Wasa Ñucchu retaining the large majority of 30 members. Today, these members work only part time, mainly acting as shareholders, receiving anywhere between Bs 200 to Bs 2,000 monthly in net benefits, depending on (fluctuating) running and maintenance expenditures. The most complex part of the business is the hiring of a small group of workers and monthly meetings to discuss administration and financial management, which they conduct entirely themselves. This has generated a strong sense of ownership among community members, but also internal problems regarding financial control, as the previous president ‘borrowed’ without authorization around Bs 140,000 (US \$20,000) without returning the funds. Surprisingly, even community members living in Argentina acquired shares in the cooperative. Overall, Wasa Ñucchu did far better in retaining population over the past 15 years than other comparable communities, such as Tuero Chico and La Abra. Establishment of the cooperative and its gradual conversion to an ‘investment and shareholder company’ were certainly contributing factors. So far, the cooperative in Ñucchu is the only one focused on a natural resource other than irrigation that has been relatively successful.

Systematic external support for communal efforts has been limited. Even though large sums were invested in irrigation and land reclamation (with the building of dikes and placement of gabions) in Rio Chico and Tuero Chico, the riverside organization in Rio Chico received little training and technical advice, while the cooperatives in Ñucchu and Quila Quila probably received no support at all. As we saw earlier, the cooperative experience in Quila Quila regarding collective mineral exploration and tourism had been disrupted by prolonged internal conflict.

Responses to land fragmentation, degradation and abandonment

Land fragmentation, soil deterioration, erosion and land abandonment are due to factors such as more intensive land use (changes in rotation patterns and reduced fallow periods) and climate change and may evoke differentiated responses amongst communities and households.

Land degradation is one of the most difficult issues. Today, it affects mainly those in the *decline* pathway. As mentioned earlier, expansion of haciendas resulted in clearance of increasingly marginal lands for cultivation, gradually undermining conservation practices, increasing erosion and diminishing soil fertility (Kessler 2006). Today, population levels are (as yet) substantially higher than in the early 1950s, and most communities are already experiencing declining productivity

and gradual abandonment of the most remote and marginal dryland areas.⁵³ Few community initiatives to counter land degradation could be identified, except a few externally supported efforts such as a soil and water conservation programme in Talahuanca and dispersed watershed management projects in the Rio Chico area⁵⁴. Some communities had imposed restrictions on the use of firewood, and collective efforts had been made to recover terraces (as in Quila Quila).

Land fragmentation (see table 6.2) may have more immediate consequences. In Talahuanca, after the official review of land titles three years ago, a group of about 15 families decided to leave the community for colonization in the lowlands, as they would remain with very small areas. Most of their plots were returned to their parents from whom they had been inherited. Cochapampa manifested the most extreme land fragmentation among the research communities. Community members had disposal of, on average, 26 dryland plots, with an average area of less than 0.2 ha, located at distances of some 1.5 km from their homes.⁵⁵ In comparison, households in Tuero Chico had only nine plots (most of them irrigated), with an average size of 0.32 ha, at only 0.6 km distance. Much less time was typically spent walking to and from agricultural plots in communities with irrigated lands compared to those in the more extensive and dispersed dryland areas. Extreme land fragmentation may well bring additional costs in time and limit further intensification, even in irrigation communities. Platt (1982), based on an analysis of *ayllu* communities in northern Potosí in the 1970s, indicates however that the fragmentation of landholdings should not automatically be labelled as *minifundio* (fragmented smallholdings), as inheritance mechanisms and marriage may also allow for consolidation and expansion of holdings. In addition, small and dispersed landholdings reduce risks from climate hazards (*ibid.*). Gianotten (in Morales *et al.* 2011) suggests the possibility of regrouping landholdings, while also indicating the possible difficulties and conflictive character of such an exercise.

Analysing data from the research communities in 1996, Barron and Goudsmit (1997) maintain that lack of land and its low productivity are important reasons for outmigration, alongside lack of alternative labour opportunities. According to Platt (1982), land scarcity might lead to increased seasonal migration, though this author points to other relevant factors as well, such as lack of animals. Although in some communities, households with larger landholdings are less likely to migrate permanently or temporarily, the communities in our survey did not form a uniform picture. Pampa Lupiara had a few families without direct land ownership in 1996 and in 2011, but almost all of them had access to land by means of exchange mechanisms, suggesting some differentiation in options among communities.

For the 14 survey communities, we found a decline in the number of migrants in the higher income strata, which also had slightly larger landholdings on average. The relation is not very strong, however, as average household size was also smaller for the richer households. Differentiation becomes more apparent when we distinguish between pathways and socio-economic strata. In the *dryland decline* pathway, wealthier households – in terms of land and other resources – migrated far less than poorer households, while for the *irrigation growth* pathway the temporary migration rate ran more or less parallel to size of landholdings. But as richer households were considerably smaller among the *dryland decline* pathway communities, this may also suggest higher rates of permanent migration. The *dryland growth* and *irrigation decline* pathways show no strong link, but temporary migration rates were lower, possibly due to the higher agricultural potential in both pathways. Taking temporary and permanent migration together there appears to be a U-shaped relation among the different pathways. Both the poorest and richest communities show

higher levels of migration. In the poorer communities, migration is made necessary by land scarcity and degradation, and migration destinations were almost exclusively places within the country, while members of households in richer *irrigation* pathway communities were more likely to migrate to Argentina. The pampa communities (*dryland growth* pathway) and the larger communities with marginal irrigation systems had on average far lower levels of migration in 1996. The following chapters will look at these trends in more detail. Reviewing the situation in four communities in northern Potosí (close to Cochapampa), Chumacero (2005) finds the same or even more intensive land fragmentation as in Cochapampa, but no direct link between the size of landholdings and migration, or even between household earnings and migration, suggesting that practically all households faced land shortages.

The main visible way in which communities dealt with land fragmentation and deterioration was by obligating migrating community members to remain actively involved in the community and demanding greater contributions to the community organization, which may also indeed motivate members to take care of their (otherwise abandoned) landholdings. Although the Land Law establishes an egalitarian distribution of land among heirs,⁵⁶ the community did not seem to play an active role in these mechanisms, except for the appropriation and redistribution of land left, for instance, by childless widows. In *dryland* communities, like Talahuanca and San Juan, this appeared to have led to a decline in the speed of land fragmentation, but the remaining landholdings after inheritance may nevertheless hardly provide a 'sustainable livelihood' for young families. In San Juan, many young members no longer lived in the community and did not actively participate, leaving the burden to the elderly who did remain.

To the extent that people received remittances or earned some cash, the majority preferred to use these funds to buy a plot in Sucre – allowing their children access to education there. There was little or no investment in the rural areas, in particular, among *dryland* pathway communities. Without possibilities for further land redistribution, young families consider themselves forced to move away, although they remained in contact with the community. The *sindicato* response has been to increase fines⁵⁷ for non-participation, and threaten confiscation of land, especially from those who had migrated and not returned to work the land or to participate in community activities. Members who failed to cooperate, could in principle lose their membership.

Land markets

While internal land markets were a regular phenomenon in most communities, external sales of land (to people who were not community members) were also gradually gaining importance, especially among the *irrigation* pathway communities. Land had in many cases been bought (often from former landlords), rented, used as a collateral (*anticretico*) or sold internally. In *ayllu* communities, for instance, *originarios* had managed to increase their holdings by buying land, but they often had no formal documentation of transfer. The community was informed of such sales, which were then registered in community *actas* (Pacheco & Valda 2003). In none of the communities surveyed could land be easily sold to outsiders (although some community members disagreed). This prohibition probably dates back to the land reform of 1952-1953, which included a clause prohibiting the sale of lands assigned to peasant households (Platt 1982). Today, community regulations generally stipulate that land must first be offered for sale to other family and community members, to other communities in the same *subcentralia* and then only if no buyer can be found to outsiders. 'Outsider' is, however, a relative notion; community members in Yurubamba indicated that sale of land on one side of the community to a member living on the other side

had been (another) reason for confrontation among two rivalling groups (Pairumani and Yurubamba).

In 1996, the only 'public sale' we encountered, was a small newspaper⁵⁸ advertisement, offering for sale 1,600 m² with permanent irrigation in the *buerta* (orchard and irrigated area) of Wasa Ñucchu for US \$8 per m². The *irrigation growth* pathway and riverside irrigation communities in the Rio Chico valley show some signs of initial *de facto* external acquisition of land. The additional investment in irrigation (substantial in all of these communities) made agricultural exploitation interesting for entrepreneurs from Sucre and elsewhere. Community meetings in Escana showed quite a few new faces in 2011, most of them living principally in Sucre, although return migrants also played a role. The value of individual landholdings under irrigation varied between US \$2,000 to more than \$70,000 per hectare,⁵⁹ while marginal pastoral areas were simply abandoned or rented out for a few dollars a year.

In Rio Chico, the gradual increase in land acquisitions was analysed by Entreambasahuas *et al.* (2004). For two selected communities, comparable to the riverside communities of Ovejerias Rio, these authors found an increase from just 2 land sales in the 1980s to 16 in the 1990s. Most land had been acquired for the purpose of (irrigated) agriculture, livestock and diary production, but in a few cases it was intended as a *casa de campo* (a country residence for urban dwellers). Most of these lands were close to the paved road to Cochabamba (as well as being close to Sucre), and offered both a pleasant climate and relatively good infrastructure. Reasons for the sales were mainly lack of money (needed for children to study in Sucre, for health care expenses, for housing improvements and for payment of debts), water shortage and multiple crop diseases which limited profitable production. Land areas under irrigation were generally small (500-4,000 m²), with prices gradually increasing from US \$1-2 per m² in the 1980s to about \$7 per m² in 2002 (*ibid.*). These authors relate these high prices to the considerable investments made in the region, amongst others by IFAD/PCHN, as well as to a range of other governmental, non-governmental and private investments. External and commercial land sales were still rather infrequent, but the increase in areas with more intensive irrigation may lead to a gradual expansion and shed new light on the value of land titling in those communities.

6.6 Summary findings: from encroachment and domination to formal titles and variable access

How did pathway differentiation occur in land and natural resource holdings and access? Moreover, what were the implications for broader pathway development? Land access influenced the economic, political and social cultural dynamics of communities in many ways. Table 6.3 presents the main trends for each pathway.

Before making up the balance between the different pathways it should first be noted that there are many common strands. In the period before the land reform, *ayllu* communities faced multiple forms of institutional encroachment (e.g., *mita*, *reducciones*, *encomienda*, land confiscations) and considerable difficulty in retaining their autonomy and access to land, while those on the hacienda worked in conditions of near slavery. After the land reform, *colonos* gained access to the hacienda lands they had been working, but in only a few cases did they manage to obtain additional lands. For both ex-hacienda as well as *ayllu* communities, gaining a formal title and status continued to motivate actions to define boundaries, forward claims and establish membership rules. Although the land reform brought substantial changes and improvements to all communities, it did not eradi-

cate large land ownership. Nor did it lead to effective redistribution of land or provide a productive resource base for individual communities.

Community size and average landholdings have had only a very limited relation with development potential. It appears counterintuitive, but *decline dryland* pathway communities have on average the largest agricultural area per household, while *decline irrigation* pathway communities have the largest landholdings under irrigation. In this respect, an important factor in defining the 'value' of land is not the size of holdings, but rather, continuous, secure and (relatively) equitable access to water resources.

Nonetheless, the overview in table 6.3 clearly traces more unfavourable trends for the *decline* pathway communities than for the *growth* pathway. While both *decline* pathway groups show the abandonment of dryland areas, most also suffer from fragmentation of landholdings. The main difference between the *dryland decline* and *dryland growth* pathway is the higher productive potential in the latter communities and/or their more significant external support and investments in agricultural production, as we will also see in the following chapters. The first group has experienced greater difficulties associated with the decline of existing institutions related to land, including the *manta* system in Cochapampa and the land cooperative in San Juan (see chapter seven) and declining access to pastoral areas. Communities in the *irrigation decline* pathway suffered from a range of externalities, in particular flooding and water contamination, but also constraints in land access for younger households as well as internal power struggles regarding access to land and titling modalities (e.g., in La Abra and Quila Quila). These factors limited the benefits of irrigation, especially for poorer households, and blocked progress in irrigation or other areas. Among the *irrigation growth* pathway communities, land access was not a major constraint for new households, as conversion of previously dryland areas to irrigation was still possible.

There were important differences between *sindicato* and *ayllu* communities, in terms of their size, coverage of communities, histories of encroachment and claims to land, practices of accessing land in multiple ecological zones, and in the way they used land and in land-titling modalities. It is probably no surprise that the gradual introduction of land markets is evident only in the *sindicato* communities, and that discrepancies around land-titling modalities in the *ayllu* of Quila Quila were at the centre of the conflict there. Developments since the 1952-1953 land reform in general have led to a gradual or more abrupt interruption of access to multiple ecological zones, narrowing the space for exchange practices and risk-spreading, principally among the *dryland* pathways.

How did internal and external factors and agency influence and respond to these developments? For each of the trends identified, there was more or less interaction between the community organization, individual households and/or informal exchange networks, in order to facilitate or guarantee sufficient and secure access to land. Changes occurred, within a relatively short timeframe or as a consequence of long-term historical developments. Decision-making often took place at the collective level, but individual members or community leaders were required to follow up with state institutions or with neighbouring communities to resolve issues of land access. A few communities were continuously involved in disputes with family members of former landlords, in particular, around irrigation. These struggles complicated further progress in redefinition of access rights and rehabilitation of irrigation infrastructure. In other communities, village members who were able decided to access lands by effectively paying for them. Although communities claimed central control of (abandoned) land, continuing claims of 'old and new residents' and different forms of access (e.g., *al partir*) complicated any central role for the community organization. Land access, there-

fore, often remained subject to internal and external disputes and processes of slow ‘commoditization’, in particular, in areas with access to intensive irrigation.

Population growth led to a further fragmentation of landholdings, affecting both marginal dryland areas and small irrigation communities in the *decline* pathway with no possibilities to extend the agricultural frontier by bringing new land into production, by land reclamation along the riverside, by land improvement or by acquiring or accessing land in neighbouring communities. The occurrence of external shocks, like flooding, land losses and droughts, led to the subsequent departure of small and sometimes large groups of families, depending on the damage caused and availability of alternative income sources.

Table 6.3
Differentiation between pathways in outcomes with regard to land access

<p style="text-align: center;">Dryland decline pathway</p> <p style="text-align: center;"><i>Ovejerias, San Juan, Cochapampa, San Juan de Orcas</i></p> <ul style="list-style-type: none"> - Land abandonment (OV-Alto, SJ, CPP) - Decline in access to dryland agriculture and pastoral areas - Partial interruption of dual access (SJDO, CPP) - Splitting of SJ, CPP, OV, and new settlement status for SJDO 	<p style="text-align: center;">Dryland growth pathway</p> <p style="text-align: center;"><i>Yurubamba, Pampa Lupiara, Talahuanca</i></p> <ul style="list-style-type: none"> - Less affected by decline in dual access, smaller livestock herds (PL, YBB) - More intensive agricultural production (PL, YBB) - Partial conversion to irrigation (YBB) - Relatively limited (international) migration (PL, YBB, TL). - Splitting of YBB (recently)
<p style="text-align: center;">Irrigation decline pathway</p> <p style="text-align: center;"><i>La Abra, Tuero Chico, Sundur Wasi, Quila Quila</i></p> <ul style="list-style-type: none"> - Land reclamation along the riverside (TC, LA, OV-Rio), but problems in coordination and cohesion (OV-Rio) - Abandonment of dryland areas uphill (LA, TC) - High level of fragmentation of irrigated land area (TC, OV-Rio) and unequal access (LA), limitations lead to increased migration - Decline in dual access (SW) - Processes of land commoditization (OV-Rio) - Continued dependence on former landlord for land access (LA) - Persistent conflicts in land titling (QQ) - Failed cooperative efforts in natural resource management (QQ) - Splitting of TC after land reform, LA recently, while QQ became more divided and internally fragmented 	<p style="text-align: center;">Irrigation growth pathway</p> <p style="text-align: center;"><i>Escana, La Cañada</i></p> <ul style="list-style-type: none"> - Substantial conversion of dryland to irrigation, increasing productivity and value of land (LC, ES) - Expanding market for land (LC, ES) - High level of land fragmentation only in WN - Substantial gains from riverside <i>ripio</i> cooperative (WN) - All three communities split (WN after the land reform, Escana in 1976 and LC in 1997)

Source: Own elaboration.

In the process of gaining titles and formal recognition, communities therefore experienced different stages, often reflecting changes in legislation. Starting with recognition as a *sindicato* in the first stage, and after 1994, following the *Law on Popular Participation*, communities needed to gain recognition as *Organizaciones Territoriales de Base* (OTBs). Except for the *ayllus*, most communities were established shortly after the land reform. Many went through a process of splitting up or, in a few cases, joining together, though this was not clearly distinguished between pathways and such processes carried different connotations for *ayllus* and *sindicatos*. The new *sindicatos* generally became fully independent, while *ayllus* often retained their claims on territory. Even within established

communities these processes may continue, with consequences not only for the redefinition of community boundaries and memberships, but also for their size, and consequently for the 'rights' that communities can claim (or are given) to certain levels of public services. Over time, following the policies of agrarian reform, the national *Land Law* and other policy changes, communities continuously redefined their status and identity. The *ayllu* communities have complex histories with changing external appearances, which have been, moreover, often renegotiated by either village leaders or external advisers. In parallel, communities have gained and lost access to land in other communities or in other ecological zones, as well as in peri-urban areas, often due to temporary or permanent migration. Migration trends and access to land in multiple communities certainly contributed to alleviate pressures, and also influenced land inheritance practices.

The abovementioned processes have not run in parallel everywhere. In some communities, land fragmentation and absenteeism have been particular issues (most evident in the *dryland decline* pathway communities). In others, the issue of gradually increasing market values has been predominant (especially in the *irrigation* pathway communities). Finally, most of the *dryland* pathway communities face a decline in traditional exchange mechanisms. These developments are not inherently problematic, because they may provide households some liberty to define how they want to access land. They could, however, limit opportunities for correcting existing inequalities and for dealing with processes of gradual deterioration and fragmentation. As these processes have taken place over decades, during which community authorities have continuously rotated, numerous leaders and authorities have been involved. This has often changed or blurred the reasoning for and urgency of demands for land access or access rights, as external policies also changed over time.

At the community level these trends, possible conflicts and uncertainties were a topic of debate and possible adjustments in the 'rules of the game'. Communities put pressure on migrants to return, and continue contributing to the community, whether in the form of labour or otherwise. Community authorities in some cases threatened to confiscate land or proposed collective work to improve land or to gain access to irrigation. Communities were not very active or effective in dealing with some of the more gradual and less visible trends, which were at least in part the result of the cumulative daily practices of individual households. The only large-scale collective action efforts to gain access to additional land related to land reclamation and building the associated infrastructure in the Rio Chico area and in a few other communities, all with substantial external support or even triggered by external projects. For the remainder, 'collective action' with regard to land was generally limited to internal decision-making and external actions by authorities on behalf of the community. These actions generally focused on long-term processes for gaining legal titles, demands to start or accelerate land registration (*saneamiento*) and, in a few cases, conflicts with neighbouring communities. On some occasions there were larger-scale protest actions, blockades, occupations and participation in demonstrations (*marchas*).

At the household level, young families typically tried to establish themselves either in their own community or in their partner's; some were lucky enough to inherit sufficient land from their parents. Without access to land they generally could only obtain status as 'resident', without full rights in community decision-making. Especially in communities with irrigation, this led to difficulties in gaining access to land. Some individual households tried to access land on a temporary basis, either via sharing mechanisms, renting or even buying lands or otherwise (*anticretico*). For the wealthier families, double residence, either in the city of Sucre or in nearby towns, was a mechanism to gain a foothold in urban areas, to facilitate their search for jobs, education for their children and access to

markets to sell their produce. In a few cases, communities collectively tried to enforce claims on certain areas, or to regain land at the riverside. Yet this was observed almost exclusively in areas that could benefit from irrigation.

The demand for legal titles and guaranteed access to land may have long-term historical roots and stem from traditional sentiments. For some communities, recent processes of modernization, and major investments in, for instance, irrigation infrastructure contributed to demands for accelerated land registration. For others, titling demands originated in historical usurpations and frequent land losses via different forms of encroachment occurring over centuries. The continuation of those fears is not surprising, considering the interrupted access to land in neighbouring communities or in valleys, the continued presence of the family of former landlords making claims and the often out-of-date status of legal documents.

The existing legislation does indeed help to resolve the imminent insecurity with regard to land access and to diminish the risk of external claims. When based upon *saneamiento interno*, land titling may largely respect local systems, but it often only partly reflects existing conditions and multiple access practices. The existing legislation and implementation hardly respond to the multiple differences in community pathways, evident not only among the research communities, but also in a broader sense for the Andean valleys, as highlighted by Pacheco and Valda (2003) and *Fundación Tierra* (2000). In the worst case, communities may receive collective titles but have no alternative if they change their mind, or they may end up in prolonged internal conflict. Overall, the large gap between (the lack of) formal titles and the multiple and informal access modalities on the ground has certainly contributed to confusion and suspicions regarding changes in government policies and their implementation.

This leads to two opposing trends: while for most of the *dryland* pathway communities, land has long-term historical roots and provides a sense of community identity and coherence, also constituting a mechanism for external exchange, these communities also face an absolute decline in the productive value of land and in their own capacity to deal with land issues (partly as a consequence of increased outmigration, reduced labour capacity and lack of external actors' interest in investing substantially in these areas). Several had opted for collective titles, to 'protect' their boundaries, and requested a different external identity (e.g., as *Tierras Comunitarias de Origen*) and more autonomy. At the same time, most irrigation communities, especially the *riverside decline* and the *irrigation growth* pathway communities, saw the abandonment or rapid conversion of dryland areas and a shift towards intensified irrigation. Land, for them, may have lost part of its symbolic value as a source of common identity, instead being converted to an important production factor, an opportunity for accumulation and investment, and for some, a tradable commodity.

The *growth* pathway had more opportunities and also greater external support in transforming the structural value of land through mechanization or intensified irrigation or alternative resource exploitation opportunities. Improved productive potential allowed, in particular, households with better access to mechanization or irrigated land to accumulate resources, and some poorer households to gain a living at least as day labourers. For a large segment of these communities these improvements implied the creation of new and relatively sustainable pathways, although migration among the youth remained quite high.

6.7 Conclusions

What is the significance of land as a resource in relation to pathway development and differentiation? As indicated in the introductory section, land is more than the sum of individual holdings or the territory of an individual community. Land is a complex resource with gradually changing 'structural properties'. Especially in the Andean valleys, land is the principle source of community identity and sentiment. For many households, it is still the principle source of production, also defining or influencing their position and membership within the community. Land is a carrier and safeguard of a range of other resources, accessed in multiple localities in different ways, with shifting access modalities over time and between households, between communities and even between regions. It constitutes a medium of exchange for a range of other 'production factors' and may enable households to spread production risks. Land is also a source of worry, in relation to community identity, ownership, degradation, abandonment, fragmentation and internal differentiation in access and wealth accumulation. These complex characteristics imply that land and other resources cannot simply be defined in terms of a descriptive and quantitative analysis of 'initial conditions'.

Herring (2005: 1), analysing agrarian reform, shows that the "long-term consequences of rural asset distribution at critical historic junctures illustrate the importance of a path-dependent view of development policy". Those long-term histories impact not only upon 'initial resources', but also on living memories of the past and visions of the future (Garud *et al.* 2010), influencing the ways that communities deal with land and identity. According to Lambin and Geist (2006: 69), "the understanding of land change processes has evolved to include a more comprehensive understanding of situation specific interaction between a range of factors at different spatial and temporal levels of scale". Building upon these perspectives, this chapter identified not a single 'path dependent pattern' in relation to land, but rather the accumulation of different internal and external processes, as an unfolding journey (Garud 2010), affected by initial conditions, past memories and legacies (Heinmiller 2009), in which place dependence (Martin & Sunley 2010) plays an important role. For all communities, gaining and maintaining access to land is part of long-standing demands, collective action efforts and prolonged internal and external struggles and conflict, often related to historical claims or collective identities. This was observed in all of the research communities at different stages and involving a wide range of stakeholders, both from within the 'extended community', in the context of *subcentralias*, as well as external actors.

Taking the land reform as a frequently mentioned but obviously still arbitrary starting point (especially so for *ayllu* communities), we can distinguish a wide range of land or land-related resource developments. First, shortly after 1953, new community boundaries were defined, resulting in access to a rather differentiated resource base for the new communities. Internally, the land reform defined initial land ownership among households, which, apart from the subsequent internal subdivisions, has remained largely intact, considering the still predominant landholdings of the *originario* households in many communities and the persistent inequality in landholdings overall. Second, those communities that faced threats or claims, often from former landlords, regarding their boundaries or access to pastoral areas outside the community, undertook extensive effort to redress those uncertainties. Third, for the *ayllu* communities, access to lands in multiple ecological regions was to a large extent interrupted, leading to 'institutional' rupture and undermining existing logics of production. Fourth, while households were initially able to incorporate new lands, attention in later years shifted towards intensification, especially for *irrigation* pathway

communities, stimulating processes of land commoditization. Fifth, the higher dryland areas were abandoned in favour of recently incorporated or more productive valley lands. Sixth, in most communities, land degradation,⁶⁰ partly as a consequence of climate change, appears to be a common problem, but trends and patterns over a longer period are difficult to establish. Seventh, communities lost or gained access to territory in processes of splitting up or joining together. Only when the continuous subdivision of land resulted in extreme fragmentation, reaching a certain 'tipping point', did it seem to accelerate the process of outmigration. Finally, major droughts acted as shocks stimulating households to leave or abandon land.

Taking 1996 as an alternative starting point for 'initial conditions', it becomes evident that the size of landholdings is of little consequence in terms of productive perspectives, as both *decline* pathways had the largest landholdings but performed worse than the *growth* pathways.

The abovementioned chain of cumulative events and change processes implies that evolution has become more bounded (Deeg 2006), and more difficult to adjust or to revert. This is particularly evident in efforts to rehabilitate degraded land. Taken together, these processes reflect trends related to demographics, climate change, persisting power relations, technological investment and market integration. These translate into differentiated feedback mechanisms and retrospective memories, and also in processes of institutional change at various levels and in different directions.

These often parallel processes of institutional change have been driven by internal actors as well as by external policies and interventions. In a few communities we observed the accumulation of these trends, accelerating processes of transformation. National policies, even when perceived as major reforms, proved to have only limited effect or to reinforce the status quo⁶¹. The land reform of 1952-1953 was not a real reform of landholdings, although it did liberate households from oppression. The *Land Law* of 1996 mainly confirmed access to land and offered the possibility for legal (but not up-to-date) documentation. The continued drive and demand for detailed land titling may well originate in the tortuous history of insecure land access, as well as the situation of the *forasteros* and of those who continue to battle the – self-defined – heirs of former *landlords*. In the context of the changing legal landscape, the persistent drive for land titling reflects processes of *cognitive* lock-in (Grabher 1993), at least partly triggered by confusing land registration policies and practices. Whether communities or households have collective or individual titles in fact hardly influences daily land use practices, except for communities that are already substantially integrated into land and other markets. Important means of gaining or retaining access to land are not captured by land-titling modalities, including the continued use of a wide – but gradually declining – range of modalities for families to access new land: bringing new dryland areas into production; reclaiming land from the river; and purchasing, renting or embarking on sharecropping arrangements with other community members and even the former *landlord*. Nonetheless, changes in land use modalities and inheritance patterns over time do matter for the future viability of agricultural production systems. This dichotomy reflects the tension between formal and informal institutions, as the latter are far more difficult to 'change' through top-down policies. There is, furthermore, an important role of power, legitimation and functionality (Mahoney 2000) in driving institutional change processes, often acting in 'concert' but being given different connotations by internal and external actors.

In some cases the sequence of events or the accumulation of trends led communities to *critical junctures*. Ovejeras and Cochapampa reached critical junctures, respectively, after the drought of

1983 and in the early 2000s. For the first community, gaining access to valley lands and irrigation led to a massive abandonment of highland areas; for the second, the interruption of access to valley lands, high levels of land fragmentation and the decline in the *manta* system eventually led to massive outmigration (see chapter seven for a more detailed discussion). Both cases reflect the tension between ongoing trends in the ‘structural properties’ (Archer 1010) of land and the capacity of the community to come to collective decision-making, and in addition, the possible triggering effect of external interventions. The slow tide of legal reform processes and the possible risk of reaching similar critical junctures, may explain part of the persistent anxiety among communities regarding land issues.

According to Agrawal and Gibson (1999), governments and conservationists often employ simplified images of communities as handling their resources either in a harmonized way (because they have the most adequate knowledge to do so) or exploiting them without constraint (to provide for the inevitable daily needs for firewood and fodder). They note that many conceptions regarding resource conservation focus on elements like size, space, composition, interaction and interests, and on community as “a spatial unit, as a social structure, and as a set of shared norms” (*ibid.*: 633). The findings from the current study demonstrate that smaller communities may have stronger communal bonds than more recent settlements (such as those in the Rio Chico area), but that, especially when facing ‘critical junctures’, they may not always be able to command a sufficiently large geographical spread of resources. Internal differentiation in access to resources, in particular, to land, simmering disputes between segments of the community or groups of communities, unequal power relations and differentiated interests (between those permanently living in the community and those with double residence and migrants) appear in this respect to be more the rule than the exception, in particular in *irrigation* pathway communities. Common conceptions therefore do not always help us to understand the underlying elements and effects of resource use, and are therefore an inadequate basis for policy response. “Poor conservation outcomes that followed decades of intrusive resource management strategies and planned development have forced policy makers and scholars to reconsider the role of community in resource use and conservation” (*ibid.*: 629). A more political approach is therefore to be favoured with regard to resource management analysis, focusing on multiple actors and more on institutions than the community as such (*ibid.*).

Coming back to Ostrom’s rules and principles for effective collective action, introduced in chapter four, the question is whether current ‘rules of the game’ for land ownership and registration are effective and contribute to increased and secure access, to higher levels of production and to sustainable land use over time. To take care of land and the associated natural resources, communities follow basic rules and social norms, such as the prohibition to sell land to outsiders except under very specific conditions, the definition of access to pastoral areas, and measures like temporary restrictions on forestry exploitation. In addition, they define internal rules and measures for resolving conflicts regarding access to land. Those rules are generally accepted, but they have not prevented the gradual abandonment of land and land fragmentation and degradation. Differences in resource access between communities and between households may relate to internal membership status and the possibility to attain alternative livelihood options and form a bottleneck to effective resource management. While communities seem relatively effective in ‘monitoring’ (e.g., meeting participation and *free-rider* behaviour) the definition of access rights (in relation to inheritance and the multiple exchange modalities or with reference to abandoned land), the application of ‘graduated sanctions’ often remains problematic. As a consequence they

suffer from resource deterioration, internal differentiation, lack of willingness to participate in collective action and in some cases internal disputes and break-up. Among the research communities, the conditions phrased in Ostrom's (2000) design principles were often only partially fulfilled. Even in this relatively constrained environment, households have been quite pragmatic. Under adverse circumstances they have maintained access through a wide range of exchange mechanisms: they bought land and where possible – and with external support – they converted dryland holdings to irrigation. In addition, they transformed their reduced access to different agro-ecological zones to access to small plots in peri-urban areas, and they are gradually shifting their livelihoods elsewhere. This last trend is visible among all pathways, including the more remote communities, where many residents had obtained a second residence in nearby towns.

Apart from the initial claims to territory and status (as *sindicato* or *ayllu*) and the continued drive for titling, community organizations were unable to guarantee sustained access to land to individual households, let alone to realize major improvements or extensions in landholdings or access to resources, except for a few irrigation communities and the occasional cooperative. High levels of land fragmentation have led to increased (temporary) outmigration, in particular, among poorer households. Although land reclamation still occurs to a limited degree in the *dryland* pathway, the current trend seems to be the reverse, leading to a further decline of land access as a consequence of soil erosion and climate change, or the simple abandonment of these resources (see further chapter seven). Land reclamation and land conversion were still important in the *irrigation* pathway, but occurred in a rather haphazard and unmanaged way.

External policies have not been favourable either. Indeed, in the Bolivian context, political economy factors marked land access in many different and mainly constraining ways. From pre-colonial to postcolonial institutions and even following agrarian reform, land has been subject to external encroachment and appropriation and legislation that has hardly favoured guaranteed access, let alone a more equitable distribution of resources. With regard to efforts made to gain legal title, it is even difficult to speak of different 'rounds of the game'. The populist message underlying the land reform was that it liberated 'peasants' from slavery, but it may also have stilled the real reform process for decades (largely under military rule), leading to a kind of 'institutional perversion' (Chang 2007). Only in 1996 did the goals change, as did the external legal framework in which communities could define their demands. Although current legislation and land-titling modalities take more account of customary practices, a large gap remains between national policies, formal titling arrangements and actual reality and implementation on the ground, for instance, between collective titles and the multiple and often mixed property arrangements in place. This reflects the recurrent tensions between implementation practices at the micro level and macro-policies oriented at *normalization*, and the persistent difficulties in fine-tuning policies with widely diverging local demands (Pritchett & Woolcock 2004). In the Bolivian case, the solution became one of *either-or* (CAT-SAN or TCO), without the possibility for more tailored responses or any kind of institutional bricolage between legal systems (Sehring 2009). This left communities little 'real choice' (Evans 2004; Sen 1999), ending in the 'disembedded' solutions evidenced by some of the major conflicts regarding titling modalities. Few interventions dealt effectively with these issues. Official policies, instead, limited the choices available and standardized responses, also reducing future flexibility and adaptability (Meinzen Dick *et al.* 2004). The parallel introduction of the *sindicato* alongside the *ayllu* structure led to institutional *duplex* and confusion rather than institutional complementarity, further aggravating the associated ideological differences and identities.

Following Ostrom (2000), the capacity of local users therefore seems to have been at least partly undermined by government regulations. Agrawal and Gibson (1999) note that the capacity of the state or any relatively top-down practice is clearly limited in its effectiveness of disciplining the use of resources by local users, and that time-consuming legal mechanisms – in this case implementation of the *Land Law* of 1996 – are often biased against marginal groups. Some authors (Chumacero 2005; Pacheco 2003) rightly question the relevance, added value and cost effectiveness of massive registration of individual land titles in marginal areas where community organizations are the main ‘authorities’ and recognized as such by all stakeholders.

Decentralization in Bolivia did not resolve the present inability of the government to respond to the existing diversity. Municipalities have hardly become active and effective in questions of land management, except in opposing the autonomy demands of *ayllus* like Quila Quila and other indigenous communities. It is rather difficult to implement externally defined norms in a community, even when there is substantial participation in the process. Community members will attempt to implement the rules agreed upon and to resolve pending issues, but they will not necessarily aim for more ambitious goals, as these may require substantial collective action in an already labour-constrained environment where actors have widely differentiated interests. This explains why some of the larger collective action efforts (like land reclamation) are largely incentive-driven and therefore *ad hoc* in time and space, making it also more difficult to deal with the possible externalities (e.g., land losses elsewhere) that may occur, especially as the different actors involved may circumvent existing institutions or try to use them to accommodate their own interests.

The *solution* (Pritchett & Woolcock 2004) to these problems requires more than application of the right recipe or knowledge. Communities and households certainly learned from positive or negative experiences and encounters in the many but rather oblique ‘rounds’ of the process and in their interactions with external actors, but actual policies and their real implications on the ground have dragged on and not always led to adequate solutions. Land is a source of common identity and thus much more than just a production factor. Nonetheless, external projects and investments (e.g., in land reclamation and irrigation) have emphasized the productive side, leading to new dynamics and transforming land into collateral, or even a commodity, which may be sold overnight.

Overall, trends around land led to a gradual narrowing of the available options within communities, resulting in increased outmigration and abandonment of land. The *decline* pathway suffered more from deteriorating resource values and uncertainty regarding future land access, also as a consequence of ongoing ‘normalization’ policies and legislation. They were less able to respond effectively through different forms of agency. Instead, they tended to adhere to situations of *bound-ness* (increasingly constrained land access for young households both in *dryland decline* and *irrigation decline* pathway communities), *lock-in* (conflict or gradual land fragmentation and degradation) and total collapse or a search for alternative pathways (massive migration). In some communities ‘path destruction’ was combined with more or less supportive external interventions, which may have been major drivers of radical transformation (e.g. Ovejeras). Even proactive agency (e.g., protests, external advocacy, occupations and ‘graduated sanctions’ for those who left land abandoned) did not provide an escape from internal limitations or stalemate. Only for the *irrigation growth* pathway can we speak of ‘path creation’, inducing households to come back to the community and invest in productive infrastructure, as we observed in Escana and La Cañada.

Notes

¹ Several communities were composed of both ex-hacienda workers (*arrenderos*) and *originarios* from the region. Our data indicates that among the research communities this is only the case for Pampa Lupiara.

² According to Langer (1989: 62), these were “agricultural and military colonists [to] protect the Inca empire from the fierce lowland Chiriguano tribes”.

³ However, as noted previously, the *reducciones* around Quila Quila were not very effective in really concentrating the population, which expended great effort to remain outside the direct influence of Spanish territorial control.

⁴ The pre-Inca period exhibited rather dispersed settlements, the extensive use of terraces and lithium mining in a non-hierarchical structure. The Inca period reflects a more concentrated settlement pattern in the valley, a further extension of agricultural areas, road construction related to natural resource exploration (*chalsedony*), a clearly more hierarchical structure and establishment of sanctuaries around the Telapakis mountain, dominating the region (Pilar Lima Torrez in Alconini 2008).

⁵ According to Valda Rivera (2005), the land was given in *encomienda* by Fray Luis Lopez, known as the bishop from Quito, but in real life Capitan Pedro Sores de Ulloa. The term ‘given’ is not appropriate, as the land was already in their possession.

⁶ *Libros de Revisita Provincia Yamparáez*, Archivo Nacional de Bolivia.

⁷ Original text: *Estas reducciones “consistían en pueblos de indios con una área territorial limitada, creados con el objetivo de evitar que viviesen dispersos en los montes, lo que dificultaba su adoctrinamiento en la fe cristiana así como la recaudación del tributo...”* (ACLO 1976).

⁸ “In 1866 it was decreed that within 60 days indigenous communities should assert their title and pay a fee of 25 to 100 pesos, otherwise their lands would be sold through public auction. In 1874 the *Ley de Exvinculación de Tierras* promoted individual titling of *comuneros* and sought to substitute the *contribucion indigenal* with a general property tax” (Ubink & Assies *et al.* 2009: 296).

⁹ According to Langer (1989: 64), “The community of Huari owned San Juan de Horca in Sapse. Apparently the Indians paid the *impuesto catastral*, the land tax imposed on non-Indian lands, since the holding appears in the 1881 *catastro* list of haciendas. Horca was valued at Bs 16,000, the second highest value in the canton, and produced 500 faneas of wheat, 300 *cargas* of corn, 300 *cargas* of potatoes, and 400 *cargas* of unhusked barley, as well as *oas*, *papa lisa* and beans.”

¹⁰ The *ayllus* managed to resist for quite some time, but the number of landless community Indians increased after 1900 (Langer 1989).

¹¹ Ñucchu is a particular case, as the hacienda, established in 1581, became a place of refuge for Antonio Jose de Sucre, the founder of Bolivia, and later the property of Gregorio Pacheco, a former president of Bolivia, who died in 1899. The hacienda was used as a retreat, due to its location close to Sucre and its warmer climate, but also as an important production centre. According to Langer (1989: 58), “Besides a palatial building and carefully landscaped gardens, it had fruit orchards, a vineyard, five grain mills, and extensive fields of corn, potatoes and alfalfa. The total annual income from land holding in 1881 was Bs 6,240, of which Bs 4,000 came from the mills. This was the highest annual income recorded for a single property in the 1881 *catastro*.” Perhaps unsurprisingly, the three remaining Ñucchu communities, although much reduced in size, today all have intensive irrigated agriculture as well as dairy production. Most of the other smaller haciendas did not have a permanent presence of the landlord, and remained largely marginal, even in the decades shortly before the land reform.

¹² In addition, *arrenderos* had labour obligations to work in the field (following the system of *yanapacu*, which implied that a certain quantity of seed had to be planted, in the case of Ñucchu probably equivalent to about

80-90 days of work a year), domestic labour duties, taking care of animals, providing transport, as well as the collection of firewood (Erasmus 1967).

¹³ Langer (1989) describes various 'rituals' confirming the largely unequal but reciprocal ties between landowner and workers, including the 'kissing of hands' and presentation of gifts (like chickens) by the workers, which made it somehow more difficult for *hacendados* to get rid of workers during bad years.

¹⁴ "From small recreational paradises and feudal agricultural production" Ñucchu, Potolo and several haciendas in the Rio Chico area changed overnight due to the armed rebellion, expressed by slogans as: "power to the farmers" and "The land belongs to those who work it" (ACLO 1975: 175).

¹⁵ According to Erasmus (1967: 365), among "the 34 'married' couples at hacienda Ñucchu, for example, both spouses in 22 of the unions were from Ñucchu. In the remaining 12 cases one spouse was from Ñucchu and the other from one of the haciendas lying within a mere 5 km radius."

¹⁶ *Agregados* are those arriving later with 'secondary claims' (Assies 2006).

¹⁷ In the sample collected by Erasmus (1967) the size varied between 0.1 ha and 648 ha, but in most cases the amount of cultivated land was within the range of 1-15.8 ha. In the first decade after the land reform only 14% to 17% of the sample changed hands.

¹⁸ The protest march over 700 kms started on the 16th of August 1990. Initiated by roughly 300 indigenous people in Trinidad it ended with more than 800 people from different indigenous groups when it arrived 34 days later in La Paz. (Cf. Albó 1996).

¹⁹ Amazonia is the tropical lowland regions of the country.

²⁰ OTBs are 'grassroots' organizations.

²¹ The NGO *Fundacion Tierra* has been supportive of alternative modalities related to *saneamiento interno* as a faster alternative to advance land registration processes in the Andean valleys.

²² This law was introduced in November 2006. According to CEDLA, a national NGO, it mainly made the legislation more operational.

²³ The law emphasizes amongst others the need for the strengthening of local and traditional (ancestral) knowledge, to form the basis for public policies and investment, but also recognizes territorial integrity of indigenous groups, stimulates the (appropriate) use of their resources and promotes the equitable redistribution of (fiscal) land (see www.rebellion.org/noticia.php?id=157729).

²⁴ Those communities also roughly cover the four main pathways. Other communities in the survey did not yet go through the process of *saneamiento* or land registration, implying that comparable data are limited.

²⁵ Collective titles for 'agricultural' purposes are often used as common spaces, for schools, *plazas*, cemeteries and the like. They account for about 10% of landholdings.

²⁶ According to INRA data, the average agricultural area in Ovejerias would only be 0.5 ha per family, but our findings from 1996 indicated roughly 10 ha under cultivation by individual families. This implied that a large area of formerly 'pastoral land' had been brought under cultivation. Due to the drought and the gradual abandonment of the higher areas current use of agricultural land is practically zero. Today Ovejerias has a communal area covering about 80% and it received one title for the whole of the community. The demand for the collective title (for the already abandoned community), related to the persisting aspiration to defend their property against external appropriation. The former residents now have on average access to less than 1 ha in the new settlement areas in Rio Chico.

²⁷ The size of average titles (both for agriculture and pastoral areas) gives an indication of the levels of fragmentation, but not of total individual landholdings, as one family may have multiple titles. Ovejerias had around 100 households in 1996, implying on average five titles per household.

- ²⁸ This discrepancy may also be a consequence of ‘relabeling’ of titles that were previously only in the name of the husband to both spouses, and with women now appearing in the database as first owner.
- ²⁹ Llavisa is one of the reference communities, included in the 1996 research.
- ³⁰ INRA data indicate the existence of about 3.5 plots on average per household for Escana and only 1.3 for Talahuanca. Our data from 1996 indicate 18 and 15 plots, respectively. Average plot size according to INRA for Escana was about 0.9 ha and 2.8 ha for Talahuanca for agricultural production. Our data for 1996 indicate an average plot size of 0.3 ha for both Escana and Talahuanca.
- ³¹ The distribution is similar for the neighbouring community of San Juan.
- ³² Those actions involved, amongst others, reforestation, the reconstruction of terraces, and the construction of infrastructure for the reception of tourists along the Cachimayo River and the different hot springs built or rebuilt by the community.
- ³³ See chapter nine for a more detailed review of this parallel school.
- ³⁴ www.coordinadoracoi.org
- ³⁵ Amazingly, the *sindicato* group also articulated its demands to the same institution, probably unaware of his nomination.
- ³⁶ When we arrived for our own survey in 2011, we met by coincidence first the members of the *sindicato* group, who discouraged us from talking with the *ayllu* group. They later even threatened to stop any cooperation if we did, but by that time we had already collected most of the information needed.
- ³⁷ Among the more peculiar examples were the secretary general of the *sindicato* in Tajchi and his father, who continued to side with the *ayllu* group.
- ³⁸ In all communities we noted a clear and sustained interest in questions of land registration. In one case we were even asked to return and give a special workshop on the process of *saneamiento de tierras*.
- ³⁹ This was the case in Talahuanca, Pampa Lupiara, Ovejeras, La Cañada, and recently Yurubamba.
- ⁴⁰ Kadaster “collects and registers administrative and spatial data on property and the rights involved in the Netherlands”. It has an international support office (see www.kadaster.nl).
- ⁴¹ According to the report, “*La confusión de este procedimiento fue acentuada debido a que KADASTER no integró el Catastro Rural Legal en las actividades del CAT-SAN, resulta evidente que con la anterior afirmación, los conflictos fueron acentuados, en lugar de atenuarse*” (Fundación Tierra 2000: 64).
- ⁴² As a consequence of the disappointing results and land registration, the cooperation with Kadaster was terminated after a long and tedious process, and land registration efforts in Chuquisaca continued with the direct involvement only of INRA and the municipal governments involved (Pacheco 2009).
- ⁴³ A formal decision related to the demand was in 2013 still pending with the constitutional tribunal, together with those from 11 other municipalities.
- ⁴⁴ For instance, in Quila Quila, Wasa Ñucchu, Yurubamba and Tuero Chico.
- ⁴⁵ In one particular case (still under way in 2013), Yurubamba and the neighbouring community of Sassanta were negotiating compensation for the loss of fertile land due to the possible construction of a dam and water supply system for the city of Sucre. As the investments may reach around US \$60 million (Newspaper El Correo 2011), the six communities in the *subcentralia* of Yurubamba as well as those in the *subcentralia* of Sassanta requested compensation for all households (e.g., in the form of housing improvements), even though only selected households in three or four communities would be directly affected by land losses. It is then probably no coincidence that the communities involved requested INRA to speed up the *saneamiento* process, which was finalized in 2012.
- ⁴⁶ The latter were noted only in La Cañada, which had been almost absorbed by the town of Redención Pampa, leading to increasing claims to land.

⁴⁷ The major pending conflicts were those in Quila Quila (see section 6.1) and the recurrent claims against or from former landlords (in Pampa Lupiara, Quila Quila and La Abra), with these latter being more difficult to resolve.

⁴⁸ Declines were found in Talahuanca and Quila Quila and increases in Escana, La Cañada and Ovejerias Rio Chico, but the differences were not significant.

⁴⁹ In Talahuanca, a collective decision was taken that land could be inherited only by family members who lived with the parents up to the parents' death. In most such cases, the youngest son inherits the land. The inheritor is obliged to share with brothers and sisters, yet the title remains with the one inheriting in order to prevent further fragmentation. This differs significantly from the situation in 1996, when practically all households indicated favouring men over women.

⁵⁰ Pacheco and Valda (2003) note an apparent contradiction: women in general work on the land of their husband (but they do not have legal rights to these lands), yet they did not work the often marginal land they received in inheritance from their own parents, to which they have property rights. These authors also indicate that existing norms and practices often inhibit effective use of women's (formal) land rights.

⁵¹ The project received substantial support under an agreement with IFAD.

⁵² In Tuero Chico, practically all community members participated, and they all received an exactly equal share of new land, which contributed to – slightly – more egalitarian access to irrigated land.

⁵³ Both Preston (2008) and Valda Rivera (2005) warn, however, against simple extrapolations. According to Valda Rivera (*ibid.*), the idea that land 100 years ago was far more fertile and productive is far from the reality, as evidenced by the fairly low production figures found in archival records.

⁵⁴ Chapter seven deals in more detail with land degradation and responses to it, in particular in Talahuaca.

⁵⁵ Measuring the total size of land area in relation to distance, for Cochapampa more than 50% of total landholdings for individual families was further away than 1 km from their residence. This was a rather more dispersed picture than landholdings elsewhere. Irrigated land was often very concentrated, close to the river-side, but also close to the landholder's dwelling.

⁵⁶ Instead of the legal and equal distribution among all heirs, land is often still only given to the son (or sometimes daughter) living the longest with his or her parents. The one inheriting, however, must reciprocate (in kind, sharing arrangements or otherwise) to brothers or sisters living elsewhere.

⁵⁷ In San Juan, payment of fines became an additional source of revenue for the *sindicato*, and this funding helped the *sindicato* acquire plots for a new core settlement in the centre of the community.

⁵⁸ Newspaper *El Correo*, 1996

⁵⁹ Community members in Wasa Ñucchu and Rio Chico indicated reference prices of around US \$50,000-100,000 per hectare taking into account that plots are very small, often less than 0.1 ha.

⁶⁰ Preston (2008: 119), commenting on research in northern Chuquisaca, warns against generalized claims regarding rapid land degradation in the region, indicating the need “to situate contemporary land-forming processes in the long-term history of environmental change both before and after human settlement and, in particular, the impact on the landscape of post-Conquest farming and livestock introduction”. Although such a cautious approach has merit, it is clear that marginal dryland circumstances in none of the communities enabled a stable and continuously growing population.

⁶¹ The newer *Law de la Madre Tierra* includes appealing promises for balance and harmony, but its redistributive aspects will be difficult to achieve in a sensitive manner.



Wasa Nucchu, the irrigation fields surrounding the former hacienda building, 1996. Source: PIED-Andino



Land reclamation in the Rio Chico area (1996), Source: PIED-Andino

7

Facing the limits: agency and collective action in dryland areas

7.1 Introduction

The previous chapter reviewed the history of rural change before and after the land reform. It distinguished in particular between *ex-hacienda* and *ayllu* communities, presenting large differences in land access, land fragmentation and historical occupation between the survey communities. While the *sindicato* communities basically inherited very small landholdings and minimalistic productive infrastructure from the hacienda, the *ayllu* communities, notwithstanding the many external threats and forms of encroachment, represent more continuity in production systems in the period before and after the land reform. This chapter analyses pathway differentiation among those production systems, with emphasis on dryland agriculture and livestock production.

Dryland production is the predominant livelihood for most communities in northern Chuquisaca and Potosí. These communities produce mainly maize, barley, grain and potatoes, a number of other root crops and products like *quinua*, oca and papa lisa. On a limited scale, fruit and horticultural production is possible. Agricultural production is generally complemented by livestock rearing, in particular, cattle, oxen, sheep, goats, pigs, chickens and, less commonly, donkeys. Livestock complements agricultural production, providing organic fertilizer, animal traction and a number of other products for direct use or transformation. The production system is a delicate balance between the agricultural cycle and livestock management. After harvest, livestock is allowed to consume what remains on the fields (*rastrojos*), at the same time providing fertilizer to the soil. Fallow land is also used for grazing. While agriculture is practised on a large number of very small plots, cattle grazing takes place on a larger scale. Livestock and agriculture are thus interdependent. Across the different ecological zones, dryland production allows for the cultivation of a wide range of crops and varieties. As income from agriculture and livestock remains limited and uncertain, temporary migration is an important complementary activity.

In the past decades the production system in most of the dryland communities has come further under pressure. Although we know from various sources that outmigration has historically been important in many dryland regions, current figures for the decline in population appear to be much higher than in the past.¹ Due to population growth, in particular following the 1950s and 1960s, communities gradually brought all of the more or less accessible and productive lands under cultivation and started facing a gradual fragmentation of existing landholdings. The highland *puna* and *upper valley* areas are particularly sensitive to irregularities in rainfall and the occurrence of drought, especially when land is being prepared for the planting of potatoes. Climatic hazards are the main reason why dryland agricultural practices are strongly oriented to risk aversion. Communities and households react and respond in different ways to the multiple pressures. Diversification of crops across different microclimates has been an important strategy for facing the variety and uncertainty of the prevailing climatic conditions (Platt 1982). In addition, house-

holds use different systems of crop rotation and multi-cropping, and are constantly involved in testing new varieties that may respond better to certain soils and climatic circumstances.

The following section analyses the differentiation between the two main community pathways over the past decades, and the resulting changes in production, market integration and alternative livelihood options. The next section examines the different forms of internal and external agency driving those changes. The main research questions explored in this chapter are as follows:

How and why did pathway differentiation or convergence occur in dryland agriculture and livestock production, and what implications has this had for broader pathway development? How did internal and external factors and agency influence and respond to these developments?

7.2 Agricultural policies and production in rural areas

Despite the ‘liberating’ changes brought by the land reform of 1952-1953, rural areas received limited attention in government policies in the following decades, with most of the investment going to the lowlands around Santa Cruz. The government did not invest in any systematic agricultural research relevant for the Altiplano and Andean valleys, and it did nothing to facilitate production or access to credit in these regions (Godoy *et al.* 1998). This changed only to a limited extent at the end of military dictatorship in 1982. The Siles Zuazo government (1982-1985) curtailed imports and subsidized transport and public works programmes, which benefited small farmers but also led to increased migration to urban areas and especially the coca-producing region of Chapare (*ibid.*). The drought of 1982-1983 triggered a rapid increase in support through various channels. At the regional level this was expressed, in particular, by an increase in the presence of NGOs, social funds and specialized institutions or so-called ‘special programmes’ (e.g., IBTA, Prosempa and Proinpa). The initial years after the start of the new government were marked by hyperinflation, followed by economic adjustment policies in the late 1980s and early 1990s.

An IFAD mission formulated in the mid-1980s an extensive farmer-based rural development strategy² and in parallel initiated an ambitious integrated rural development programme in northern Chuquisaca (*Proyecto Chuquisaca Norte* or PNCH). This strategy was the first³ of a long series of policy papers oriented towards alleviating rural poverty, focusing in particular on production. Various impacts of these multiple strategies and policies were foreseen. First, curtailment of imports of competing products was expected to improve prices and market access for local agricultural products. Second, farmers were to be ensured improved access to agricultural inputs, such as credit, fertilizer, equipment and seed supply. A third element, and probably also one of the most difficult, was ‘capacity building’ or the many different forms of agricultural extension. A fourth element related to ameliorating the overall adverse productive circumstances, for instance, with provision of irrigation, soil and water conservation programmes and watershed management. Finally, government and donor policies set out to influence the presence and practices of a range of other programmes and NGOs in the field.

This chapter will not attempt to give a full assessment of the impacts of these policies at the community level, as it is hardly possible to ‘reconstruct’ and measure this in detail. Instead it reviews the overall impact of the main government actions, assessing in more detail how a range of programmes, implemented at the community level, responded to the widely diverging community dynamics. First, government policies, and particularly food imports, certainly were not helpful in

addressing rural poverty in any comprehensive manner. According to Morales (1991), market liberalization did not produce a clear improvement in the terms of trade or output of peasant agriculture. Second, total credit from the *Banco Agrícola* between 1971 and 1984 for the highland areas and for Potosí and Chuquisaca was only a fraction of that going to Santa Cruz, while credit given to small farmers was only a fraction of that given to larger farmers and companies (Urioste 1988). Third, rural extension in the Altiplano and Andean valleys has been marginal (with just one 'extensionist' for the province of Oropesa in the early 1980s). According to Godoy *et al.* (1998), Bolivia's public investment in agricultural research and extension was the lowest in Latin America, resulting in a continuous decline in yields of its main crops. The persisting poverty and adverse productive circumstances in the region were addressed through a plethora of development efforts after the drought of 1982. Since then, a wide variety of productive projects has indeed been undertaken in the survey communities. Later sections of this chapter look at the relevance of some of those policies, programmes, interventions and interactions with communities. First, we review in more detail the changes agricultural policies and programmes in the region and survey communities.

Changes in the region and in external presence

The main crops in Chuquisaca, both before and after the land reform, were maize and grain, cereals, potatoes and barley. Schulze *et al.* (1988) indicate that those crops covered around 80% of cultivated area in both 1950 and 1980, showing however gradual increases for potato (from 12% to 15%) and for barley (from 9% to 16%), and a decline in grain (from 21% to 14%). Maize production remained relatively stable, though diminishing slightly from 38% to 35%. These crops have traditionally had relatively low yields, and most farmers must seek additional off-farm income, mainly through migration. According to IFAD (1985), the 17-18% of households with the smallest land areas accounted for more than half of all temporary migration. Recent figures for northern Chuquisaca indicate a further decline in the relative importance of maize, and small increases for potatoes, wheat and barley.⁴

Over the past decades dryland agricultural production systems have been subject to many different pressures. The abovementioned changes in the political and economic context affected the market prices of agricultural products. Changes in consumer habits in urban areas (particularly Sucre), as well as in the communities themselves also led to changes in crop production. Demographic shifts prompted communities to bring new land into agricultural production and to intensify the use of the lands already available. Climate change has allowed for a shift of certain crops to higher altitudes, but is also a cause of delays in the start of rains, overall reduced volume of precipitation and more erratic rainfall distribution over time.

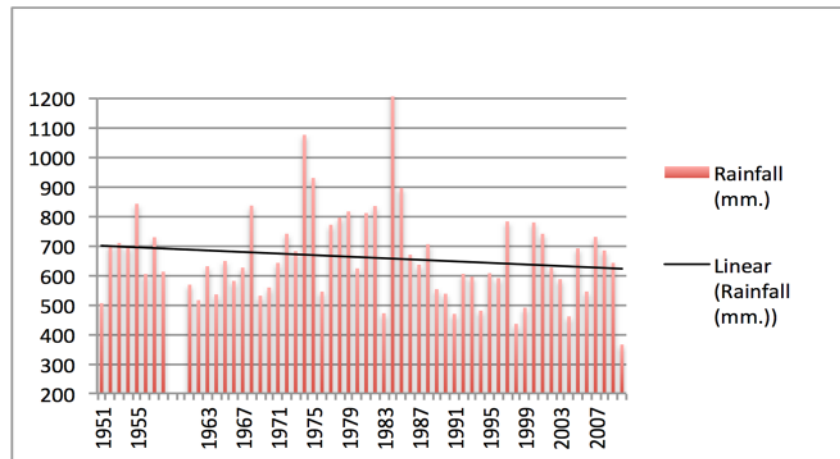
Climate change

A severe drought occurs about once every 15 to 20 years (often related to the El Niño ocean currents), with lower impact events in-between (figure 7.1) (Valda Rivera 2005). Average annual rainfall in the region is 650-675 mm, of which more than 50% normally occurs between December and March, which is important for crops like potatoes (figure 7.2).

Increasingly irregular rainfall patterns have often caused delays in the planting season, and therefore the need to look for hardy crops that are adaptable to new circumstances. The planting of potatoes is normally done between mid-October and mid-November. The growth cycle of po-

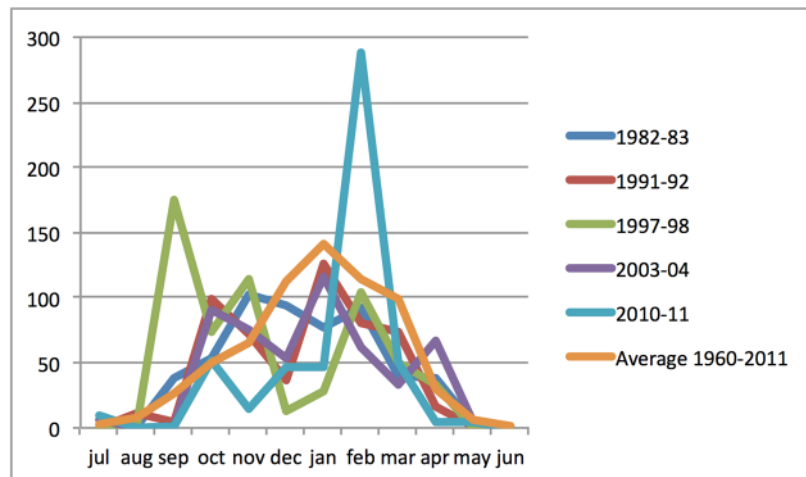
tato, depending on the variety, is between 140 and 160 days (Morales 2001). For adequate maturing of the roots, minimum levels of rainfall are required in the months of December and January, allowing for the crop to grow and flourish in January, and be harvested at the end of February in the case of *early varieties*, and in March for varieties with a longer vegetative cycle.⁵

Figure 7.1
Annual rainfall in Sucre (mm), 1951-2010



Source: Senamhi, Sucre airport.

Figure 7.2
Rainfall (mm) and years of drought, 1960-2011



Source: Senamhi, Sucre airport.

Morales (2001) distinguishes moderate, severe and extreme drought years according to the monthly rainfall measured between December and January.⁶ Accordingly, in 18 of the 25 years between 1975 and 2000 it rained less than the required production for normal development of potato. Only six years had rainfall within the normal range, and in only one year did it rain more than 'normal'. Using a similar analysis for the years after 1999, another six years of moderate drought could be added, with a severe drought in 2010, which ended in late and heavy rains occurring only in February 2011. While some of the previous droughts were followed by years with more regular or intensive rainfall, this has recently no longer been the case. Since 1985, rainfall in Sucre remained below 800 mm, reaching a record 'low' of 365 mm in 2010.

Development interventions

A wide array of development projects (Aramayo 1998; Le Grand 1998b) had an impact on agricultural production. Many of these related to the introduction of new seed varieties, fertilizer, equipment or commercialization. Moreover, much of the collective action identified in relation to natural resources and the building up of productive infrastructure, was stimulated or supported by external organizations. Table 7.1 presents an overview of projects related to the productive sphere between 1980 and 2011, starting with emergency relief in response to the drought of 1982-1983 and the hyperinflation in the years after.

With the emergency relief, a period of experimentation and introduction of new varieties began, particularly for the production of potatoes, grains, barley and maize. These projects were often accompanied by rural credit, storage facilities and initial efforts in the sphere of transformation and commercialization. The early 1980s and 1990s also marked a period of attention to reforestation in the Andean valleys. Initially this implied a strong focus on eucalyptus, and at a later stage also pine trees, and – in a few communities – added attention to indigenous species. A small number of livestock projects were implemented, mostly related to vaccination (cattle dips). In the early 1990s, the emphasis shifted even more towards seed improvement and forestry, but now also included introduction of fruit trees on a small scale – due to limited availability of water. In the sphere of commercialization, the number of projects was limited, but some of those programmes were rather labour intensive, such as the establishment of an economic association in Pampa Lupiara, as we will see later in box 7.4.

Table 7.1
Productive interventions in dryland communities, 1983-2011

Pathway	Community	1983-1996						1996-2011				Total	
		agricul- ture	credit	emergen- cy	forest- ry/fruit	irrigation	livestock	storage- transform	agricul- ture	forest- ry/fruit	irrigation		storage- transform
Decline	Ovejeras	3								1			4
	San Juan	1	1	1		1			3		3	1	11
	Cochapampa	4	2	1	1		4	1		1	1		15
	San Juan de Orcas				1	1			1				3
Growth	Talahuanca			1					2	1	1	2	7
	Pampa Lupiara	16	2	1	3		5	6	1				34
	Yurubamba	2	2	1	5	1	2	1					14
	Total	26	7	6	10	2	11	8	7	1	6	4	88

Source: PIED studies, own elaboration.

Between 1996 and 2000 rural municipalities started to gain recognition, and NGOs gradually adjusted their policies towards a more complementary role. Municipalities, however, hardly invested in the productive sphere in the dryland communities, at least until 2008. Between 2000 and 2008 expenditures for five of the seven dryland communities for which we have data totalled only Bs 135,000 (less than US \$20,000) spread over five different projects.⁷ The figures for the dryland communities are significantly lower than the Bs 270,000 spent on average for each of the irrigation communities, but also lower than the Bs 200,000 average expenditure for the 330 communities in the region for which we have data. Around 60% of productive expenditures indeed went to irrigation, water catchment areas and boreholes. The remaining projects were often very small in size.

It is important to note the differences in municipal action in the productive sector. Among the six municipalities, Yamparáez, Tarabuco and Mojocoya invested roughly twice to three times the amounts invested in Zudáñez and Poroma, though the latter had double the population of Yamparáez. This gap in spending was principally due to the capacity of the former municipalities to attract and spend additional funding, partly also related to their perceived 'higher potential'. The recent construction of a range of rainwater catchment basins in San Juan and Talahuanca is certainly the outcome of a strong municipal drive for irrigation in Yamparáez.

Until 2005 rural communities also received limited direct attention from the central government for the productive agenda, except for the often *ad hoc* allocation of funding for the *Evo Cumple programme*.⁸ Between 2000 and 2005 the only major agricultural project in the dryland communities related to soil and water conservation.⁹ After 2005 some renewed attention was noted for the productive sphere, among the new government, municipalities and at the level of regional governments. At the regional level, most productive expenditures¹⁰ were for rural roads and a few major infrastructural works. NGOs continued to support some small-scale efforts in horticultural production, including greenhouse construction and nutrition projects in primary schools.

7.3 Differentiated outcomes in the survey communities

This section reviews the main trends in agricultural and livestock production and a few other resources in a selection of survey communities for the period after 1983, especially between 1996 and 2011.

Appendix 1.1 presents, in addition to the multiple crops grown, the increase in fallow land for communities at a higher altitude. At higher altitudes, roughly three quarters of land was left unused each season, while for *pampa* communities this was only 20-30% and for the valley communities 13-16%. In addition to a wide range of crops, there was also a diversity of crop varieties. For potato, we registered 21 different varieties in the *valle templado* and 15 in the *pampa de puna*, but only 4 varieties were recorded in the *puna alta* and 2 in the *valle calido*.

Shifts in patterns of livestock holdings were similar among the different ecological zones (see also appendix 1.2). While valley communities had larger stocks of goats, the *pampa* and *valle templado* communities had more cows and oxen, and the *pampa de puna* and *puna baja* had greater numbers of sheep.

Crop and livestock diversification have been subject to considerable change over time, both before and after 1996. The patterns and correspondent changes are quite different for the *dryland* and *irrigation* pathways, which is the main reason why this volume discusses them in separate chapters.

Complementing the pathway classification identified in chapter two, a simplified characterization results in two groupings for the *dryland* pathway: (i) marginal dryland communities with an overall declining population and decline in production and (ii) communities with at least partial intensification of production and an as yet growing population (table 7.2). The two groups represent a near continuum. At one extreme is a community in virtual collapse and transition (Ovejeras), alongside three communities with declining production and very high levels of migration. At the other end is a community experiencing less decline in terms of both production and outmigration and a group of *pampa* communities with relatively high levels of agricultural production and minimal migration. Another important distinction is between communities with a strong focus on *potatoes* (Yurubamba, Pampa Lupiara and Cochapampa) and the remaining ones with a *mixed* and more diversified crop portfolio, principally maize, wheat and potatoes. Crop cultivation histories are typically structuralist and path dependent.

The extremes in these two main pathways illustrate the diversity and differentiation among dryland communities and therefore warrant further discussion. Most of the communities included in the *decline* pathway are located in the more marginal and remote highland valley, often with difficult access and irregular slopes. In contrast, two of the *growth* pathway communities are located in extensive *pampa* areas, with excellent potential for potato production and basic grains. Cochapampa and Talahuanca are to some extent 'borderline' communities between the two groups.¹¹ The main factor distinguishing the two main pathways is the strong decline in population and in production *per capita* in the *decline* pathway. But even for communities in the *growth* pathway, migration is on the increase. What makes it so difficult to deal with dryland circumstances, both for the communities themselves, as well as for external agencies in supporting them to obtain some prospect of a sustainable livelihood? Why did many internally and externally driven efforts deliver only relatively marginal results? What explains this differentiation?

Table 7.2
Pathway classification of dryland communities

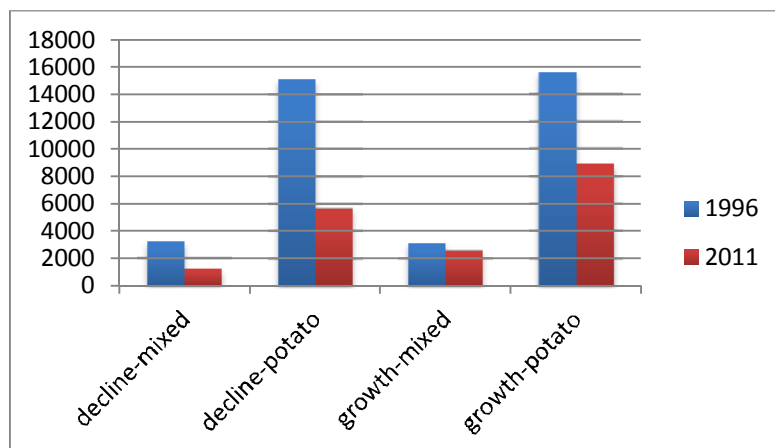
<i>Pathway/ production focus</i>	<i>Main crops (share of prod.)</i>	<i>Community/ eco- logical zone/altitude</i>	<i>Description</i>
Decline / mixed (col- lapse)	Maize (>50%)	Ovejerias Alto (temperate valley, 2,000 m)	Ovejerias requires specific treatment, because of its change in 'location' from a highland community to almost 100% irrigation. This form of 'radical spatial agency' led to a complete shift from potato and maize to horticulture and fruit production (included in next chapter as 'Ovejerias-Rio').
Decline / mixed	Potato, maize, wheat	San Juan (high valley, 2,700 m)	Low and declining levels of production (potatoes and grains) and market integration and declining population. Until 1996 developments in Cochapampa were similar to communities included under the growth/intensification pathway. Cochapampa differs, however, in conditions for agriculture, due to its location in the upper valley.
Decline / mixed	Potato, maize, wheat	San Juan de Orcas (high valley/hill- top, 2900 m)	
Decline / potato	Potato (75%)	Cochapampa (low <i>puna</i> , 3,800 m)	
Growth / mixed (stagnation)	Potato, maize, wheat	Talahuanca (high valley, 2800m)	Low level of production and market integration, relatively stable population and relatively low levels of migration. Investments in soil and water conservation.
Growth / potato (in- tensifica- tion) or <i>pampa</i>	Potato (>75% of prod.)	Pampa Lupiara (<i>pampa de puna</i> 3,200 m) Yurubamba (<i>pam- pa de puna</i> 3,200 m)	Two <i>pampa</i> communities with relatively high levels of production and specialization in potatoes and grains. Strong market integration, but declining production levels. Relatively low levels of outmigration and stable population. Characterized by a strong presence of external organizations, particularly some larger NGOs.

Source: PIED studies, own elaboration.

Figures 7.3 and 7.4 present the main changes over 15 years with regard to agricultural production and livestock. Changes in production levels and holdings between 1996 and 2011 are significant. Average agricultural production (in kg/ha) declined by some 40%, while large and small livestock holdings declined by 23% and 37%, respectively.

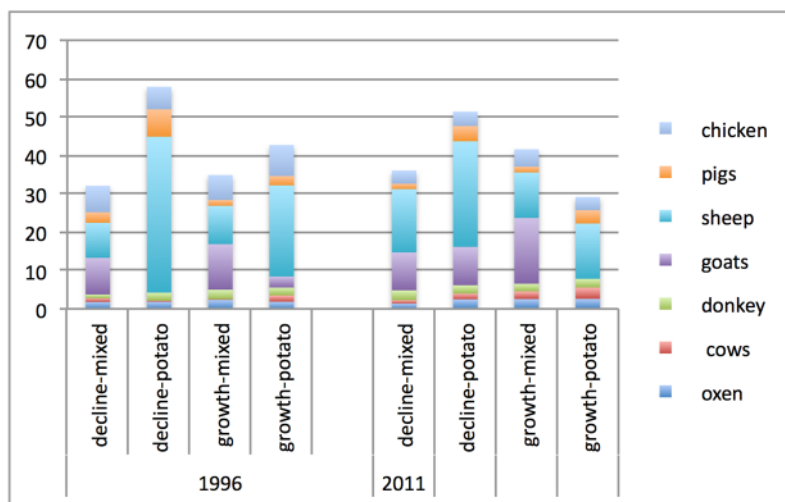
The main differences between communities relate to potato yields, with less significant differences for other crops. Average potato production per hectare for dryland communities in 1996 was around 6 tonnes/ha, but varied from less than 2 t/ha for Talahuanca to over 11 t/ha for Cochapampa. Beetstra (1997) finds average¹² potato production levels of 8.2 t/ha for Chuquisaca in 1997. It is important to note that production levels¹³ differ substantially even from one year to the next. They should therefore not be taken as confirmation of an absolute trend. The lower figures for 2011 are notable for potato production, basic grains and barley, and to a lesser extent for maize, for which some communities still registered increasing production levels.

Figure 7.3
Agricultural production (kg/household), 1996-2011



Source: Fieldwork data PIED-Andino, own elaboration.

Figure 7.4
Livestock holdings (nr./household), 1996-2011



Source: Fieldwork data PIED-Andino, own elaboration.

A large survey held in the Andean valleys and Altiplano in 2001 found, nonetheless, that 93% of poor farmers perceived a general decline in yields.¹⁴ Similar declines in production per household over time were also found in a recent study for Peru (Escobal & Ponce 2010), comparing potato production levels in two regions between 1982 and 2009.¹⁵ Comparative data for the region indicates a gradual decline from 6.6 t/ha in 1975 to 5 t/ha over the following two decades, with an absolute low of 3 t/ha after the drought of 1982-1983 (Beetstra 1997).

The decline in small livestock holdings, especially goats, is still more dramatic, especially in communities with high potential for potato production, but also in Ovejerias, which virtually collapsed over the 15 years under study. The remaining mixed production communities more or less retained their livestock. Only Talahuanca, classified as *growth* pathway, showed a small increase in livestock holdings. Overall, small livestock holdings declined by 30-40%, and in Yurubamba and Ovejerias¹⁶ by 70-100%. For the *pampa* communities in the *growth* pathway this may be due to the more intensive agricultural production. Figures for donkeys, pigs and chickens show a similarly strong decline.

The decline in livestock reduced the availability of manure, meat, milk, eggs, wool and traction power. Compared to production levels in 1996, this certainly affected the community of Ovejerias (which divested itself of some two thirds of its livestock after descending to the river), but also the *pampa* communities. *Decline* pathway communities like San Juan, however, still produced enough organic fertilizer to exchange it with Escana. Donkeys remained important for transporting produce, firewood and sometimes even drinking water.

Changes in other resources were less pronounced, but may nevertheless have given a comparative advantage to some communities or households. Fruit and forestry production remained marginal for the *dryland* pathway, with the exception of the *growth/pampa* communities, where some families received substantial support from a reforestation programme. The *pampa* communities acquired more productive equipment. Most communities had improved access to basic equipment (e.g., grinding mills and selection machines) but these remained either in private hands or were often non-operational.¹⁷ The number of shops in communities and access to markets also improved, but overall the changes were limited, with the exception of Yurubamba and San Juan de Orcas, where families had opened two restaurants and lodging facilities.

As a result of differences in agricultural production and livestock holdings, there were notable differences in total sales and complementary activities (in particular migration) between communities¹⁸. In 1996, with still higher production levels, households consumed a larger share of total production and sold only a relatively small part. In 2011, communities sold more of their production and consequently further reduced their already low consumption levels. The differences between communities and between crops were, however, substantial. Yurubamba, Cochapampa and Pampa Lupiara produced and sold far more potatoes, while Ovejerias, Talahuanca and San Juan de Orcas produced higher levels of maize and wheat, resulting also in higher sales of both crops. Yet net benefits from these sales were much smaller compared to those of potatoes.

As a logical consequence, labour employment and temporary migration patterns varied among the dryland communities. In 1996, the *pampa/growth* pathway communities showed the greatest amounts of time spent in agriculture and *oficios* (non-agricultural jobs) and the lowest levels of temporary migration. Time dedicated to agriculture reached 235 days/household in the *pampa/growth* pathway, but remained around 194 days for those on the *decline* pathway. Conversely, households in *pampa* communities spent on average only 68 days in temporary migration, compared to 200 days for the remaining communities.

Among the *decline* pathway communities, San Juan had by far the most intensive migration calendar, with most households spending even more time in temporary migration than on agriculture. Complementary activities in that community were far less important than migration. We found most additional activities (e.g., shop-keeping, weaving, trading, mill owner, driver and administrator) in the *growth* pathway, amounting to 60-70 days/household per year, and only 11 days

per year for the *decline* pathway, suggesting that these contribute substantially to household income. In 2011, most households and communities had roughly similar numbers of migrants to 1996,¹⁹ but now in relation to a smaller household size.

At first sight – and this was certainly still the case in 1996 – potato-producing communities did much better than the remaining dryland communities. The trend over the past 15 years, which we must nonetheless interpret with caution,²⁰ indicates internal differentiation processes within both groups, with Cochapampa doing worse than the other two potato-producing communities and Talahuanca doing better than the other communities with mixed production systems. It is important to consider these differences in further detail, as potato cultivation made up more than 60% of all produce and sales in dryland communities. To facilitate comparisons, it is useful to differentiate both pathways according to communities with a main focus on potato production and those with mixed production systems.

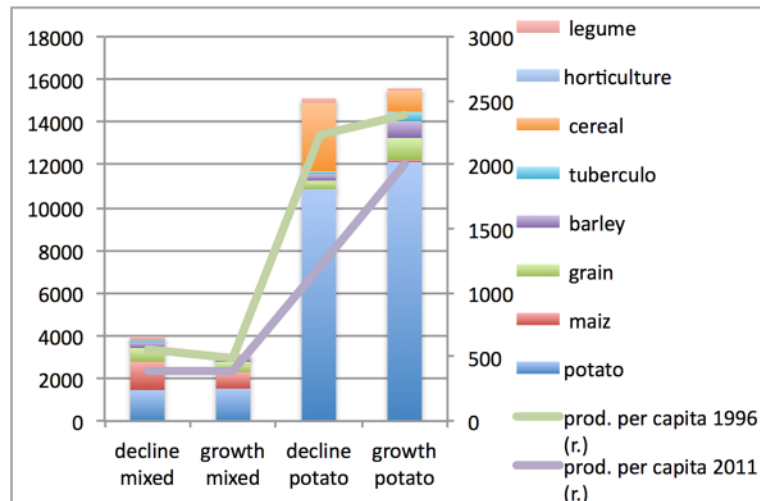
From figure 7.5, we see that *decline potato* and *growth potato* communities did on average far better than communities with more mixed production systems.²¹ Nonetheless, when we compare production levels *per capita* in 1996 and 2011 the picture changes, reflecting in particular a strong decline in potato production in Cochapampa. While the *growth* pathway retained in 2011 around 80% of the *per capita* production levels of 1996, the result was just 60% for the *decline* pathway and only 53% for Cochapampa.

The analysis highlights a number of constraints affecting agricultural production. Over the past decade, within the *mixed production* group, Talahuanca did relatively well in retaining the *per capita* production levels of 1996, while all other communities showed a clear decline. For the potato/*growth* pathway we find a continuation of a trend towards intensification, reflected in an increased use of agrochemicals, mechanical traction and introduction of a few new crops and varieties. Cochapampa was, however, unable to retain the relatively high levels of potato production found in the *pampa* communities. The differences are evident in the numbers of trucks owned in communities. In Pampa Lupiara the number increased from 6 to an estimated 15 and in Yurubamba²² to 28²³ in 2011. Other communities had either none or only a few trucks in 2011.

Indeed, these latter two *pampa/growth* pathway communities received substantial external support for production and marketing, although they did not attain higher production levels. The stagnation in production can be partly explained by the overall decline in household size, and the further reduction in labour availability due to increased migration and school attendance.

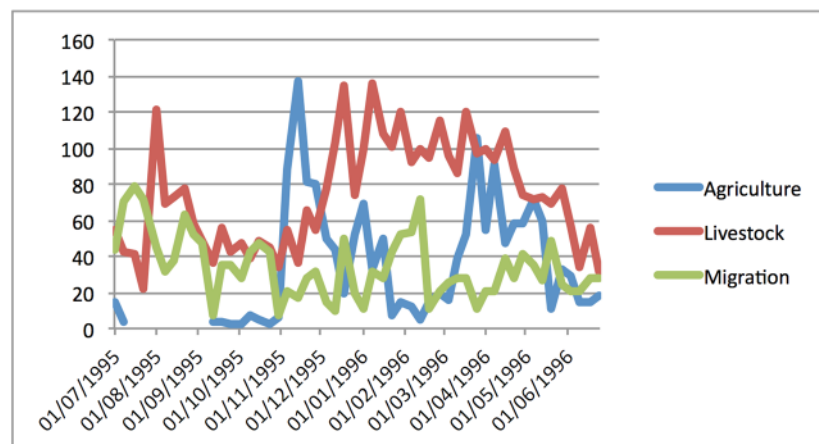
Summarizing these findings, the *growth* pathway did better in retaining both production levels and population, but the main factor differentiating production systems and overall production levels was clearly the specialization in potato production versus mixed cropping systems.

Figure 7.5
Crop production and per capita production levels (kg), 1996 and 2011



Source: Fieldwork data PIED-Andino, own elaboration, (r=right axis).

Figure 7.6
Labour calendar in Talahuanca (main activities in 8 hh), July 1995 through June 1996



Source: Fieldwork data PIED-Andino, own elaboration.

7.4 Internal and external responses to pathway differentiation

The previous section discussed the initial differentiation between communities specialized in potato production versus those with mixed cropping systems. Agricultural production, however, involves a much wider range of crops, livestock and off-farm opportunities, and communities and households need to balance their resources in relation to these multiple areas, often under harsh conditions. Production constraints relate to access to or availability of labour and traction,

sufficient-quality land, viable seeds, organic or chemical fertilizer and monetary income or produce to pay or compensate for these resources. Responses of the community organization and of individual households influence these constraints and opportunities, but we must also consider the differentiated effects of climate change (e.g., drought), market integration and external support. In this respect the previous section also pointed to a further differentiation between *decline* and *growth* pathways. How did collective and individual household responses and support from external actors influence this differentiation and pathway development?

Community-level rules and regulations

One of the reasons for the decline in overall production, which especially affected the *decline* pathway, was the diminished capacity of community organizations²⁴ to deal with changes in production systems. Agricultural and livestock production generally did *not* involve collective resources, outside a few small communal (horticultural production) schemes around schools and the existence of collective pastoral areas and/or irrigation infrastructure. The community organization under both *ayllu* and *sindicato* structures²⁵ contributed principally by defining the overall 'rules of the game', setting dates for the agricultural calendar and sometimes by stipulating rotation patterns. In a few cases communities responded in a collective manner to emergencies, by lobbying for external support or by establishing cooperative associations.

The link between agricultural practices, rituals and the (religious) festivity calendar was of key importance. Appendix 7.1 lists the main festivities and some corresponding rituals in four communities. Most were common to all communities (like Carnival and *Todos Santos*), some pertained to a specific community. The agricultural calendar was defined by the rhythm of the seasons and climatic variations, as well as livestock management customs. Ritual practices were often invoked to guarantee a good harvest, to promote soil or crop fertility, and to protect against climatic hazards (see, e.g., Zoomers 1998; Van den Berg 1989).

Those practices were incorporated into daily life and part of collective community-level routines. Responsibility for defining dates for the start of the planting season was often delegated to a specific authority, generally the *alcalde*. This allowed synchronization of agricultural activities and entry of livestock into fields after harvest. For practically all communities, the initiation of the planting season was a time for festivities. The coincidence of the return of migrants and the start of agricultural production around the 1st of November (*Todos Santos*) and Carnival (February) was clearly visible in Talahuanca (figure 7.6). Beyond the rituals that marked the main elements of the agricultural calendar, community organizations also established 'rules of the game' for access to forestry resources, such as firewood.²⁶ The organization of festivities was demanding and cumbersome, especially for poorer households. While some communities and individual households²⁷ found ways to cope, in others, like Yurubamba, increased levels of market integration had led to reduced frequency of festivities and rituals. The main reasons were difficult to determine. It is likely that increasing inequality in productive capacity or access to markets may have eroded symmetrical exchange relations and the willingness of poorer farmers to fulfil their share in assuming functions in collective festivities or rituals. Nonetheless, festivities and related rituals may be an important indicator of community cohesion, reciprocal ties and commitment to the community, and also function as a way to redistribute 'wealth'.

The role of the community organization is perhaps most evident when problems arise or in case of conflict. In practically all dryland communities migration increased over the past decades,

leaving some communities partially or completely abandoned. Existing systems of land use and crop rotation thus eroded, affecting the overall capacity for collective action at the community level. The ineffectiveness of community organizations to deal with these gradual processes will be examined in the following sections.

Climate change, recurrent droughts and differentiated responses

Drought is an important explanatory factor for worsening production circumstances, in particular, in *decline* pathway communities. Households recalled intensive droughts in the late 1930s, early 1940s (probably 1943) and the late 1950s, but the drought of 1982-1983 is most vividly remembered, while the drought of 1997-1998²⁸ also had substantial impact on several communities. Ovejerias was the community most affected by the drought of 1982-1983, leading to a radical shift and abandonment of dryland production in the highlands and the move of community members to the irrigated riverside settlements in the Rio Chico area. Although the drought and lack of water for consumption, agricultural production and livestock were the main driving factors for the move, in subsequent years the decline in population led to deterioration of control systems regulating the agricultural production cycle and the presence of livestock.

As a consequence of the drought of 1997-1998, the community of San Juan faced a 75-87% decline in the production of potatoes, maize and grain, with livestock production also diminishing, though to a lesser extent.²⁹ Morales (2001) notes a decline in the number of pupils as a consequence of the drought, though this trend started before 1997 and still continues in many communities, as will be elaborated in chapter nine.

Most of the declines in livestock holdings were a consequence of starvation (lack of drinking water and fodder), while in the case of chickens, sheep and goats, community members also occasionally used them for consumption or barter due to the emergency. In agriculture, prolonged drought limited the use of native varieties, as these could not survive mature, while at the same time being very labour intensive. This led to the adoption of new varieties, especially those offering a shorter production cycle (like *malcacho*). The loss of indigenous varieties is evident for a number of traditional crops like *oca*, *papalisa*, *quinua* and *cuimi*, while new crops, like *papa jungay* and *trigo yampara*, gained prominence. Farmers who risked planting during an imminent dry season often faced loss of both their full harvest and their stock of seeds. In addition, subsequent droughts affected the remaining vegetation, in particular trees and pastures, limiting the availability of fodder for livestock. Many poorer families had insufficient income to acquire chemical fertilizers or to embark upon alternative strategies.

The occurrence of severe drought provoked various responses. Many farmers applied complex and diverse strategies in the face of climatic uncertainties and soil infertility, having detailed knowledge of individual crops and varieties and how to adapt to limited rainfall. Via multiple and intricate systems of exchange, they constantly calculated how best to use the resources available. Those capabilities, however, were of little avail once drought hit, especially as external shocks came unexpected. Their abilities to adjust their production systems narrowed. Rainfall patterns remained unpredictable, new crops needed to be tested and there was less organic fertilizer available, due to losses of livestock. Communities with possibilities for small-scale irrigation refocused their efforts on these irrigated lands to ensure at least a minimal harvest. Some households were able to exchange part of their limited production with others in the valley communities, to provide some diversity in food provision.

At the community level, collective efforts were undertaken to try to find or recover additional water sources or to identify seeds better adapted to irregular rainfall patterns. Introduction of such seeds in some cases facilitated shorter production cycles and also allowed farmers to stagger produce sales. During droughts, families needed each other even more than otherwise, but most faced the same problem of severely limited agricultural production, which restricted opportunities to either enter into exchange mechanisms or to find work as day labourers. The result was a strong emphasis on temporary or permanent migration.

Partly as a response to climate change, all dryland communities continued their search for access to (irrigation) water. Although this proved largely futile, these efforts underline the limited impact of many externally supported interventions. Talahuanca and San Juan gained minimal access through the construction of rainwater catchment basins, and Cochapampa got involved in the building of (still unfinished and interrupted) irrigation infrastructure. Yurubamba obtained partial – but important – access for around a third of all families, and Pampa Lupiara submitted different (but still unfulfilled) requests for the building of a dam.

For most households temporary – or even permanent – migration remained the only real alternative to agricultural production in years of severe or extreme drought. Both in Talahuanca and San Juan a considerable group of families left the communities after the drought of 1983 with plans for colonization in lowland areas. In 1998, temporary migration turned out to be less attractive due to the enormous increase in the number of migrants facing the same challenges at home. Competition for jobs was high, while wages – for instance in the sugarcane harvest – were at bottom levels. Families that relied on remittances also received less than in normal years (Morales 2001). Altogether, lower production levels in both agriculture and livestock reduced possibilities for sales at markets and for exchanges with neighbouring communities, impacting local food security. The initial increase in migration often set the stage for a more intensive migration pattern afterwards.

After the drought of 1997-1998, communities with limited alternatives sought external help. Some obtained support from NGOs (like Care and the Red Cross) and the municipalities involved. In an interesting case, communities from the three provinces of northern Chuquisaca joined efforts to exert pressure at the prefecture level. They organized a ‘joint march’ to Sucre in late 2008 and occupied the main *plaza* for several days. After difficult negotiations the prefecture conceded, but the response was ‘too little too late’, ending in provision of seeds of meagre quality and very low quantities, and provided too late for an effective planting (Morales 2001).

Market integration and community responses

While in the early 1980s most households still had to walk or use donkeys to bring (small quantities of) produce to markets, nowadays practically all communities have regular transport to urban areas. Nonetheless, market conditions and developments have remained adverse and uncertain. Even with regular transport to Sucre and other markets in the region, increasing competition between communities producing the same products at the same time or with large quantities being produced elsewhere (e.g., in Santa Cruz, Cochabamba and abroad) have severely hampered possibilities to increase income from sales. Compared with the situation three decades ago, market access had increased considerably, but especially for the *pampa/growth* pathway communities. Although *per capita* production remained roughly the same, or had even declined, the share sold at

market overall increased between 1996 and 2011, especially of potatoes and maize, putting more pressure on remaining food reserves for consumption, exchange and seed provision.

Although all communities nowadays indeed sell a larger share of their (overall declining) production, a number of changes were noted in rural markets, including alternative venues and better sales conditions. Most *comunarios* either sold to *intermediaries* or directly to buyers in Sucre or other regional markets. In Sucre many encountered difficulties in breaking through the existing dominance of the wholesalers and retailers occupying the main positions in the most important markets (the *mercado campesino* and *mercado central*). The need for cash, combined with limited possibilities to adjust the timing of harvests and lack of access to adequate storage, forced farmers in dryland communities to sell a large part of their production directly upon harvest, in exchange for either consumption goods (e.g., oil, noodles and coca) or other products offered by local intermediaries or *chapareras*, often at a bargain price, or at unfavourable prices in urban markets (Tarifa 1993). Farmers in *growth/pampa* communities had better prospects, as transport facilities and numbers of traders had increased substantially. For Pampa Lupiara, this may be partly due to the prolonged external support, which helped to break a former monopoly of a few *mozos*. For Yurubamba, high agricultural potential combined with favourable prices for potatoes in the early 1990s led to an accumulation of cheap second-hand trucks bought abroad, including from places as far away as Sweden and the Netherlands. The subsequent decline in prices, however, forced many to sell their recent acquisitions. The predominant role of intermediary traders, and dependency of small farmers on their continued goodwill, in some cases may have translated into disadvantageous trading relations.³⁰

Improved access to mobile communications certainly amplified possibilities to access current market information, but farmers remained in disadvantaged positions vis-à-vis external and internal intermediaries. Individual sales in urban markets require substantial time and travel costs and may not prevent product losses before sales. The increase in transport facilities in *pampa* communities probably led to greater internal competition and opportunities to link with *compadres* to facilitate sales at better prices than in the remaining dryland communities.

In a few cases, economic associations were established by a group within communities. In most cases, they were supported or even initiated externally. Among the dryland communities, few such initiatives have endured. The most successful example was the economic association established in Pampa Lupiara, while experiences in San Juan and Cochapampa were much shorter lived (box 7.1).

Box 7.1 Cooperative experiences in San Juan and Cochapampa

The cooperative in San Juan was the outcome of a manipulated and ‘unfinished’ process of land reform in the community which allowed the former *landlord* to retain a large part of his landholdings and to sell these lands to the community some 20 years after the land reform (in 1972). A group of 28 households decided to buy the lands together. They established a cooperative, allowing them to acquire 5 ha for agricultural production and an additional 3 ha for pastoral use. The cooperative initially produced and commercialized its harvest collectively. It acquired a small irrigation pump and other equipment. The first years the facilities were successfully distributed between the members involved. Problems started, however, when non-members initiated a court case regarding a dispute over land access. The members of the cooperative, even though they

won the case, became discouraged and withdrew their share (in land and equipment). That same year the cooperative dissolved. The open conflict might have been the reason for its final dissolution, but at the same time the collective system did not allow for individual decision-making regarding their own production. When migration levels also increased among the members of the cooperative, this further complicated calculation of an equal share in the cooperative efforts.

Cochapampa established in 2007 an association of seed potato producers, founded with support from IPTK, the largest NGO operating in the area. The association was operational only until 2009, however. The association had 70 members, predominantly men, of whom 25 were from the community. The other members were from neighbouring communities, including Surifaya, where the offices were located. In 2011, the association was no longer operational in Cochapampa, probably due to the conflict-ridden departure of IPTK (elaborated elsewhere) and the fact that the association was not hosted in the community itself.

Failed cooperative experiences underline the difficulty of managing even relatively uniform productive resources in a collective manner. The overall sustainability of these ‘parallel structures’, at least in the dryland communities under review, has been limited. With few exceptions, farmer associations follow the same principles of rotational leadership as the *sindicato* structure (to prevent an accumulation of power or an excessive burden on a few members). After two or three years of less motivated or ‘trained’ leadership, management of available resources and effectiveness of the organization may quickly slide.

Maintaining productivity

Land fragmentation and soil deterioration may complicate the maintenance of an integrated and balanced agricultural system. Abandoned land is often left uncultivated (though it is still claimed by migrants or left to family members). For protected lands this may lead to a gradual recovery of soil fertility, but in other cases plots deteriorate, especially as a consequence of the limited protection from climatic events (in the form of natural barriers or vegetation). This is evident in several *decline* pathway communities, where outmigration of young men and women and even of entire families left parents and grandparents with questions about inheritance of the land. The decline of the collectively managed rotation system in Cochapampa illustrates the many factors that may influence even longstanding arrangements (box 7.2 and figure 7.7).

Box 7.2 Cochapampa, land fragmentation and the gradual disruption of the rotation system

In 1996, Cochapampa fared relatively well in terms of production and sales. It still had fairly low levels of migration, despite its marginal and isolated position. Since that time, however, the community has experienced a strong decline in population (>60%) and an almost tripling of temporary migration rates. Only 22 of the 47 *sindicato* members still reside in the community. It also experienced a drop in small livestock holdings (sheep, pigs and donkeys) and the *de facto* abandonment of the former production and rotation system.

Cochapampa’s agricultural calendar³¹ is concentrated into a very short timeframe and is rapidly changing. While in 2004, one community member could still identify some 80 different potato

varieties (winning an award for doing so at a local *feria*), today about 40 of those have disappeared, as have oca and quinoa. The gradual disappearance of these crops is probably due to a mix of factors: climate change, gradually diminishing soil fertility as a consequence of shorter fallow periods and limited introduction of organic material, but also the fact that their production is considered overly time consuming: "I do not plant any longer, as it is quite labour intensive. The potatoes are very small, they no longer produce as before" (Aurelio Torres, Cochapampa).

The most salient characteristic of the production system in Cochapampa has been the communally managed crop rotation in fields called *mantas*.³² This system is typical of some parts of the Altiplano and *puna* in northern Potosí, especially among *ayllu* communities, but it is not found in the valleys of Chuquisaca.³³ Originally, of the 12 *mantas*, community members cultivated 3-4 areas every year, leaving the remaining fallow for a period of 5-6 years or using the areas for pasture. The person defining rotation patterns was the *arrendero*, whose father still worked on the hacienda, and who also received more land than most of the others.

Two foremost factors affecting the *manta* system have been land fragmentation and increased land use. Increased population and the practice of dividing individual plots in the case of inheritance have resulted in extremely fragmented lands, with plots as small as 0.001 ha. Fallow periods in the system therefore declined from 9 years to only about 5 or 6 years. The rotation system was already under stress in 1996, as several of the *mantas* showed high levels of erosion, and on some of the others community members no longer wanted to follow collective decisions regarding the rotation. Due to lack of space, some *mantas* were brought together, reducing the total from 12 to 9 in 1996.

Increased fragmentation also led to a decline in production. The *manta* system gave participants access to a large number of individual plots spread over different areas. Community members had access to between 20 and 40 different plots, with an average plot size of 0.19 ha. This reduced the risks of frost or hailstorms, which were very localized occurrences, normally affecting just one or two of the production areas. At the same time the extreme fragmentation and often remote location involved considerable time and effort for individual farmers and households to keep track of their crops.

While the household of Francisco Mamani cultivated 20 (of his 28) different plots on a total area of almost 5 ha, the Chinta family cultivated an almost similar number (18 out of 22) of plots covering only 1.7 ha (see figure 7.7). While the two families spent roughly the same time on agriculture (some 240 days), the Mamani family produced more than double the amount of potatoes and barley, and eight times more grain and other root crops. This indicates that, at least in Cochapampa and for the poorest households, the extreme levels of land fragmentation and differences in landholdings had substantial impact on production levels in 1996.

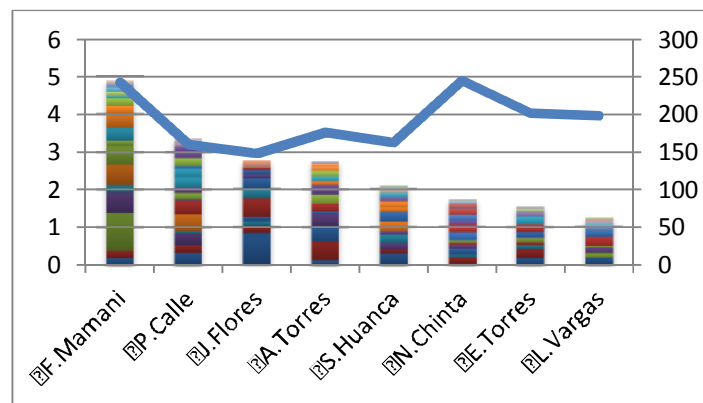
A third major factor affecting the system has been the decline in exchange with the valley. In the past, community members took their cattle to the valleys, where they were cared for, often in exchange for products (potatoes, wool or *chuño*). *Comunarios* also worked for some time in the valley in exchange for maize. In parallel, people from the valleys came to work at the higher altitudes to earn a share of the potato harvest. Such exchanges with the valley were interrupted by the decline in livestock, but probably also as a consequence of drought. This has led to a gradual reduction in the availability of labour, and an overall increase in its price. Combined with the increased outmigration among the youth (for education or for bricklaying work) and the more intensive use

of increasingly fragmented agricultural lands, the result was greater demands on the remaining labour. In 1996, an average daily wage was about three *arrobas* (36 kg) of potatoes. The drought of 1998, combined with the decline in livestock and organic fertilizer probably led to the further disarray of the rotation system. Some community members started to rent tractors, which is difficult to reconcile with the existing fragmented landholdings on relatively steep slopes.

The disappearance of the *arrendero*, the man responsible for the system of rotation for decades, might have been the final blow to the system. As a community member commented during a communal workshop in 2011, “Everyone plants where they want, there is no respect [for the agreed rotation pattern], but we can’t do much about it, as there is not enough land available.” Together with the lack of trust in community leaders, expressed during interviews, these trends reflect an overall weakening of the community organization and a decline in social capital.

Based on an analysis of *ayllu* communities in northern Potosí, Platt (1982) highlights the relevance of maintaining the *manta* system. Although the precise circumstances and ‘rules of the game’ may be different in *ayllu* communities, collective control over the selection of fallow areas and the patterns of rotation is important for security reasons. If a *rancho* (hamlet) waits too long to cultivate plots in a certain *manta*, another hamlet may come in and take advantage of the possibility to cultivate apparently abandoned lands. According to Platt (*ibid.*), land conflicts along *ayllu* boundaries may originate from conflicting claims regarding *manta* access.

Figure 7.7
Land fragmentation and agricultural labour in Cochapampa, 1996*



Source: PIED-Andino, own elaboration.

Note: * Figure shows the area of individual plots per household (in hectares) and agricultural labour days (scale on the right) in 1996.

Among the research communities we found the *manta* system only in Cochapampa, but other communities were also experiencing problems of land fragmentation and abandonment. Even with an effective community organization, sustained collective action had proven difficult to maintain. The intensive agricultural calendar, and the overall limited labour availability as a consequence of increased outmigration, reduced the time available for collective efforts, for instance, to improve terraces,³⁴ for soil and water conservation and for construction of small-scale irriga-

tion infrastructure. As collective action is time-bound and implies opportunity costs for individual households, many initiatives in the more recent years were driven by external incentives, which compensated *comunarios* for work on projects that in the end should benefit themselves. This paradox may be one of the reasons why different(iated) incentives had become common practice, but also a frequent cause of internal conflict and unequal access. There were also a number of other changes relevant to the productive sphere in which the community organization did not play a predominant role or directly intervene, for example, changes in informal exchange mechanisms, household labour allocation and migration practices. Depending on resource availability throughout the year, households responded in multiple ways to the existing constraints and opportunities.

Exchange mechanisms

Ayni, *mink'a*, *faena* and a range of other modalities allow for the exchange of labour, land, animals, equipment and inputs in preparation for the agricultural production cycle, helping to reduce the risks of crop failure. Exchange mechanisms also help households to diversify their crop portfolios.³⁵ Informal networks and *compadrazgo* relations favour the possible benefits of exchange, because they widen access options to land, equipment, crop varieties, seed supply and labour. The different exchange modalities have received only limited attention in the literature (see, e.g., Lehmann 1982; Murra 1972; De Morrée 2002). The modalities and frequency of those exchange mechanisms varied widely among the research communities (see De Morrée 2002 for a detailed review). The inventory of exchange practices in Cochapampa in appendix 7.2 illustrates the wide diversity in a single community.

Exchange practices may reduce constraints, especially during peak periods and between households with differential access to resources. They do not, however, guarantee their continued use over time, especially in an environment of greater scarcity. Although several of the mechanisms encountered in Cochapampa are still applied with some frequency, others have been practically abandoned. Some practices continue (e.g., *choqo*, *mink'a* and *ayni* in its multiple modalities including *al partir*, money lending, *wasichaco*, *chapara* and others). These facilitate household access to various resources throughout the year.³⁶ Another interesting practice which still continues is *wishkeha*, which allows a person with limited resources to be elected to organize a community festivity and to count on many others to share their products or even provide monetary contributions, allowing in this way the *pasante* (one whose turn it is to organize the festivity) to fulfil community obligations.

Ayni is still frequently practised, but *mink'a* as well as many other exchange mechanisms have come under pressure. A possible reason is the increasing focus on migration and the related overall increase in daily wages (due also to competitive external labour opportunities, in particular in construction and mining). Better labour opportunities elsewhere reduce families' willingness to work for an often almost symbolic compensation (e.g., food or coca), or to enter into a reciprocal relationship. On the other hand, exchange practices remain important among households with limited monetary resources. Frequent collaboration in the form of *mink'a* or *ayni* also facilitates the establishment of 'bonding' social capital (Woolcock 1998; Stone & Hughes 2002) and community collective action, as it involves community members in exchange networks based upon mutual trust. The decline in exchange practices and *trueque* (barter), partly due to specialization, market integration and increased transport facilities, may complicate the operability of more complex production systems and increase the overall risk of crop failure. The community percep-

tion of these *quid pro quo* mechanisms may therefore also pervade the relationship with external actors, especially with regard to community participation and contributions in development projects, and the understanding of incentives, donations and credit mechanisms³⁷.

Reciprocal exchange mechanisms were still evident in the *decline* pathway, as households there had less monetary income from sales. Most exchange took place around potato, maize and grain production. In Talahuanca *ayni*, or reciprocal labour, was common (families engaged 15-30 days in *ayni* in 1996), while in San Juan de Orcas the most frequent practice was collective labour, or *mink'a*, which in turn was hardly observed in Cochapampa. In the *pampa/growth* pathway, farmers work more as day labourers in exchange for products or later remuneration. These communities had higher levels of internal differentiation. In 2011, the poor in these communities remained nearly as poor as farmers in the *decline* pathway. Although they benefited from better agro-ecological conditions, due to limited access to land and other resources they still relied on their own labour, exchange mechanisms and 'off-farm' opportunities to access resources and additional income. Mariano Nunez, an older farmer from Lupiara spent in 1996 as much as 171 days working for others.³⁸

Off-farm labour is often an important alternative source of income, but underlines the often unequal relationships with those with better access to land and other resources. The increase in contracting instead of accessing labour through exchange mechanisms may be the consequence of increasing incorporation into markets. The *pampa* communities, with their higher levels of production, spent more time exchanging products with neighbouring communities (*trueque*) (table 7.3).

Table 7.3
Time spent in labour and exchange mechanisms in agriculture, 1996

Pathway	Community	day la- bourer	ayni	work for prod- ucts	mink'a	Remu- nerated work	al partir	commu- nal work	Total
Decline	Cochapampa	6	5	32		1			44
	San Juan	31	15	3	1	2	1		53
	San Juan de Orcas	12			75				87
Growth	Talahuanca	21	107		25	6		4	163
	Yurubamba	11	19	87		42	10	1	170
	Pampa Lupiara	317	7	13	1				338
	Total	386	165	135	102	51	11	5	855

Source: Survey of 48 households Note: Some 95% of activities are related to potato, maize and grain production.

Exchange mechanisms based upon reciprocity thrive in social systems based on *symmetry* (family and social networks, including *compadrazgo* relations) and mutual benefit, according to Polanyi (1957). This author, distinguishing between reciprocity, redistribution and market exchange, suggests that the spread of market-based relations may undermine social relations. Nonetheless, exchange mechanisms do not always imply symmetrical exchange. Community members in Cochapampa still exchange much of their production, not only with neighbouring communities, but

also with *chapareras* (local traders), who offer clothing, oranges and household utilities in exchange for potatoes directly after the harvest. These exchanges, however, were considered rather unequal in the community. In case of emergencies, some communities are more affected than others, and the possibility to obtain temporary support now (e.g. a *quintal* of potato in exchange for a day of labour) in exchange for a future retribution can be an effective insurance mechanism (Mayer 2004). Even with the direct exchange of goods, the market value of exchanges (a *quintal* of potatoes for a *quintal* of fruit or maize) is seldom in perfect balance, and the demanding side – often the one suffering a temporary setback in production – invariably receives the lower valued benefit. Nonetheless, the alternative of bringing the product to the market would often involve far higher costs. For widows and other ‘disadvantaged’ households, exchange mechanisms were often the only way to obtain access to sufficient labour and inputs. A widow alone traditionally was expected to request the support of a man for labour related to ploughing oxen.³⁹

Exchange mechanisms thus remain an important way not only to access scarce resources when those resources may be in high demand, but also to connect and build networks and trust or mutual dependence within a community, or within family or extended networks in neighbouring communities. For poorer households those mechanisms were often the only way to access minimal productive resources. They may, however, also increase dependency, as individual farmers might find it difficult *not* to trade with their *compadre*. External interventions may complement existing exchange mechanisms but they might also interfere with or undermine the prevailing logics of ‘reciprocity’.

Changes in the use of labour

In addition to exchange mechanisms and working as a day labourer, access to complementary activities (e.g., work as a driver, miller, weaver, potter and in other transformation activities) plays an important role in the household calendar, and influences the need for temporary or permanent migration. The importance of such activities depends on their attractiveness (complementing or even partly replacing agricultural production), the possibility to synchronize them with the agricultural calendar and the availability of internal and external networks, as well as the availability of labour.

Especially in the *potato/growth* pathway, the more intensive production cycle and the greater application of fertilizer and more intensive agricultural practices required increased labour involvement. We found the largest share of participation of women in agricultural production in Cochapampa, Yurubamba and San Juan (around 33% versus less than 20% for the remaining communities), reflecting the intensive calendar around potato production in the first two communities, and the short agricultural peak period in the latter one. The initial surge in demand for labour has been somewhat reduced by the parallel increase in mechanization, related to the incorporation of tractors, in particular in the *pampa/growth* pathway communities.

A second factor influencing labour needs and availability is demographic change, especially in relation to the decline in household size and increased outmigration. Reduced household size implies reduced consumption needs and labour availability, which in turn may lead to more extensive production patterns and a decline in yields. Comparing production and livestock figures to household size the relative decline over the 15 years under study indeed becomes more modest, constituting only a 15% reduction of agricultural production. In fact, production figures *per capita* remained fairly stable among the communities on the *decline* pathway, and average *per capita* pro-

duction even increased in Pampa Lupiara, mainly due to the parallel and substantial decline in household size. An important factor putting further pressure on the possibilities for hiring labour is the rising cost of labour in relation to income opportunities elsewhere (particularly in Sucre, but also in the mining sector in Potosí). In a survey implemented in 1989-1990, Pozo Uribe (1991) found a daily wage rate of only Bs 3-4 for labourers in Pampa Lupiara. In 1996, we observed daily rates of Bs 8-15. In 2011, rates⁴⁰ had increased to Bs 30-40 or more, far surpassing inflation and leading to an almost five-fold rise in labour costs.

The intensity of practices and, in particular, migration depends on access to resources as well as the different production systems. The poorest households produced just a fraction of the richer households' output, and they also were 2.5 times more likely to migrate. Richer households achieved, on average, more than five times the production of the poorest households and they produced double the output of the intermediate socio-economic strata, while spending less time on these activities than those in the other strata.

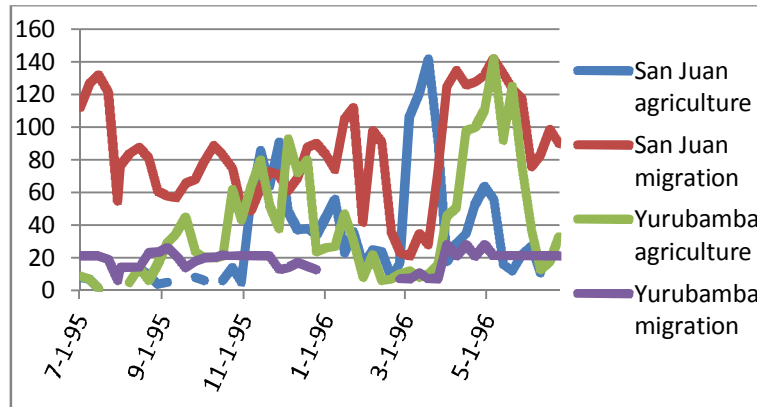
Shifts in migration

Migration is a consequence of push and pull factors. Pull factors include the attractiveness of alternative labour options elsewhere, but also education in nearby towns or in the city of Sucre. Push factors include the limiting production and labour conditions in the community of origin. Differentiation is evident from the fact that the *potato/growth* pathway communities, with their more intensive labour calendar and higher revenues also had much lower migration rates than communities with more mixed production systems.

The principal 'expulsion' community in 1996 was San Juan, which had extremely high temporary migration rates, followed also by an *exodus* after the drought of 1998. Figure 7.8 highlights the difference between the much more spread out and labour-intensive production in Yurubamba and that in San Juan, which has two short peak periods, which leaves more opportunity for temporary migration between April and November. Households in San Juan spent about triple the time in temporary migration as families in San Juan de Orcas; this was 8-20 times more than in the *growth pathway* communities.

The experience of San Juan is noteworthy, as this community experienced a strong combination of push and pull factors. About half of the 26 temporary migrants registered among eight households had been hired by external contractors to work in the sugarcane harvest in Santa Cruz, generally for 3-6 months between April and September. The peak in migration is clearly evident in figure 7.8, and correlates with the strong decline in agricultural activity, which implies an optimal synergy between the sugarcane harvest and the agricultural calendar of San Juan.

Figure 7.8
Agriculture and migration calendars, 1996



Source: PIED-Andino, own elaboration.

The sugarcane harvest mobilized around 30,000 labourers to harvest some 90,000 ha (data for 2003 from Bedoya 2005). According to Bedoya (*ibid.*), intermediaries (*enganchadores*) working on behalf of large companies in Santa Cruz recruited farmers, often just before annual festivities (Christmas or Carnival), providing monetary advances (*anticipos*) and additional payments of around US \$30. These *anticipos* were subsequently deducted from future earnings, which could be obtained only by working on the plantations. As wages were low and workers were forced to incur new loans, use predefined lodging facilities and submit to a range of other costs (including debt payments). They often therefore retained only minimal earnings and some ended up indebted. According to Bedoya (2005), *enganchadores* used continued indebtedness to retain workers, sometimes for several years.

Between 1996 and 2011, temporary migration increased sharply in Cochapampa (*decline potato* group) and to a limited degree in San Juan and Pampa Lupiara. A farmer interviewed in Cochapampa confirmed the negative productive environment in the community as being the main motive for increased migration: “In the community there is no work, no land and little production, and we don’t have any income” (interview with Mamani Colque).

The other *dryland* communities showed stable migration rates (Yurubamba and San Juan de Orcas) or even a considerable decline in temporary migration (Talahuanca). Temporary migration rates were about 1.75 members per household in the *decline* pathway, versus only 1 member per household in the *growth* pathway.⁴¹ A major difference with the *irrigation* pathway (elaborated in chapter 8) is the predominantly national orientation of temporary migration among the *dryland* pathway communities. This may be related to the complementarity between the local calendar and, for instance, the sugarcane or coca harvest and the activities of intermediaries, as the case of San Juan illustrates. In 1996, just one person (among 97 migrants in 56 households) migrated to Argentina, while 18% of 73 migrants in the *irrigation* pathway went abroad. Migration abroad brings potentially higher earnings, but also requires larger up-front investments, for example, for travel and lodgings. The need for substantial preliminary outlays probably contributed to the lower international migration rates among the dryland communities. Differences in socio-economic

strata also influence migration patterns, with the poorest households dedicating more than twice the time to temporary migration as richer households.⁴²

In San Juan the very high levels of outmigration led to problems of land being left abandoned and non-participation of *comunarios* in collective efforts. One of the remedial measures introduced was a fine for those who did not participate in meetings or collective labours. Those fines were generally without much opposition, and in case of inability to pay in cash, they could be paid in goats or sheep. Migrants affiliated with the community had to be present during meetings or delegate a family member to represent them. In a few cases, fines were paid for an entire year, underlining the perceived legitimacy of the measure. Communities were less effective in controlling lands left abandoned by these same migrants. Although *comunarios* perceived the need for such lands to revert back to community management, especially in view of the existing land pressure, in practice this did not occur. A frequently used option was to leave land in the hands of family members or under *al partir* arrangements. With *al partir* the landowners received a predefined (generally 50%) share in the production. If no arrangement had been made, migrants expected to be able to recover the land once they returned to the community. In San Juan, migrants could eventually be forced to sell their land, but this rarely happened (Zantkuijl 2010). Migration also affects the willingness among community members to assume leadership roles. This left communities such as San Juan without an effective community organization over multiple years.

Summarizing the main differences between 1996 and 2011, practically all communities showed a relative increase in temporary migration (as a share of population) and reduced household size. The *decline* pathway communities suffered very high temporary migration rates and severe losses of population, while also encountering more difficulties in dealing with prolonged absenteeism.

The role of external interventions

The previous sections highlighted major differences between the *growth* and *decline* pathways, with Cochapampa making a switch from the first to the second category and Ovejerias ‘dropping out’ altogether. Nonetheless, all communities, including those on the *growth* pathway, continued to face constraints in their production systems. Individual households and the community organizations were, in a few cases, able to deal with these constraints, but nowhere did an effective transformation take place without considerable external support.

As we saw in chapter five and in the introduction to this chapter, government policies have not been particularly favourable for small farmers. Both before and after 1985 most of the investment, research, technical assistance and credit went to the lowland areas around Santa Cruz. For the Altiplano and Andean valleys the predominant focus has long been on emergency and food aid. Technical assistance from government has been sporadic in the research communities. Specialized agencies (e.g., ITBA, Prosempa and Proinpa) and a number of NGOs focused on individual crops, improved seed varieties, access to fertilizers and, at a later stage, the provision of tractors and other equipment. These agencies ‘favoured’ or prioritized communities with perceived higher potential, particularly in potato production. Two examples of potato-producing communities (from the *decline* and *growth* pathways) illustrate the differential impact of external support, while a third example illustrates the relatively positive impact of a more sustained intervention (in Talahuanca). Thus, external support efforts explain to some extent the better performance of these potato-producing communities compared to *mixed production* communities. Box 7.3 traces the fragmented operations of external agencies in Cochapampa.

Box 7.3 Fragmented operations in Cochapampa

Before 1996 external agencies in Cochapampa supported a range of activities in potato production, including technical assistance and credit, construction of silos for storage and the introduction of new seeds. A number of projects targeted introduction of new crops (e.g., beans and *oca*), the breeding of rabbits and chickens, reforestation, construction of greenhouses, cattle dips and milling. Some of these projects are recalled today anecdotally, barely remembered by *comunarios*, others led to small-scale changes, for instance, introduction of a new crop or variety. Practically all households interviewed in 2011 used some of the varieties introduced by IPTK. This NGO also supported the – rather unsuccessful – establishment of a cooperative in Cochapampa and neighbouring communities (see box 7.1).

Community members recall that installation of the first cattle dip contributed to reducing illnesses. But today neither the cattle dip nor any of the other infrastructure (greenhouses, grain mill, irrigation infrastructure) is still in operation. The greenhouses were destroyed by hailstorms, and other infrastructure was abandoned for lack of maintenance. Some households still own storage facilities, like metallic silos for potatoes, but these have not halted infestation and insects affecting the harvest. The outcome of the recent construction of a small-scale irrigation system for 30 families has again been inconclusive, as it had benefited only one family up to 2011. A Peruvian study published decades ago described these deteriorating infrastructure and multiple failures as the *archaeology of development* (Palao Berastain 1988).

The two major actors left the community in 2010. IPTK left following numerous disagreements. That institution had provided most of the external support, and community members expressed disappointment:

At first everything was fine as they supported us, but slowly they started deceiving us in many ways, getting money for a community project, which was never implemented, or presenting exaggerated costs. They deceived us as they wanted. This is the reason why people no longer wanted to work with them (community leader, Cochapampa 2011).

The NGO *Fundación contra el Hambre* also left the community in 2010, due to a problem in a neighbouring community:

In Kirpi, a drunk community leader had ‘abused’ them verbally, insulting them, which they didn’t like. That also affected us, as they’re gone now. They worked well in the community and helped us a lot (community leader, Cochapampa 2011).

It is impossible to conduct a detailed assessment of individual projects in Cochapampa, but it is clear that the wide range of efforts did not lead to any substantial improvements in productive conditions. Efforts were also unable to address the many constraints and problems around the management of *mantas*.

Pampa Lupiara represents (together with Yurubamba) one of the *growth* pathway communities specialized in potato production. Pampa Lupiara had the greatest engagement of external actors between 1983 and 1996, but a strong decline afterwards. In the period up to 1996, 15 organizations implemented some 50 different projects. ACLO was by far the most dominant player. Many changes in this community were driven by interactions with these external agencies. The process

started in 1983, when the NGO provided emergency relief in response to the drought. In the following years ACLO supported the community to improve the road and provided some equipment. In the late 1980s, the organization began working on a more intensive basis, with a more permanent presence in the field aimed at establishing an economic association, Aprocal (*Asociación de Productores Campesinos de Lupiara*).

Aprocal was originally established as an association only for Lupiara, but it was quickly transformed in Aprocal, covering other communities in the region as well. In parallel with establishment of the association, ACLO supported the building of basic infrastructure and storage facilities, acquisition of agricultural equipment such as tractors and harvesting implements and it started to work more systematically in experimentation with new varieties. ACLO furthermore supported joint commercialization, providing a sales point for agricultural production offering competitive prices and supporting the association in seeking new markets throughout the country, with particular emphasis on Santa Cruz. The association gradually grew, extending to neighbouring communities, and ACLO continued to work in capacity building.

Boxes 7.4 and 7.5 use data from a 1989 ACLO baseline survey in Pampa Lupiara (Pozo Uribe 1991) and information from project documents and our own assessments, to illustrate some of the outcomes and impacts of development interventions.

Box 7.4 Struggles with intensification in Pampa Lupiara

ACLO identified phases in its work with the community starting in 1983, immediately after the drought. In the first phase, following emergency relief, the main obstacles for increasing production were limited road access, lack of land and unavailability of improved seed varieties. The answer to these bottlenecks were road improvements (with huge community participation) and massive supplies of improved varieties, often under conditions of credit with repayment requested in-kind. In the second phase, ACLO focused more on improving the agricultural production process itself in the field, providing technical assistance with demonstration plots and accompanying the work of individual farmers, as well as introducing basic mechanization (a tractor and a few additional tools). In a third phase, ACLO tried to respond to obstacles in trade (the role of intermediaries and better control of quality, volumes, prices and commercialization channels for the different crops), amongst others by establishing an economic association. Once the association was up and running, the work concentrated more on technical and administrative assistance. Finally, in 1996, ACLO decided to gradually phase out its presence in the community and the region, switching to a less intensive assistance modality, focusing more on the transfer of responsibilities, as well as some of the remaining issues in the agricultural production process. Some of these problems were due in part to the intensification process itself (e.g., overexploitation of soils, greater incidence of crop diseases), while others were related to recurrent difficulties in commercialization.

From the community perspective, ACLO's work and that of the association led to higher production volumes for potatoes, maize and barley and increased income for members. The association had its own equipment for accurately weighing the volumes produced, and it had facilities for determining and negotiating prices in line with transparent market information. The association managed to influence prices overall (De Morrée 1998). It also supported access to equipment, agrochemicals and technical assistance, as well as provision of fertilizer credit, which espe-

cially favoured low-income families. The risk of harvest failure, and inability to provide repayments have, nonetheless, been recurrent worries for individual households and for the association.

Establishment of the association in Pampa Lupiara led to the formation of a relatively large group of community leaders on other aspects of agricultural production and commercialization. The association certainly provoked some internal resistance, in particular, from the relatively small group of *mozos* or mestizos (those considered to be of Spanish descent). The *mozos* were not involved in the administration and management of the association, which was dominated by *tatitos*, who were clearly recognizable as many still wore traditional garments. *Mozos* had in the past been able to obtain relatively better economic positions in agricultural production, due to their larger landholdings and their early acquisition of trucks to acquire products and bring them to market. The association thus became in name (*Yampara*), coverage (9 communities) and identity and daily management a structure operating in parallel to the *sindicatos* in these communities. At least for Pampa Lupiara the association was an effective response to the powerful position of a small number of traders and local landowners (De Morrée 1998).

ACLO supported Aprocay in supplying seed for grains (especially barley) and potatoes between 1994 and 1996 (see also appendix 7.4). ACLO organized in these years some 33 events, courses and meetings, a substantial number compared to the practices of other NGOs active at the community level. Some 150-250 families benefited in 1994 and 1995 from involvement in the association and ACLO's capacity building, of which around 60% in Pampa Lupiara, implying that more than 50% of the families in the community were involved in the association. Total sales during a four-year period reached some US \$290,000, averaging \$2,500 per family annually. Direct benefits, nonetheless, were largely dependent on access to land, labour and machinery, and varied from \$100 to \$800 per family. Among the households included in our 1996 survey we found substantial differences in production levels (see appendix 7.4).

The association had substantial impact on production and income and was able to provide relatively effective technical assistance as well as commercialization support. The increased acquisition of bicycles, kitchen stoves and sewing machines, but also operational resources, like oxen and ploughs, and the appearance of several small shops reflected its impact on consumer patterns and habits within the community. Some families invested in improved housing, and school attendance rose while low rates of outmigration were recorded.

After the gradual withdrawal of ACLO, the association began to face considerable problems. In 2011 it still survived in name and external appearance, but the association had been largely abandoned by its members, leaving a small administrative office and storage room with some remaining equipment. This cast doubt on the strength and potential of producer associations without continued external support and under often adverse conditions. It should again be noted, that ACLO has definitely not been the only external actor in Lupiara. The presence of institutions like BAB, IBTA, Prosempa and Proinpa also played a considerable role in agricultural innovation and provision of credit. Their efforts, however, were more limited in focus and coverage.

Box 7.5 Soil and water conservation in Talahuanca

Talahuanca is a marginal dryland community with a mixed production system. It nonetheless did relatively well in keeping up production levels *per capita* and even in reducing migration rates. Talahuanca is a relatively poor and isolated community located in the higher valleys not far from Sucre. The community is dispersed and hardly changed in any visible way over the 15 years under study. In 2009, a group of 15 community members left during the process of land titling, as they would be left with minimal land. Due to the concentrated agricultural calendar (with two short peaks in November/December and April/May) temporary migration was high in 2011, though it had declined in comparison with 1996. While earlier migration outflows were mainly to Sucre, Santa Cruz, Cochabamba and Chapare, *Talahuancenos* in later years also went to Argentina, Spain and Peru. Not all families were members of the *sindicato*, complicating their access to land. The community received limited external support. This included a primary school, a (disrupted) drinking water project and recent efforts to construct nine rainwater catchment basins (*atajados*, benefiting 27 of the 69 families), of which only five were in operation.

One of the few systematic efforts to improve productive conditions in marginal dryland communities has been the soil and water conservation programme implemented by JICA (perhaps prompted by the importance of watersheds in northern Chuquisaca for the 'Japanese village' of Yapacani downstream in Santa Cruz.). The programme began in four communities in the valleys of northern Chuquisaca. Talahuanca was one of the 'less intensive' pilot communities, where the possibilities were tested for further replication of the initiative elsewhere. The effects of the soil and water conservation programme were extensively documented by Kessler (2006). The project aimed to provide alternatives for the control of different forms of erosion, to promote better use of rainwater, to recover fertility of soils and to create local capacities that would stimulate recovery and conservation of natural resources. The main implementation modality consisted of the organization of *concursons* (competitive implementation between communities) and the training of so-called 'conservation leaders' helping to validate soil and water conservation practices through participatory action research.

Based on an unpublished JICA report, a follow-up visit in 2005 and our own visits in 2011 we noted that most of the built-up infrastructure, including stonewalls, dikes and ditches, were still in relatively good condition. Some households were clearly taking care of their small *orchards* and a few protected fruit trees surrounded by stonewalls. Nonetheless, only a couple of families had extended practices promoted by the conservation project. In the two original *concursons*, 58 and 63 out of the 75 families participated. They were involved in construction of about 5,000 m of filters and stonewall terraces, and 42 activities to limit erosion by construction of dikes and additional measures. Several years later, 63 out of 75 families continued to maintain their improved infrastructure. The levels of maintenance nonetheless differed considerably between families and between the different practices. While stone barriers and drainage ditches were relatively well maintained, this was far less evident for the clay barriers, erosion-control gullies and infiltration trenches. In some cases families had abandoned their rehabilitated infrastructure, and these were severely damaged by heavy rains.

Complementary practices, like the use of improved fertilizer, the forestry component and mixed cropping received less attention, although a few families who did not participate in the project adopted these practices by observing the experiences of others. In a follow-up survey of 20 families, about 80% continued one of the complementary practices, even though the project

had paid relatively little attention to these. This may be considered a relatively successful outcome, several years after the end of the project. A question remains why few families started new efforts or replication on their own. According to the 2005 review study, this might have been due to a passive attitude, with most people only acting when asked; other factors mentioned were the limited timeframe of the intervention, the small area covered and increased migration, including some of the 'conservation leaders' of the project.

Continued investment of substantial effort and time (sometimes more than 70 days/household) in an already labour-constrained environment was certainly demanding, especially considering the uncertain, and probably more important – non-immediate – benefits. Some families commented that the conservation infrastructure might limit their possibilities to use oxen, that it reduced their productive area and that construction of stone barriers had negative side effects, such as accumulation of undesired plants (*graminea invasiva*) and diseases. Families also noted that the required maintenance was rather labour intensive.

Overall, even with the support of the programme, production levels for individual households declined compared to 1996. Nonetheless, and compared with other dryland communities, Talahuanca was among the few *dryland* pathway communities where production levels on a *per capita* basis were higher in 2011 than in 1996, and it was the only dryland community surveyed with lower temporary migration rates than in 1996, although this figure may underestimate short but frequent visits to Sucre. Other factors that probably contributed (although only marginally) were the construction of small-scale water reservoirs (*atajados*) and – limited – access to irrigation in the valley below the community.

The three cases detailed in boxes 7.3, 7.4 and 7.5 exemplify differential processes of external involvement. The case of Cochapampa presented discrepancies between the local community and the fragmented operations of external actors that were not particularly favourable to productive developments. The second case showed a difficult and long-term process towards gradual intensification, but still with rather unequal benefits between households and different socio-economic groups, alongside the potential of an association to break existing power monopolies. The third case showcased a relatively successful effort in soil and water conservation, which nonetheless came to somewhat of a halt at the *pilot* stage and received little attention in terms of follow-up at the community level, although JICA did extend the pilot to 36 communities at a next stage, spread across nine municipalities.

Except for Yurubamba (*growth* pathway community), the other *dryland* pathway communities overall received little external support in the productive sector. Support for agriculture and livestock was clearly *biased* towards 'high potential' communities. Based upon initial diagnostics and negotiations with community organizations, most external agencies worked with selected groups or individual families with at least a specific minimum level of resources, often leading to further internal differentiation. But even for the households involved in these projects or programmes, areas of intervention have been limited to only one or two crops, and only a small portion of their agricultural lands. Except for the soil and water conservation programme, most interventions focused on a singular project objective (overlooking the broader context and production system), generally being oriented towards increased market integration. NGOs, nonetheless, emphasized technical training more than government agencies did.

The different support modalities led to a range of implementation issues. In credit (or seed) provision, repayment mechanisms (e.g., interest rates) did not always coincide with perceptions of fairness among community members. In Pampa Lupiara and Yurubamba, poorer families failed to repay due to adverse circumstances, leading others to follow suit. While internal exchange and credit might be more costly in terms of repayment rates, these have often proved to be more 'sustainable' (building upon relations of reciprocity and exchange) than externally implemented alternatives. Differentiated responses, exemplified for example, by full, partial or non-payment of credit among members of the same community, contributed to failure of subsequent interventions. Introduction of tractors and other equipment through economic associations may have benefited communities, but it also led to disputes regarding ownership, maintenance and fees, and project arrangements sometimes competed with services already offered by local entrepreneurs. Forestry projects suffered from diverging incentive structures and had a relatively limited impact on a small group of households (Le Grand 1998b). Cooperatives generally failed, often due to lack of a sustained and integrated approach, but also because of their lack of embeddedness within the wider community context. The only long-term assistance project with a more comprehensive focus was the intervention of ACLO in Pampa Lupiara.

7.5 Summary findings: pathways in dryland areas

How did pathway differentiation occur in dryland agriculture and livestock production, and what were the implications for broader pathway development? Table 7.4 presents an overview of main trends for the *decline* and *growth* pathways, with an additional disaggregation between potato and mixed production systems. The *dryland* pathway faced numerous and severe constraints in its development. Climate hazards, in particular, irregular rainfall, increasing frequency of drought and recurrent hailstorms and frost, narrowed and complicated the agricultural calendar. This drastically affected planting practices, which were often delayed until November due to lack of humidity. Annual rainfall data since the early 1950s show a consistent and gradual decline, becoming particularly critical in recent decades. Combined with the reduced labour availability as a consequence of declining household size and increased school enrolment and migration, and alongside the increasing intensity of crop diseases, this led to an overall decline in production levels.

In some cases, land fragmentation increased resource pressure. In higher dryland communities, community members reduced fallow periods and opened agricultural lands in areas with limited potential and more at risk of soil degradation. Several authors highlight the possible importance of soil degradation in relation to changing demographics (e.g., Zimmerer 1993a, 1993b; Preston *et al.* 1997; Kessler 2006), but it is certainly not the only or even the main factor explaining poverty in the Andean valleys.

Communities have become more integrated in regional and national markets, but terms of trade remain adverse, and few households are able to negotiate better prices or realize shortcuts in marketing chains. Lower production levels per household, and in many cases *per capita*, and a higher share of sales has increased pressure on consumption, food security and seed provision. Provision of 'improved' seeds, technologies, credit and chemical fertilizer remains unequal among households on the *decline* pathway. None of the *dryland* pathway communities made a transition towards higher and more sustainable levels of production. Most faced diminished or stagnating populations, principally due to increased outmigration and declining birth rates. Of those remain-

ing, many saw outmigration as the only real alternative for their children, as conditions at home offered little prospect for a productive future.

Nonetheless, differences were observed in the evolution of pathways over time. The baseline comparison (1996) showed strong differentiation between communities with an emphasis on potato production versus those with more mixed production systems. Over time, this differentiation continued, with the exception of one community in each of the groups (Cochapampa and Talahuanca). Cochapampa did worse than the other two potato communities (Pampa Lupiara and Yurubamba), while Talahuanca did much better than the other mixed production system communities (San Juan, San Juan de Orcas and Ovejeras).

The *decline* pathway communities suffered more from the impact of the two major droughts, leading to an almost complete loss of production and drop in livestock holdings. In more recent years, these communities experienced further declines in production per household and *per capita*. The reduction in livestock holdings may be due to recurrent drought, reduced availability of pasture and a declining availability of labour within the family, further attenuated by the fact that children attended school longer, often migrating at an earlier age to urban areas for further education. These communities also experienced a decline in crop varieties and genetic diversity, the gradual abandonment of marginal dryland uphill due to irregular rainfall, and increasing water shortages, both for human consumption and for animals. Diminished production and a decline in manure and lower income from sales (including in the potato communities) increased dependence on external inputs like chemical fertilizer. These communities faced a strong decline in population and household size, limited improvements in market access and a decline in exchanges with neighbouring communities. Notwithstanding extensive external support, the only community with good prospects in 1996 (Cochapampa) also saw a rapid deterioration of production levels, principally due to the disarray of the rotation system, high levels of land fragmentation and lack of coherence and complementarity among external interventions.

In contrast, while *growth* pathway communities also suffered from the two major droughts, both *pampa/potato* communities received more extensive external support and quickly recovered, while the community with a mixed production system suffered substantially, as it had no immediate prospect of recovering from losses of seed and livestock. Both in 1983 and in 2000 (after the drought of 1997-1998) the *growth/potato* communities experienced relatively good years. This may have to some extent been a result of chance, but it certainly was also a function of external support and better access to seed supplies. These communities had a specialized cropping pattern and greater production, which allowed them to sell more of their output. They received more external support in production and commercialization, and they were able to reduce the effects of labour shortages by partial mechanization, in particular the use of tractors. Both communities had access to chemical fertilizer to supplement the limited availability of manure. Direct access to transport, although generally privately owned, facilitated market access. These two communities, however, show more pronounced internal differentiation, probably as a consequence of accumulation by richer households. Finally, they managed early access to secondary education (see also chapter eight).

Considering these developments it is no surprise that these communities had lower rates of outmigration. The only community with a *mixed production* system and poor productive conditions in 1996 (Talahuanca) managed to retain production and livestock levels *per capita* and even to re-

duce temporary migration, partly thanks to several years of prolonged external support (in soil and water conservation and some small-scale irrigation efforts).

Table 7.4
Outcomes in dryland decline and growth pathway communities

Decline pathway	Growth pathway
<p><i>Mixed production (Ovejeras, San Juan, San Juan de Orcas)</i></p> <ul style="list-style-type: none"> - Complete abandonment of highland area and conversion to irrigation in valley (OV) - Decline in livestock holdings (all) - Severely affected by 1982 and 1998 drought - Initially very high levels of outmigration, migration still continues but at lower levels - Failed cooperative effort (SJ) - Contracted migration labour (<i>enganche</i>) (SJ) - Limited use of external inputs, limited sales - Fragmented external efforts in prod. sphere <p><i>Potato production (Cochapampa)</i></p> <ul style="list-style-type: none"> - Initial intensification of potato production, - Subsequent decline in livestock production - Interrupted access to valley and corresponding exchange mechanisms - Deterioration and partial abandonment of <i>manta</i> rotation system - Declining production, increased land fragmentation - Strong increase in outmigration - Failed irrigation and cooperative efforts - Erratic and conflictive external presence, most infrastructure out of use 	<p><i>Mixed production (Talabnanca)</i></p> <ul style="list-style-type: none"> - Maintenance of livestock and organic fertilizer, stable production levels <i>per capita</i> - Severely affected by 1982 and 1998 drought, - Permanent migration by a number of families - Investments in soil and water conservation possibly contributing to reduced migration <p><i>Potato production (Pampa Lupiara, Yurubamba)</i></p> <ul style="list-style-type: none"> - Less affected by decline in dual access to land, overall smaller livestock herds (PL, YBB) - More mechanized agricultural production (PL, YBB), at least partly the result of substantial external support, but also more use of hired labour - Faster recovery from 1982 drought, due to better production in following years - Partial conversion to irrigation (YBB) - Relatively successful economic association (breaking internal power relations, sustainability remains a problem) - Low levels of migration (PL, YBB) - High production and sales translate into strong accumulation among richer households and internal differentiation - Increase in trucks, tractors and access to a second house in Sucre

Source: PIED studies, own elaboration.

How did internal and external factors and agency influence and respond to these developments? The main factor affecting changes at both the household and the community level was probably the strong decline in population, related in part to the gradual or in some cases rapid rise in both temporary and permanent migration. This was due to external shocks (drought and changes in external markets and opportunities) and to increased vulnerability to climate change. Internal community dynamics were affected, as was labour availability for agricultural practices – considering the changes in household size, age and composition. Two or three decades ago, households had more certainty regarding their productive potential, the availability of labour and manure and even access to land in the valleys. Today, many of those certainties have disappeared. Poorer households responded to these trends by diversifying and spreading risks, while the few richer households (in the *growth* pathway only) were able to accumulate income from various sources. Households gradually adjusted their practices, by increasing temporary migration or relying more on chemical fertilizer than on locally produced manure. These practices created new dependencies and may have become self-reinforcing (*habituation*). Similarly, some of the existing collective routines and exchange mechanisms (e.g., rituals, festivities, joint labour efforts and *mink'a*) lost ground, undermining social networks and reducing ‘social capital’. This appears to have happened in both the *decline* and the *growth* pathways, but the consequences were more ap-

parent in the first group, where *comunarios* had few alternatives for labour exchange practices, and among the poorer households.

New rules (aimed, e.g., to reduce land left abandoned by migrants) and different cooperative models were ineffective in restoring balance in the production system and in dealing with unpredictable external markets. Households opted to keep their children in school for as long as possible, either in the community, in a neighbouring town or even in Sucre, reducing labour for agriculture and for managing livestock. Younger households continued to rely on temporary migration as the main alternative outside the (ir)regular agricultural calendar, leaving the elderly behind. As most households in the *decline* pathway faced similar constraints, this further complicated diversification of access to resources through reciprocal exchange mechanisms. This also applied to poorer households in the *growth* pathway, as they hardly managed to improve their position. The latter group, however, had more possibilities for entering local labour markets and exchange relations. Some households in the *growth* pathway did much better and accumulated resources, but even this group faced constraints in agricultural production. Although they acquired trucks and productive equipment, most preferred to invest their gains from potato sales in a plot in peri-urban areas.

Climate change, and the resulting uncertainty and shifts in the agricultural calendar, and increased temporary migration eroded the predominant role of the community organization in defining collective behaviour at the start and end of the agricultural season. In a few cases, communities tried to enforce participation, sanctioning inappropriate behaviour and obligating migrants to return for collective labour or to return abandoned lands to the community organization. The community organization was ineffective, however, in dealing with land degradation and fragmentation, as well as with increased outmigration and land abandonment. This was most visible among the *decline* pathway communities, where production systems were left in total or partial disarray (in Ovejerias and Cochapampa), and in San Juan, where the community organization encountered clear limits in dealing with outmigration and abandonment of marginal lands. Two – externally supported – efforts to establish economic associations and a collective approach to production and commercialization quickly lost momentum. A similar effort in a *growth* pathway community (Pampa Lupiara) had direct impact on the internal balance of power and on the capacity of community members to interact with external markets. But even there, long-term sustainability and ‘embeddedness’ remained a major obstacle. In a few cases, such as after the drought of 1998, *sindicatos* were able to mobilize *comunarios* to support the poorest households. This was more difficult, however, where parallel organizational structures defined their own criteria for membership and access to certain resources. Similarly, community organizations showed limited capacity to deal with internal differentiation and unequal access to resources. In this respect, creation of parallel structures, including farmer associations and cooperatives – often with membership or coverage beyond the existing community borders – may have further undermined community organizations’ capacities to deal with those issues in an effective manner.

Finally, looking at the presence of government institutions, NGOs and municipalities, we observed substantial differences between the two pathways. The role of external interventions was significant only in the *growth* pathway communities, and in particular, in the two *pampa* communities, which were generally perceived as *high-potential areas*. This may reflect a lack of interest in working in marginal dryland communities or *less favoured areas* (Ruben & Pender 2004). The *pampa/growth* pathway communities benefited early on from external support, directly after the major

drought of 1982-1983. In these communities, households with relatively larger landholdings and access to inputs and equipment were able to benefit from external support, increasing production levels and accumulating savings or investing in the acquisition of transport facilities, or sometimes even land or housing in peri-urban environments. For the *decline* pathway, few communities benefited from – often isolated or disjointed – productive interventions. Partly due to their inflexible approach,⁴³ these interventions failed to respond to the multiple and often unexpected internal and external constraints. Difficulties also occurred in dealing systematically with collateral side effects of practices and routines, many of which may have undermined the effects of interventions over the longer term.

Both before and after 1996, only incidental improvements were observed in overall production levels. Although the *growth* pathway communities performed much better in terms of productivity, for all communities the long-term sustainability of production systems remained in question. New water sources was one of the few remaining ‘solutions’ being sought by NGOs and municipalities alike. Unfortunately, few of these attempts succeeded in contributing to more than marginal improvements in food security.

7.6 Conclusion

The pathway analysis presented in this chapter underlines the complex and multiple change processes under way in dryland agriculture. Chapter six, on land and natural resources, emphasized that defining ‘initial conditions’ in the productive sphere is always subject to arbitrary choice and may result in difficulty of comparisons, as current trends may be a reflection of practices and perceptions developed over generations (Garud 2010). For most communities, except again for the *ayllus*, a logical starting point would be the land reform of 1952-1953, as this marked the start of direct ‘ownership’ of the land and agricultural production.

Nonetheless, available studies suggest limited changes in crop and livestock production patterns in the period after the land reform until the early 1980s. We know, however, that communities faced increasing demographic pressures, a gradual incorporation of remaining land areas and a decline in fallow periods. Especially after 1983, the frequency of years with insufficient rainfall increased and rainfall patterns became increasingly irregular.

The droughts of 1983 and 1998 led to an immediate rise in outmigration and dramatic losses of livestock and agricultural production. Other changes documented were shifts in crop portfolios and livestock-rearing practices, a decline in exchange of products and labour with neighbouring (valley) communities, a decline in organic fertilizer and increased dependence on external inputs, and a relatively higher proportion of output sold to external markets in order to guarantee a minimal monetary income. In addition, there was increasing uncertainty regarding the agricultural cycle and prevailing risks in agriculture, prompting increased outmigration. Migration patterns depended, in turn, on external opportunities, but were also partly conditioned by the agricultural calendar and by existing networks and a more or less predominant role of intermediaries (*enganche*). The differentiated outcome in the pathways identified shows that ‘initial conditions’ do matter (related, e.g., to the potential for specialization in potato production or more mixed production patterns) and that different combinations of endogenous trends and internal and external agency may push community pathways in either ‘declining’ or ‘upward’ directions. Pathways also reflect a mixture and continuum between path dependence and path creation (Baláz 2007), rarely evidencing any level of ‘equilibrium’ and contrasting therefore with the path dependence

model proposed by David (2000). These processes exemplify instead a continuously changing balance between agriculture, livestock and migration and in overall 'structural productive properties', resulting in a narrowing of the margins for manoeuvre, and in complex interactions and differentiated responses from internal and external actors.

At the household level, the decline in household size, the fact that children remain in school longer and the continued outmigration of young family members increased the burden on the few remaining elderly and constrained continued participation in certain practices (like *mink'a*) and collective action. This led to gradual shifts in practices, due to temporary migration, reduction of fallow periods, further subdivision of lands, abandonment of lands and the use of tractors under inadequate agro-ecological circumstances. The erosion of traditional practices affected social and exchange networks and possibilities to access various resources, especially in more difficult circumstances. In the long run, these small but cumulative changes may be just as important as the major external shocks, although they were often also the consequence of an initial shock. Some exchange practices disappeared while others gained in regularity, but overall the trend in the survey communities was clearly one of a decline in exchange practices, especially among the more market integrated *irrigation* pathway communities. Some of the less perceptible variations in pathways were therefore the result of *cumulative* but often minor changes in daily practices, whether related to individual *habits* at the household level or to collective *routines* (Hodgson 2004, 2007). Although most changes appear to reflect *path dependence* and a tendency towards 'lock-in', some changes were not necessarily negative. The decline in productive exchange practices may bring individual households alternative options for sale of products in more attractive monetary terms, though solidarity mechanisms may further erode.

At the community level, the current *ayllu* and *sindicato* structures appear incapable of influencing productive practices other than preventing obvious *free-riding* behaviour (mainly in relation to livestock and forestry resources). The erosion of authority positions such as the *alcalde* and the declining practice of recurrent rituals and 'festivities' point in a similar direction. Community institutions thus played a role in defining the overall 'rules of the game', but were becoming less effective in dealing with declining production and the rather diversified household responses to it. This reflects the weak version of the functionalist perspective on path dependence (Mahoney 2000) in which community institutions survive, but face difficulties in adapting to changes in the internal and external environment. This was especially evident in the *dryland decline* pathway.

The first three to four decades after the land reform, government policies showed a complete neglect of the Andean valleys. Nonetheless, over the past 20 years, external actors and interventions launched multiple responses to deal with constraints in the productive sphere. Their interventions certainly impacted existing practices, possibly stimulating new community routines for dealing with constraints and establishing new rules. As these external agencies often experienced continuous staff rotation – due to successive short-term contracts or field presence – they often had limited knowledge of the existing internal differentiation at the community level and the possible long-term impacts of cumulative changes in practices.

Few interventions in fact contributed to improvements in the productive environment. The soil and water conservation programme in Talahuanca and support for the economic association in Pampa Lupiara were among those registering positive effects. In Talahuanca, the intervention stimulated prolonged collective action and broadened the space for manoeuvre, though it did not really lead to creation of a new pathway. In Pampa Lupiara, sustained interventions effectively

contributed to *path creation* by breaking existing power relations and extending the horizon and leverage of the *association* and community leaders. But even for the long-term assistance in the case of Pampa Lupiara, we found a process of constant *learning by doing*, in which after each step new measures had to be taken to shore up the results of the previous intervention, as a change in building productive infrastructure or in a few current productive practices was insufficient to produce real change. Most interventions, however, had a short time horizon of only a few interactions or visits and at most a few years, even when possible impacts could be expected only after 8-15 years (as in the case of reforestation). Although some interventions aimed for changes in a specific area (e.g., introduction of a new crop variety and related agricultural practices), none of the interventions in the *decline* pathway had a sustained effect on production levels or were well adapted to the complex annual calendar of community and household activities. ‘Nothing ventured, nothing gained’ seems to have been the recurrent motto.

This is probably the main lesson of many short-term development interventions. They may have done no harm, and even provided short-term benefits. However, without precipitating the necessary changes in organizational context and without households really assuming responsibility for caring for the infrastructure received, these interventions contributed as much as the proverbial drop in the ocean. Households ‘fell back’ to former practices and routines as soon as the intervention or parallel incentives ran out of steam. Habits are not easily changed without a correspondent changes in institutions (Hodgson 2002). External solutions have often focused on market-related solutions (sales-oriented crops that are dependent on fertilizer, new technologies, available markets and access structures such as associations or cooperatives). This is rather different from customary practices based on – more or less – reciprocal exchange and embedded in local networks. Interventions also favoured communities with more (perceived) potential and households with better access to resources, further disrupting internal balances and exchange networks. Taken together, this explains why the short-term and more erratic intervention patterns in the *dryland decline* pathway were far less significant than the more sustained efforts in the *dryland growth* pathway communities.

Without a more integrated and longer-term approach, externally inspired ‘solutions’ and interventions in the productive sphere may thus become part of the problem (Pritchett & Woolcock 2004) and create new dependencies (e.g., on seeds, fertilizer, technologies, markets and associations), rather than forming adequate and adaptable answers to multiple and interrelated constraints. When beneficiaries lack sufficient information about external interventions, difficulties may arise in coordination (*assurance games*), as households have different expectations and might therefore exhibit different degrees of interest in participation, as we observed in Cochapampa. If, in addition, benefits are inequitably distributed, lack of effective coordination and competition both between and amongst internal and external actors may lead to *chicken games* (Poteete & Ostrom 2004). This happened around interventions related to (re)forestation and credit provision, with some households unwilling to repay contributions according to the initial agreements, undermining the future provision and the long-term effectiveness of these interventions.

Himley (2009) analysed similar histories of interaction between external actors and local resource users and the resulting outcomes and trajectories in Ecuador. The successive episodes in the study area over a 50-year time horizon were characterized by resistance (against the hacienda), negotiation and engagement. Communities and cooperatives refused entry to their property, defied resource use restrictions or pursued alternative initiatives, shaping trajectories of change (or

lack of change) in processes of coproduction (*ibid.*). Among the *dryland* communities, we encountered more systematic forms of negotiation and engagement with external actors in the *growth* pathway communities, particularly in Pampa Lupiara.

In a review of the soil and water conservation project in Talahuanca, Kessler (2006) notes that to get people involved in collective action requires the presence of a number of driving forces operating simultaneously. The first step is “to generate eye-catching experiences” based on an integrated set of actions to widen perspectives at the village level. Municipalities, together with local universities and in partnership with development agencies could work on and disseminate those achievements widely. The second step is to work on the necessary “changes at the macro/micro level interface” to provide an enabling environment for replication. Although Kessler (*ibid.*) rightly points out the importance of these actions, less optimism is perhaps called for regarding the current institutional and policy scenarios. While soil and water conservation did receive more attention within the context of the *National Watershed Programme* (PNC), overall the attention (and available funding) for degradation in dryland areas was limited and has remained so on the national and international agenda. Considering the current way of operating and the limited effort made in the past by municipalities in the productive sphere, there seems to be little prospect of stimulating them to play a more systematic and constructive role any time soon.

Finally, the *dryland growth* communities grew not only in population over the past decade, but they also did much better in terms of production than the *dryland decline* pathway communities. There may be no direct parallel with the famous ‘*more people, less erosion*’ study by Tiffen *et al.* (1994), regarding the Machakos region in Kenya, as we did not analyse soil degradation trends in sufficient detail, but our findings at least contradict the neo-Malthusian view that population growth is “a principal agent leading to a spiral of increasing poverty, starvation and environmental degradation in poor countries” (Shiferaw & Bantilan 2004: 329). The analysis in this chapter, rather, suggests that positive (or less negative) agricultural change can take place in as yet slowly growing marginal dryland communities, even where households face increasing labour shortages due to gradually declining household size.

Even though the relative importance of agriculture is declining in most communities, it is still among the main sources of income and food security for rural communities. Moreover, the cyclical nature, the rhythms and rituals and the corresponding habits, routines and institutions related to (dryland) agriculture define or circumscribe to a large extent the dynamics in other areas, related to off-farm labour and migration as well as to other collective action practices, even in the domain of public services. Access to irrigation may influence the margins within which households and communities can manoeuvre, but it also leads to new constraints and dilemmas, as will be discussed in chapter eight.

Notes

¹ In a survey in northern Potosí in 1977-1978, Platt (1982) found that only 13% of the households interviewed had lost family members due to permanent outmigration. Yet one of our survey communities lost 99% of its population in roughly 10 years’ time, while several other communities lost at least half of their population over the past two decades.

² *Propuesta para una estrategia de desarrollo rural de base campesina, Informe de la Mision Especial de Programacion a la Republica de Bolivia, La Paz*: (IFAD, CEDLA 1985).

³ The IFAD strategy was followed by another national strategy for agropecuarian development (*Estrategia de Desarrollo Agropecuario 1993-2003*), and after a range of other policy documents and measures (EBRP, *Ley de Producción Económica, Sistema Boliviano de Productividad y Competitividad*) by the *Estrategia Nacional de Desarrollo Agropecuario y Rural* (ENDAR) in 2002. The current MAS government introduced again a range of new policy proposals and legislation under the *Plan Nacional de Desarrollo* (PND), including again a new law to promote the small farmer sector (*Ley de Revolución Productiva Comunitaria Agropecuaria*).

⁴ Plan de Desarrollo Departamental de Chuquisaca, 2009.

⁵ Maize production has similar water requirements, while rainfall variations have less impact in the production of grain.

⁶ Morales (2001) classifies years with less than 144 mm of rain in the months of December and January as extremely dry, as this level would provide for 40% or less of a crop's normal requirements (240 mm). In 1997/98, rainfall for the two months together only reached 38.4 mm.

⁷ These included a study for the building of water reservoirs in San Juan, a greenhouse in San Juan de Orcas, a small seed-improvement programme in Pampa Lupiara and the validation and application of soil and water conservation guides in Talahuanca, largely based upon a Japanese project implemented in the community. Note that in both Talahuanca and San Juan the municipality invested in 2009-2010 a (still marginal amount) in the construction of *atajados* (rainwater catchment areas). In San Juan it took some five years for the construction of water reservoirs to finally be implemented.

⁸ Bilateral support from Venezuela awarded by President Morales during his visits throughout the country, giving mayors an arbitrary amount to build a small dam, sport field or similar project in their municipality. This 'off-budget' money is generally referred to as the *cheques Venezolanas*.

⁹ See separate case study in this chapter.

¹⁰ In 2011, the prefecture supported a regional programme providing counterpart contributions for larger irrigation systems (supported also by municipalities and the national irrigation plan *Plan Nacional de Riego*) and distribution of improved seed varieties and silos for approximately 15 families per community for about a 100 communities in the region, including several of the research communities.

¹¹ In 1996, Cochapampa was still similar to the group with more intensive potato production (included in the *growth* pathway) and Talahuanca had characteristics similar to the *decline* pathway communities. The first community, nonetheless, showed a much stronger decline in production and population and the second remained relatively stable in both aspects, partly explaining the current classification.

¹² These figures nonetheless hide substantial internal differentiation. For northern Chuquisaca averages were Oropeza (4 t/ha), Yamparuez (6 t/ha), Zudanez (7.5 t/ha) and for northern Potosí they were Ravelo (incl. Yurubamba) approximately 14 t/ha while the higher located municipality of Macha only obtained around 4 t/ha (Beetsra 1997).

¹³ Changes in production levels (e.g., a shift from potato towards maize production), may also relate to corresponding shifts in rotation, crop portfolio, an increase in fallow land and of course rainfall patterns.

¹⁴ Ministerio de Desarrollo Sostenible y Planificación (2001).

¹⁵ Escobal and Ponce (2010) found a decline in potato production in the Andean valleys in Peru between 1981 and 2009 from 11,600 kg (for households with on average 1.3 ha) to 7,300 kg (produced on 0.6 ha) for 'modern' agriculture (probably comparable to Yurubamba and Pampa Lupiara), and from 1,700 to 1,067 kg (on, respectively, 0.5 and 0.1 ha) for a more traditional region. In their survey they also found a decline in household size from 5.8 to 4.4 for the 'modern' region and a small increase from 4.6 to 4.8 for the more traditional region.

¹⁶ The highland community of Ovejerías was abandoned after 2008, so nobody was left to take care of cattle and prevent livestock from entering the few remaining agricultural fields.

¹⁷ We identified machinery received from projects in Cochapampa, Pampa Lupiara and Sundur Wasi, in all cases inoperational. A collectively owned grinding mill, acquired with a substantial contribution from community members in Talahuanca was still functioning.

¹⁸ Average sales were practically nil in San Juan, San Juan de Orcas and Talahuanca, and reached an average of Bs 3.000 in Cochapampa (potato and *chuiño*) and Pampa Lupiara (principally potato and grain), 5000 Bs. in Ovejerías (maize and cows), and almost 12.000 in Yurubamba (almost exclusively sales of potato).

¹⁹ Only Cochapampa showed a strong increase in temporary migration.

²⁰ Annual oscillations in production levels may be substantial. Nonetheless, as data were complemented by information gleaned from household interviews and comparable trends were found elsewhere, the trends encountered seem to reflect broader processes in the Andean valleys and confirm substantial differences between communities.

²¹ Differences are similar when expressed in production levels per day of labour, indicating considerably higher productivity overall in the potato communities, especially for potato production itself. For maize and barley, production levels per day are roughly the same among the two groups at 42-48 kg/day for barley and around 20-25 kg/day for maize. Blum's (1995) study of a community in the south of Peru gives comparable data for 1984-1985 of 40 kg/day for barley and 21 kg/day for maize.

²² A question that arises here is why did Cochapampa remain behind, despite comparable levels of potato production? This question will be addressed later.

²³ This figure is from a survey undertaken by the community and indicating its keen interest in monitoring capital acquisitions.

²⁴ This is visible in Ovejerías, but also evident in San Juan and in Cochapampa.

²⁵ The main difference in the productive sphere between *ayllu* and *sindicato* communities relates to the historical efforts in *ayllu* communities to gain and maintain access to different agro-ecological zones, as elaborated in the previous chapter.

²⁶ For the *ayllu* communities, managing the exploitation of collective natural resources is also an important dimension.

²⁷ In Cochapampa changes in exchange mechanisms help to relieve the burden on those organizing festivities.

²⁸ Some families even perceived the 1997 drought to be worse than the one in 1982, as in 1983 there was at least some rainfall, which allowed for minimum production and recovery of seeds (Morales & Guerrero 2001).

²⁹ Communities suffered from declines in livestock of around 20% for chickens, 50% for pigs, 40% for sheep and goats, 20% for oxen and 50% for cattle.

³⁰ According to Orlandindi (1998), in both Yurubamba and the neighbouring community of Sassanta a relatively small number of 'intermediary' farmers or traders assumed responsibility for most trade and acquisition of fertilizer and gradually managed to accumulate wealth. Once the higher incomes from potato sales (often from larger landholdings) allowed for the acquisition of a truck, many were able to realize subsequent investments in a tractor, in hiring additional labour to extend their production and finally to acquire a plot in Sucre and build a second house, which allowed for further income from rent.

³¹ The main rotation was potatoes followed by grain, or potatoes with barley or wheat, or alternatively potatoes followed by oca. Grain is quite susceptible to frost, however, and can therefore only be cultivated in hillside areas. In the flatter areas, farmers mainly cultivate potatoes followed by barley and wheat.

³² *Mantas* could be defined as collectively managed production zones, with individual property.

³³ According to Platt (1982), the existing rotational routine, including the fallow periods, was also intended to define use rights for the different hamlets (under the authority of the *ayllu/alcaldé*), as a way to guarantee collective control and to prevent undesired cultivation by others of apparently abandoned resources.

³⁴ In Quila Quila there is evidence of people working together to improve terraces, but this is the exception rather than the rule.

³⁵ Planting of crops is subject to a complex agricultural calendar. To widen opportunities and reduce risks, farmers work with many different varieties, both indigenous as well as improved, introduced by development institutions or through informal innovation exchange practices. Some varieties can be used for drying/transformation (*chuño*) and for longer storage; others are more resistant to frost and crop diseases or may require greater application of fertilizer. Agricultural practices also differ according to specific varieties, differentiating between short and long-term maturity, less and more drought resistance, as well as production objectives (consumption, market, exchange, seed provision or transformation).

³⁶ As an example, Doña Sabasta Colque, from one of the poorer families, cares for the sheep of another family and receives in exchange the possibility to use their pastoral areas or a limited payment in cash (max. Bs 100 per month).

³⁷ The last two examples in appendix 7.2 illustrate the possible involvement of NGOs in exchange mechanisms.

³⁸ The relative importance of working for other households is not new for those communities. Platt (1982) reports similar figures for communities around Ravelo (e.g., Yurubamba) in 1977, while data from for Pampa Lupiara in 1991 indicates around 35 days of labour per household working for others (Pozo Uribe 1991).

³⁹ Harris mentions the example of a widow in northern Potosí arranging to have her ploughing done in exchange for sowing for the other household. Other arrangements are the exchange of animals for the man doing the ploughing for her (Harris 1982).

⁴⁰ The exchange rate was US\$ 1 = Bs 3 in 1990, US\$ 1 = Bs 5 in 1996 and US\$ 1 = Bs 7 in 2011.

⁴¹ Although the absolute number of migrants remained roughly the same among the 108 households in the survey, the average household size was considerably lower in 2011, tightening an already constrained labour environment.

⁴² There were, nonetheless, again substantial differences between communities, with San Juan, San Juan de Orcas and Talahuanca more or less following this pattern, but with Cochapampa showing almost opposite trends – i.e., lower migration levels for the poorest income strata. This was probably due to a lack of resources for migration in the first place. Yurubamba and Pampa Lupiara had very little migration, and showed in fact higher migration rates for the richer strata. This migration was partly related to education.

⁴³ Bebbington (2002) and Carmona (2008) highlight the long-term dominance and standardization of 'logical framework approaches'.



Talahuanca: agricultural fields, water tank and green house (2011)



Yurubamba, potato production (1996). Source: PIED-Andino



Potato harvest in Pampa Lupiara 1996. Source: PIED-Andino

8

Moving frontiers under irrigation?

Water is the liquid that makes their plants grow, but also the fuel for the zone's organisational engine, the blood in the veins of the rural production system, the heart of survival and coexistence of rural families (Boelens & Davila 1998: 83)

8.1 Introduction

The previous chapter dealt with *dryland* pathways, ranging from communities entirely dependent on rainfall to mixed systems with – recently created – small-scale irrigation.¹ After a brief comparison with the dryland pathway this chapter will focus in particular on the differentiation between and within *irrigation* pathway communities, which have irrigation resources ranging from small-scale seasonal systems to large-scale infrastructure providing water to almost entire production systems and several annual harvests. Several communities (Ovejerias, La Cañada and Tuero Chico), in fact, made a transition from dryland production to cultivation almost exclusively under irrigation.

Irrigation has become increasingly important to many communities in the Andean valleys. It allows production in areas where agriculture would otherwise be unfeasible and for more intensive cultivation where water is readily available. For about a third of the communities surveyed, irrigation has become *the* core element in their livelihood strategies, for another third it contributes considerably to their production, while most of the other communities have made at least some effort to establish small-scale irrigation schemes, though with little apparent effect.

Thus, irrigation water is an important production factor, and water availability plays an essential role in the agricultural calendar and in the planning of activities throughout the year. Irrigation systems, or their extension, implies changes in the organization of production, in access to water and in subsequent benefits. The introduction of irrigation systems therefore requires a comprehensive set of actions: identification of appropriate water sources, definition of intended beneficiaries, development of modalities for bringing water to different production zones and individual plots, and the design of 'optimal' (e.g., socially acceptable, technically appropriate, sustainable and cost-effective) solutions for distribution and drainage, but also for management and operation. The criteria for and understanding of what solutions are 'optimal' may differ according to circumstances between and among households, communities and external actors.

Although in some cases families have established their own small-scale irrigation system, practically everywhere smaller or larger user organizations have been established to guarantee adequate and equitable use of the available water resources. These user organizations in principle define an action agenda and the mandates of authorities and user groups. They also motivate people to participate in collective action to keep the system running and maintain equitable ac-

cess. Although the initial implementation of a system may be the most labour-intensive phase, the whole process and recurrent irrigation practices require ongoing adjustments and fine-tuning. Andean irrigation systems are never permanent structures, and neither is the organization of users. In the survey region, we found mainly small-scale gravity systems, but the diversity of irrigation modalities has increased over time, in some cases leading to considerable changes in access and differentiation in systems of operation.

Although water use and irrigation play an important part in the way communities organize their production, the broader context should not be overlooked. Boelens *et al.* (1998) and Kervyn (1988) underline the importance of investigating the coherence of activities and mutual relations in relation to irrigation and other activities. In many cases, the organization of irrigation also requires intensive cooperation or agreements with neighbouring communities.

The literature regarding irrigation in the Andean region abounds in detailed analyses of individual cases (see Hendriks 1988; Arratia *et al.* 1996; Oré 2005; Gutiérrez 2006). This chapter principally analyses whether and how irrigation had an impact on pathway differentiation, and how agency and collective action efforts and external interventions related to irrigation contributed to differentiation among community institutions and broader community pathways, in relation to both path dependence and path creation. The main research questions explored in this chapter are as follows:

How and why did pathway differentiation or convergence occur in irrigation communities, and what were the implications for broader pathway development? How did internal and external factors and agency influence and respond to these developments?

8.2 Irrigation policies in rural areas

Central government policies for water management and irrigation start from the relevant legislation and extend to their operational translation into programmes and practices. The revision of the *Ley Nacional de Aguas*² (National Water Law), dating from 1906 (!) dragged on for more than a century, with at least 32 different draft versions being tabled. Intermediate legislation (including regulations for irrigation from 1967) covered some of the gaps, but it took until 2001 before an intensive consultation process started, involving a wide range of stakeholders. In 2004, the new *Irrigation Law* was approved, though it became legally binding only in 2006, after the entry of the Morales government. In parallel, the new constitution of 2009 defines access to drinking water as a basic human right which may not be subject to privatization or concessions. A more integrated revision of the *Water Law* remains, however, pending.

Nonetheless, three years before the approval of the new constitution, the MAS government had already established a new ministry for water, quite unique in Latin America. Before its establishment, irrigation, watershed management and drinking water were managed in segmented directorates and handled by different sector ministries (agriculture, planning and public works). Bringing them together into one sector ministry resulted in a new and, in theory, quite coherent perspective amongst previously rather disconnected operations. Yet, watershed management remained largely absent from the national agenda, except for a limited effort in the late 1990s. Irrigation had traditionally received considerable attention, but without a coherent framework. The integration between watershed management and irrigation appeared to run relatively smoothly

with the almost simultaneous elaboration of the *National Watershed Plan* (PNC) and a reformulated *National Irrigation Plan* (PNR). The integration of drinking water into this policy framework encountered more obstacles.³ Operational practice in the field, and in particular coordination between the national, regional and municipal levels stumbled upon a range of hindrances, not in the least due to the strong political opposition of some of the *media luna* (eastern lowlands) governors against the MAS government.

Implementation of regional programmes under the PNC umbrella in the Rio Chico valley had to deal with at least four different ‘governors’ in less than four years,⁴ blocking effective progress in implementation, as the regional government had to provide an important financial contribution.

The new irrigation law,⁵ approved in 2004, very much confirmed the rights of those with existing access to irrigation, somewhat complicating access for small farmers without access. In addition to this law and the different national programmes, the implementation of irrigation activities received an impetus through the *Law on Popular Participation*, in particular the change in mandate for municipalities allowing them to assume responsibility for areas under 100 ha. Gaps in the regulatory framework, however, led to a persistent disconnect between institutional mandates and territorial planning, for instance, in relation to watersheds and municipal boundaries (Castillo *et al.* 2009). In practical terms, local implementation of national programmes was therefore highly dependent on effective cooperation between different stakeholders. In the research area, this mainly affected the municipalities of Yamparáez and Mojocoya. Nonetheless, the impact of changes in legislation is difficult to assess. In an extensive and thorough analysis of the Andean countries, Boelens (2008) shows that most water-related policies, whether neoliberal or ‘participatory’, tended to gradually incorporate, ‘normalize and formalize’ customary rights and water access arrangements, but also that rural communities resisted and challenged these strategies in multiple ways.

Community irrigation in Chuquisaca was traditionally small-scale and, in most cases, gravity based. Irrigation was therefore initially mainly an ‘add-on’ for small groups of families, allowing more secure production and some crop diversification (into small-scale fruit and horticulture production). Most of the systems under current operation were implemented with external support. Municipalities of northern Chuquisaca and northern Potosí had some 477 irrigation schemes with an estimated surface area of 6,157 ha (Zoomers 2010), but differentiation between them was substantial. Zudáñez had around 99 schemes; Yotala, Tarabuco and Yamparáez counted 23, 21 and 15, respectively; Poroma, just north of Sucre, had none. This differentiation largely continues to the present day, indicating differential external presence and interest, and also reflecting substantial differences in (perceived) potential. The municipality of Poroma is indeed a very dry area with obvious limitations for implementation of irrigation systems.

As indicated in chapter seven, the drought of 1982-1983 ushered in various emergency programmes, but also signalled the start of more systematic attention to irrigation potential. Planning for the IFAD-supported *Northern Chuquisaca Development Project* (PCHN) had begun in 1980.⁶ It was able to respond – although with some delay – to the new situation. In the period between 1983 and 1991 the PCHN implemented around 40 simple irrigation systems in 26 communities, covering some 1,250 ha with a total budget of roughly US \$360,000. These efforts were concentrated in particular in the Rio Chico valley north of Sucre, which experienced both severe drought in the highland communities and flooding in the valley. The intention of the programme

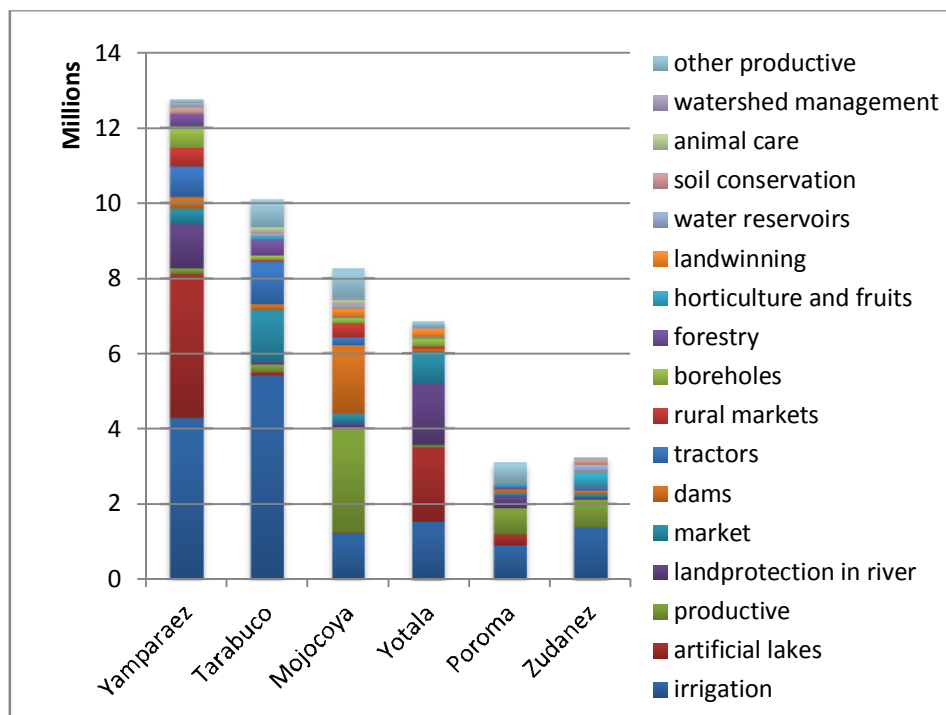
was to recover some 700 ha under irrigation throughout the valley, in order to provide an alternative to the highland communities suffering from drought and also to provide Sucre with a substantial increase in horticulture production. The PCHN was active in ten of the research communities, and in at least five of these in establishing or refurbishing small-scale irrigation systems.

Most PCHN systems were small in size and funding. In comparison, the UNCDF funded a project in Escana⁷ with an original budget of US \$1.7 million (for an estimated 300 ha); ultimately reached estimated expenditures of around US \$8 million, surpassing by far other investments in the region. Additional actors supporting irrigation before 1996 were NGOs like Caritas, IPTK, Proagro and Plan International, all of them implementing small-scale systems in the research area. Only Proagro really specialized in experimenting with new irrigation modalities and related agricultural and fruit production.

Nowadays, municipalities have become an important actor in irrigation, but this occurred only after 2005, and partly in concert with national funding schemes (e.g., PNR, FPS and the *Evo Cumbre programme*). As indicated in chapter seven, municipal efforts in the productive sector have been widely divergent for a variety of reasons. The municipality of Poroma did not invest substantially in irrigation, while Zudáñez, with similar levels of overall investment, built small-scale irrigation systems in almost all of its communities. The municipalities most active in support to irrigation between 2000-2010 were Yamparáez, Mojocoya, Tarabuco and Yotala.

In Yamparáez, investments in gravity systems, rainwater catchment areas and boreholes were relatively large (figure 8.1). Around 60% of productive expenditure was indeed absorbed by irrigation-related efforts. The remaining projects were often very small in size. Notwithstanding the differences between municipalities in investment levels, the importance of municipal investments should not be overestimated. The roughly Bs 5 million invested in irrigation in Tarabuco, is equivalent to a total amount of around US \$700,000 for approximately 72 communities, spread over eight years (see also IOB/Le Grand 2012). Such amounts pale in comparison to the millions of dollars invested in the valley of Escana. Escana probably had the luck of being close to the city of Sucre and of offering, at first glance, an attractive spot for major investment.⁸ In other cases a combination of effective demand, relatively cheap and visible opportunities (e.g., rainwater harvesting in Yamparáez), a proactive municipality and sometimes stimulating external partners may explain some of the differences in investment levels.

Figure 8.1
Municipal investments in the productive sector (Bs), 2000-2008



Source: Data from VIPFE, own elaboration.

Trends in the survey communities

The 1996 irrigation plan of Chuquisaca identifies 16 irrigation projects in 8 of the 14 communities surveyed.⁹ A few communities inherited small irrigation infrastructure from the hacienda. This was the case for Escana, La Abra and Wasa Nūcchu and to a more limited extent in Quila Quila. Although this facilitated initial access for some families, it often complicated affairs, as former hacienda owners tried to retain their best lands under irrigation. These irrigation systems were generally quite simple, consisting of small, unfortified *canals*. Only in Quila Quila did we find remnants of more sophisticated constructions and water aqueducts, which date back far before 1952. In La Abra and Quila Quila, the ongoing presence of families of the former *landlord* still influenced current developments.

In the period until 2011, another 18 projects were implemented (see appendix 8.1 for a detailed list), but at least 3 of these were preparatory studies, and many others extended or improved existing systems. Only in La Cañada, La Abra and Ovejerias Río Chico did a major upscaling of irrigation infrastructure take place, while in San Juan and Talahuanca a range of small rainwater catchment areas was built. The irrigation system built in Cochapampa in 2009 remained still unfinished in 2011. Practically all recent irrigation interventions were supported by municipalities, in some cases in coordination with NGOs (including Plan International and Proagro).

Today, irrigation is still either absent or relatively marginal in about half of the survey communities.¹⁰ For the other half, including the lower valley communities of Escana, Wasa Ñucchu, Tuero Chico, Ovejerias/Rio Chico and La Abra, but also the plains of La Cañada/Redención Pampa, irrigation has become substantial or provides for an important share of their total production. We found the most significant changes in Rio Chico, Escana and La Cañada. Average municipal expenditures in the productive sphere were around Bs 270,000 for each of the survey communities with irrigation between 2000 and 2008.

8.3 Outcomes in the survey communities

While in 1996 we identified two major types of systems (gravity and river-fed), 15 years later, at least nine different irrigation modalities could be identified. For some systems, irrigation had only a limited and *one-off* impact, not leading to major changes in the overall production system. For others, the sequencing and combination of different systems had substantial impact on both the production system and the community organization.

Pathway classification

Table 8.1 presents an overview of the major shifts that have taken place over the past 15 years and a resultant sub-classification for the *irrigation* pathway communities (last column). A subdivision of the *irrigation* pathway into ‘marginal’, ‘riverside’ and ‘intensification’ communities is presented in table 8.2 (see appendix 8.2 for more detail).

Table 8.1
Major changes in irrigation systems and pathway classification

Before 1952 (land reform)	Date of first construction/upgrading	1996	2011	Pathway classification
Dryland La Canada Ovejerias Sundur Wasi	La Canada (1996) Ovejerias (multiple - 1985-1996) Sundur Wasi (1991)	Principally dryland* La Canada Ovejerias**	Partial - small-scale gravity irrigation Quila Quila Sundur Wasi	Decline marginal Quila Quila Sundur Wasi
Principally dryland but with hacienda accessing irrigation Escana Tuero Chico La Abra Wasa Ñucchu	Escana (1983) Tuero Chico (1995) La Abra (1990) Wasa Ñucchu (1990)	Partial - small-scale gravity irrigation Quila Quila Sundur Wasi Escana	Intensive riverside irrigation Ovejerias Tuero Chico	Decline riverside Ovejerias Tuero Chico La Abra
Ayllu with presence of hacienda/ irrigation Quila Quila	Quila Quila (1988)	Small-scale riverside irrigation Tuero Chico La Abra	La Abra Wasa Ñucchu	Growth riverside Wasa Ñucchu
		Intensive riverside irrigation Wasa Ñucchu	Intensive gravity and mixed systems La Canada Escana	Growth intensive La Canada Escana

Source: PIED studies, own elaboration. Note: ** In 1996 Ovejerias could still be considered a dryland community. Today practically all inhabitants live in the valley with access to irrigation. This complicates comparisons of production figures and explains why Ovejerias is not included in all figures.

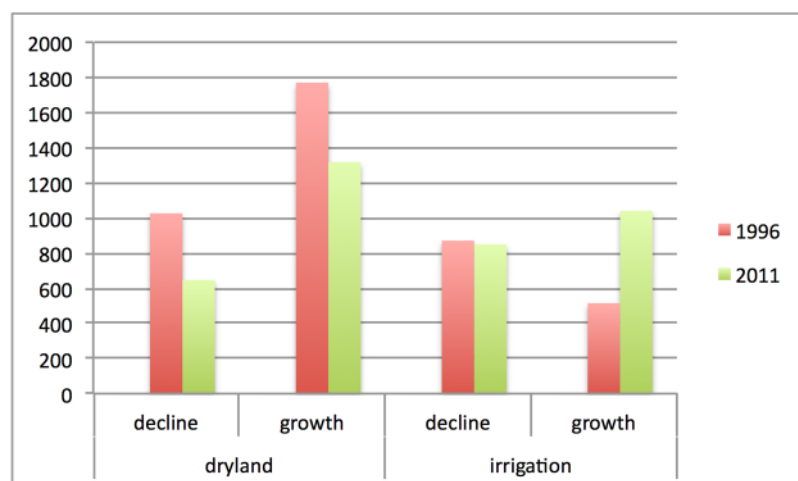
The table documents the main differences and changes over time, with Escana switching from the ‘small-scale systems’ group to an intensive sprinkler irrigation system and Ovejeras and La Cañada moving from total dryland production to, respectively, riverside irrigation and a wide mix of irrigation systems. Tuero Chico and La Abra both experienced a further upgrading or extension of their systems. The irrigation system in Wasa Ñucchu¹¹ (*growth* pathway) is not very different from those found in the *riverside* group in the *decline* pathway. While some communities developed small gravity-based irrigation systems to allow for the exploitation of small orchards (Quila Quila, Sundur Wasi and Escana in the early stages), others used these as the basis for their main agricultural production. Only a few (Escana, La Cañada) had more extended and sophisticated¹² systems.

Table 8.2
Pathway classification and irrigation systems

<i>Pathway Sub-classification</i>	<i>Decline pathway</i>	<i>Growth pathway</i>	<i>Irrigation systems/ operability</i>
Marginal	Quila Quila, Sundur Wasi		Small gravity-based systems Generally interrupted in dry season.
Riverside	La Abra, Tuero Chico, Ovejeras (Rio Chico),	Wasa Ñucchu	Small/medium river-fed Continuous irrigation
Intensification		La Cañada/ Redención Pampa	Mixed systems: large and small, individual and collective fed by water pumps, <i>badenes</i> (river dams), artificial lakes and other types of dams
		Escana	Large-scale dam and sprinkler system

Source: Own elaboration.

Figure 8.2
*Agricultural production per capita for main pathways, 1996 and 2011**



Source: PIED studies, own elaboration. Note: *Not including fruit production.

Outcomes in production, household resources and diversification

A brief comparison with dryland communities

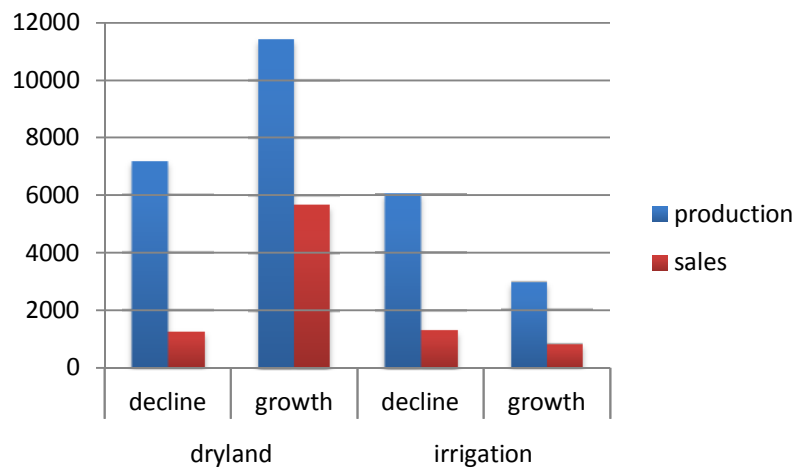
When we compare outcomes in terms of irrigation, the first question is whether communities with irrigation did better or worse than the *dryland* pathway communities discussed in the previous chapter.¹³ In 1996, *dryland* communities had on average almost twice the production levels *per capita* of *irrigation* pathway communities, principally due to high levels of potato and maize production (figure 8.2).¹⁴ In 2011, however, the situation had changed completely: the *irrigation* pathway communities had almost the same level of production *per capita* as the communities in the *dryland* pathway. While both groups in the *dryland* pathway registered declines in *per capita* production levels, these levels remained stable in the *decline irrigation* pathway and almost doubled in the *growth irrigation* pathway communities.

A second aspect differentiating the *irrigation* from the *dryland* pathway is diversification of production. The first group cultivated roughly 35% more crops,¹⁵ still excluding the wide variety of fruit trees. The latter group, however, showed more differentiation in varieties within a particular crop, especially in potatoes, but also for maize, wheat and barley. In *dryland* communities, almost 70% of total production (and 60% of all labour) was related to potato, while another 25% was devoted to maize, wheat, barley and other grains, leaving only 5% for another nine crops. In *irrigation* communities, about 50% of the production (but only 25% of labour) was devoted to potato production, with an additional 30% employed in maize, wheat and barley, leaving some 20% for at least ten other crops (excluding again fruit production).¹⁶ Many minor crops under *irrigation* are high-value products. Farmers in the *irrigation* communities spent roughly 40% of their agricultural labour time on those crops, while those in *dryland* communities spent 4% of their efforts on crops other than potatoes, maize and grain.

A third and resulting difference is the shares of output marketed (figures 8.3 and 8.4). The stronger decline in production (in both absolute and *per capita* terms) experienced by communities in the *dryland* pathway forced especially those in the *decline* group to sell a larger share of their production, leaving less for household consumption. Greater average earnings from sales in the *irrigation* pathway translated into higher levels of household resources for *irrigation* communities.

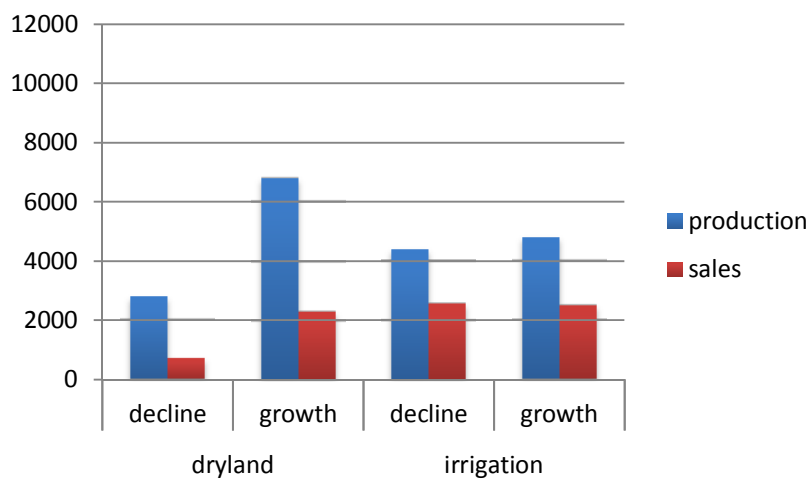
Related to the communities' levels of diversification, differences were found in agricultural calendars. Figures 8.5 and 8.6 compare the agricultural calendars of three *dryland* communities (not including *pampa* communities) with those of three communities that already had more or less intensive *irrigation* in 1996. The calendars show that while *dryland* communities had two major peaks in planting and harvesting season, the overall activity calendar is far more intensive and spread throughout the year for the *irrigation* communities.¹⁷

Figure 8.3
*Production and sales per household (in kg), 1996**



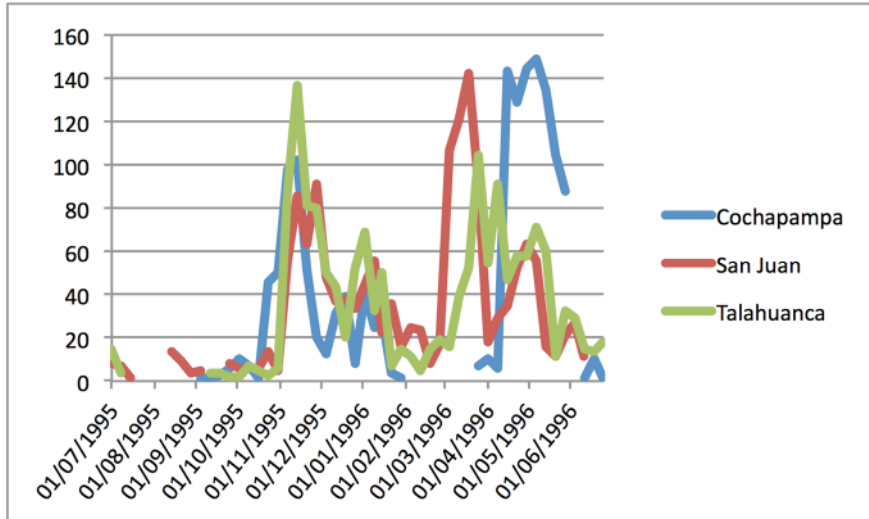
Source: PIED studies, own elaboration. Note: *Not including fruit production.

Figure 8.4
*Production and sales per household (in kg), 2011**



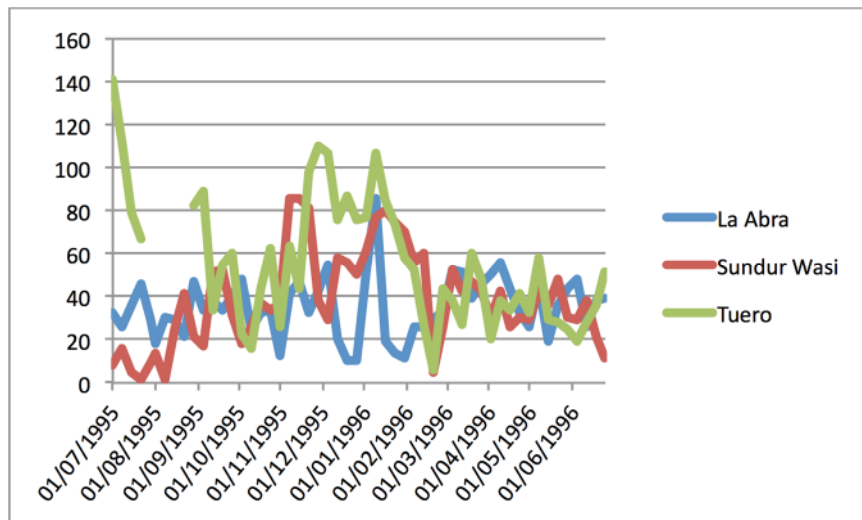
Source: PIED studies, own elaboration. *Not including fruit production.

Figure 8.5
Agricultural calendar in three dryland communities, July 1995 through June 1996



Source: PIED studies, own elaboration. Note: Average days for eight families per community.

Figure 8.6
Agricultural calendar in three irrigation communities, July 1995 through June 1996



Source: PIED studies, own elaboration. Note: Average days for eight families per community.

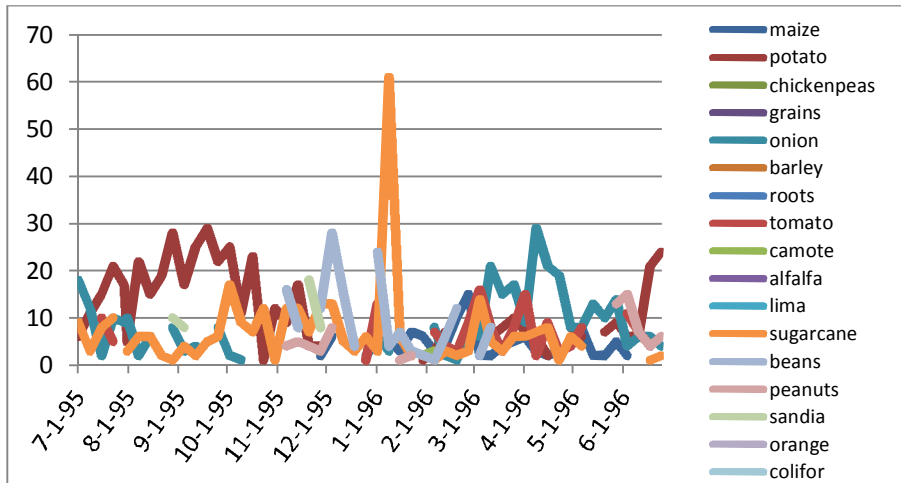
At a more detailed level (figure 8.7) the irrigated communities exhibit substantial labour involvement in a much larger variety of crops (for La Abra, extending from sugarcane and potatoes to peanuts, onions, maize and beans) than any of the dryland communities. In addition to the crops included in the figure, much of the work was related to fruit production. The agricultural calendar was further complemented by activities in livestock management, transformation, recollection (e.g. of firewood) and migration. Surprisingly enough, in 1996 La Abra proved to be exceptional in its low migration rates, as the average *irrigation* pathway community spent more time in temporary migration than *dryland* pathway communities. Irrigation pathway communities dedicate substantially less time to livestock, which partly explains the 'extra time' available for temporary migration. Following trends in the *irrigation* pathway, migration in the *dryland* pathway had also shifted abroad in 2011, but levels remained at 20%, still considerably lower than the 35% for the *irrigation* pathway.

When we break down these figures by gender, women overall spent much more time caring for livestock. Average migration rates were almost identical between the *dryland* and *irrigation* pathways, but when differentiated by gender an entirely different picture emerges: men migrated far more in irrigation communities, and women invested (relatively) more time in horticultural production. In dryland communities, the differentiation is less pronounced, often the result of joint (household) migration, for instance, to harvest sugarcane in Santa Cruz.

Back in 1996 we noted substantial levels of paid labour and amounts spent via various exchange mechanisms in dryland communities. The practices of *mink'a* and the lending out of labour and oxen-ploughs were also more common among *dryland* pathway communities, while households in irrigation communities practised more *al partir* (sharing)¹⁸ and barter. The practice of *ayni* occurred in both types of communities in more or less the same frequency. Overall, we noted a decline in these mechanisms in 2011¹⁹ and indications of stronger replacement of informal exchange mechanisms by paid labour in *irrigation* pathway communities.

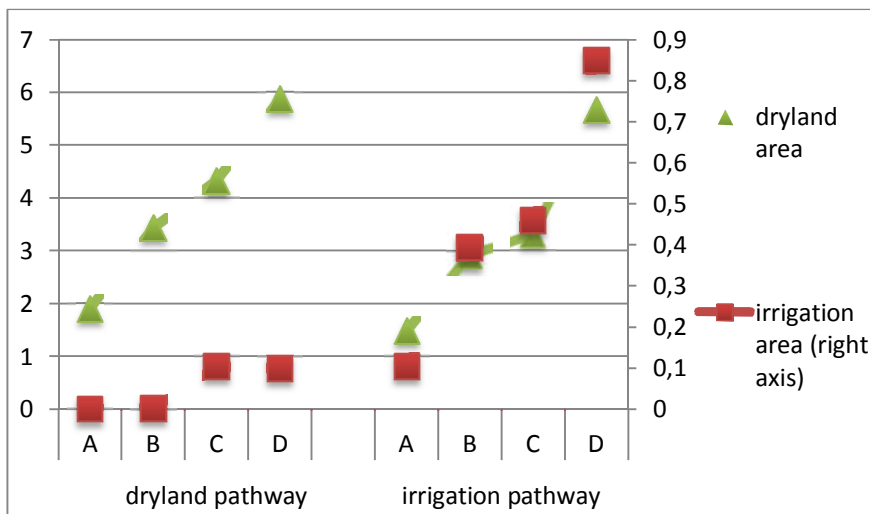
Finally, access to (irrigated) land was strongly associated with socio-economic position of households. The different socio-economic strata in the *dryland* pathway had on average the same landholdings as those in the *irrigation* pathway, but the latter group had on average a 10-15% share of their landholdings under irrigation (figure 8.8). Differentiation within communities in access to land largely explains variation in household resources, as well as differences in the use of external labour, levels of mechanization and sales. Although the poorest households (income groups A and B in figure 8.8) in the dryland communities had 20-40% greater production levels per household than the poorest households in the irrigation communities, the latter group managed to sell about two to three times more in product value. For the higher strata (C-D in figure 8.8), the richest households in dryland communities had almost double the production volume, but managed only to sell 5-20% more in value terms than the wealthier households in irrigation communities. This suggests that while access to irrigation may not reduce inequalities, it at least appears to guarantee the poorest households a minimum monetary income from sales.

Figure 8.7
Time spent on different crops in La Abra, 1996



Source: PIED studies, own elaboration. Note: Average days for eight families per community.

Figure 8.8
Land access in dryland and irrigation pathway communities for different socio-economic strata, 2011



Source: PIED studies, own elaboration. Note: A=poorest, D=richest (14 communities, 112 hh).

Differentiation within the irrigation pathway

Although the *irrigation* pathway did much better than the *dryland* pathway, the group nevertheless shows substantial internal differentiation, both between *decline* and *growth* communities and also between communities with different irrigation systems (see sub-classification in table 8.2). Compared to production levels of 1996 the communities in the *marginal decline* group (Quila Quila and

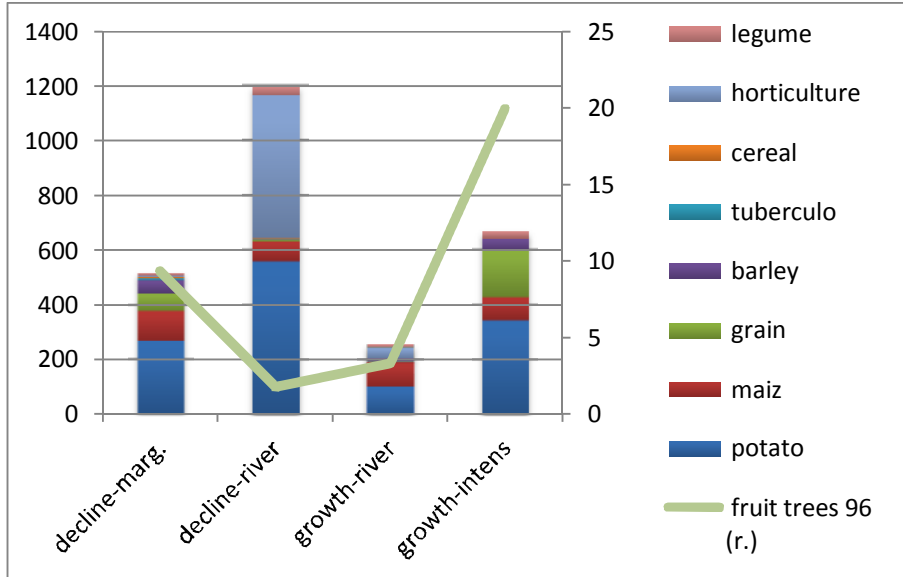
Sundur Wasi) and the *growth riverside* group (Wasa Ñucchu) stabilized their production levels overall, while increasing their *per capita* production.

The communities in the *decline riverside* group²⁰ had the highest production levels in 1996 but experienced a drop in agricultural production, although this was partly compensated by increased fruit production. The decline affected, in particular, Tuero Chico, probably due to increasing contamination of crops produced along the Pilcomayo river. Finally, the *growth intensification* group almost doubled production²¹ in *per capita* terms.

When we review the pathways in more detail, further differences are notable. The upgrading of small-scale gravity irrigation systems in the *marginal decline* pathway at least guaranteed the start of the planting season and the ability to establish small horticultural plots and to plant some fruit trees, complementing the main staple crops, such as maize and potatoes. The main problem with these systems was their limited coverage, as they were accessible to only a segment of the population. Although these systems were remarkably sustainable – only about one out of four was out of operation after the first decade – their total added value in terms of productive accumulation at the community level was limited. The more intensive systems with wider coverage in the *decline riverside* communities faced problems related to water contamination (Tuero Chico and Rio Chico), differentiated internal access (La Abra) and recurrent flooding and destruction of infrastructure. The recurrence of *riadas* (flooding) also led to higher levels of conflict between communities, in particular in the Rio Chico valley, as new land reclamation activities by groups of households sometimes affected river currents, causing damage to landholdings elsewhere (see chapter six). Contamination of irrigation waters in some cases complicated the marketing of agricultural produce and affected the health of populations. The *growth* pathway showed a considerable increase in production, owing both to the consolidation of the system in Wasa Ñucchu and the extension and intensification of irrigation in Escana and La Cañada (figures 8.9 and 8.10). Just as in the dryland communities, livestock holdings declined across the board, but only minimally in the *marginal decline* group, which are the communities with limited irrigation and relatively large land areas.

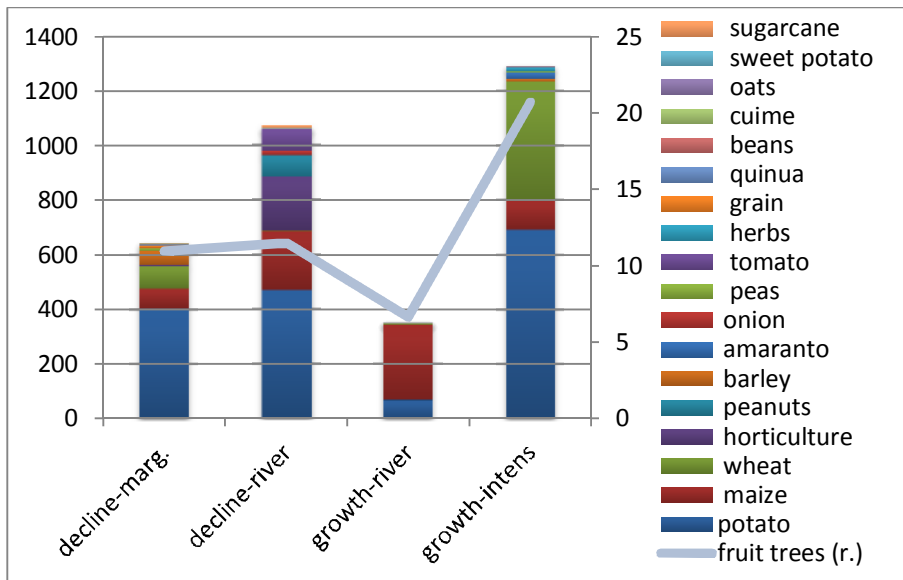
Overall, irrigation increased the differences between agro-ecological zones. In valley communities with more irrigation potential it led to a combination of both diversification and specialization in a number of crops, like horticulture, flowers, fruits and *miskeba potato*. Irrigation allowed a shortening of the production cycle, enabled introduction of more crops, diminished the risk of production losses and also led to a more labour-intensive agricultural calendar, which in principle might have reduced the need for temporary migration. Intensified irrigation, however, turned out to be no guarantee for holding farmers in their community, especially those with limited access to land. Furthermore, depending on the system in use, irrigation infrastructure oftentimes attenuated internal differentiation, especially as it was often accessible to only a limited segment of the community.

Figure 8.9
Per capita production levels (kg), 1996



Source: PIED studies. Note: References for fruit (line/right axis) in the graph relate only to numbers of trees, as a proxy for production levels (detailed analysis of figures for 1996 showed a clear link between numbers of trees, production and sales).

Figure 8.10
Per capita production levels (kg), 2011



Source: PIED studies. Note: References for fruit (line/right axis) in the graph only relate to numbers of trees, as a proxy for production levels (see also note to figure 8.9).

The *growth* pathway communities showed the largest increase in household resources after 1996. If we consider the household resource envelope in more detail, it becomes evident that changes in the value of land under irrigation, as well as in the accumulated stock of fruit trees,²² substantially contributed to differences in resource accumulation. As mentioned in chapter six, land under irrigation is increasingly subject to market mechanisms. Irrigated land may be worth 10-50 times more than dryland agricultural areas, further complicating access for poorer farmers. For these producers, access to land is increasingly obtained via alternative mechanisms (e.g., rent, *anticrético*, *medianía* or *al partir*).

In the long term, irrigation has consequences not only for production levels and crop security, but also for the use of external inputs, new seed varieties, fertilizer and pesticides, as well as innovations or changes in post-harvest activities, including storage and commercialization. The use of traditional varieties and organic fertilizer gradually declined, also as a consequence of declining livestock holdings. The more intensive agricultural calendar often required involvement of entire families and hiring of additional labour in peak periods. The increase in the number of harvests, and expanded possibilities to influence the timing of specific harvests, allowed farmers to fine-tune their crop portfolios to take advantage of better market opportunities.

In the communities with more intensive irrigation schemes (Escana and La Cañada), farmers sometimes required technical assistance or used credit facilities to maximize production opportunities. In 1996, the *growth* pathway communities sold on average almost 30% of their production, compared to only 17% for the *decline* pathway communities. In 2011, both groups had considerably raised the share they sold, to 58% and 53% of total production, respectively, still excluding fruit production.²³ As we will see later, higher levels of intensification and market integration also had consequences for existing patterns of informal exchange, especially as the greater use of external inputs increased market dependence and exerted upward pressure on the price of labour and equipment.

Before reviewing in more detail the impact on and influence of the community organization, routines and practices and differences in external involvement, the next section elaborates in more detail the multiple difficulties that one community had to overcome to establish a reasonably effective irrigation system.

8.4 Expectations and disillusion in Escana

Awaiting the marvels of drip irrigation

The most remarkable and by far most expensive irrigation project among the 14 communities studied was implemented in Escana and two neighbouring communities. Following the improvement of the still rudimentary canals in the years after the drought, and without many expectations, Escana leaders in 1987 visited the regional government with a demand for further extension of their irrigation system. They were visited in turn by the regional government a year later. The mission indicated that it would verify the suitability of the steep and rocky mountain area above the community for construction of a dam.

After a quick survey of the population and circumstances in the valley a mission report estimated that the project might cover some 500 ha. The proposed project was intended to transform Escana into an important rural production centre for dairy products and fruits and vegetables. The innovative part, at least for the region, was the introduction of drip irrigation, with the intention of covering some 300 ha and focusing on the production of alfalfa and dairy products

for residents of Sucre. The project would include large-scale reforestation of the area surrounding the water reservoir, as well as fruit trees and other cash crops. Building the dam required more detailed feasibility studies, and the work was finally tendered to a French company. The project started finally in 1991, with an original budget of US \$1.6 million and the certainly over-ambitious²⁴ expected rate of return of 32%.

When we initiated our first survey in 1995, the project had already suffered many delays. While progress had been made in construction of the dam and in building the main lateral channels, heavy rainfall and a resulting *riada* (flood) had severely damaged the *intake* and connection with the main lateral channel. Meanwhile, the project had established a small but very visible project village, with a dozen bungalows and additional meeting and storage rooms. The area around this place, commonly called *Escana City*, had been set up as the forestry incubation centre. With the ongoing delays and constant changes in the promises made by the project, the communities involved expressed their discontent with project executives. The communities uphill did so because they felt they were not to benefit sufficiently compared to those in the valley; those in the valley complained that the project was not really offering an effective solution to ongoing problems. Community members also had difficulty understanding the possible consequences of the project, partly due to their limited involvement in its design and implementation. While the sheer size of the project had raised expectations, it also caused unrest.²⁵ Project manager Palenque told the press in 1996 that once the project was finished, larger agricultural businesses might want to acquire land from the farmers in Escana. He indicated, "We can't do anything about that, but we trust that farmers will retain what they have" (*El Correo*, 17 October 1996).

The main issues bothering the community were uncertainty regarding the system of drip irrigation, the possible implications for their production system and their access to land under irrigation. They wondered how such changes would be organized and how overall maintenance of the system would be ensured, including the dam itself. The project acknowledged these concerns, but communication was difficult. In a meeting between the project and the communities involved in 1996, the project coordinator stated the following:

You [the members of the communities] ask us to fulfil, but you want everything as a gift. That cannot be the case. You need to do your part [in labour] because it is already nice enough that everything is a gift. You talk about bad institutions operating in the project area that do not meet their promises. I would like you to tell me if the project has not met them. I think it has done more than it offered. That everything comes to you, and that we do all the work, forget that. You have to do your part if you want to benefit. You are very good at criticizing, telling us that we do this or that, but you never realize the sacrifice of the personnel working in the project, from other institutions and leaders who do something for the community and I'll tell you why: *the people living in the city have many luxuries that they leave behind to come to the field...* Yet, you criticize everyone, but when we are present you never tell us to our face that this is right or wrong, you remain silent, only when we have left do you start talking. That's the truth (*emphasis* by author).

The image of 'suffering' technical experts, who had to spend part of their time in the field in the bungalow park of *Escana City* certainly did not increase the level of compassion among *comunarios*. The project arranged all labour activities by charging the leader of the *subcentralia* (involving six communities in the valley) to organize labour efforts in the project area:

Because I need you to start working now. We need to collect materials, which is not much..., it is a matter of organization and starting to work, to accumulate stones, gravel and to load the trucks, that's all it takes.... I will request Julian, your *subcentralia* leader, to help me, to monitor the days of labour, also as chairman of the committee, I am going to ask him to check these 11 days [to build the bridge] and he also will ensure that you fulfil the work. Escana now has 120 people who can work. San Jose de Molle has 60, they also have to participate, then the total would be 180, for the 10 days 18 people would need to work per day, it's just one day per person (project coordinator Escana, 1996).

The distribution of paid labour implied that members of communities that would not gain access to irrigation were nonetheless involved in some of the construction works, though such efforts were traditionally associated with the acquisition of 'water rights'. Overall the organization of the project used a classic *top-down* approach, trying to balance benefits and (labour) involvement between the different communities. This didn't work out well:

Escana and Saucepampa are benefiting from irrigation, but those of San Jose de Molles do not. They are right to make this claim, and to some extent and in certain areas they have supported more than others while they will receive less. Unfortunately that happens due to the geographical differences, but in contrast some of those living uphill will benefit more from irrigation, so they should contribute more. However it's up to the leaders to talk to these areas and see the response of these communities. I have told you already that you want everything for free. I would have to say the same to those uphill, a clear example are those from Quirahuani. They have not contributed in any way, while we have supported them with a road, technical assistance, energy connections, but, as it happens, they have been threatening to block the road for the electricity connection. Others, like those of Concepcion, have never been in the project area, however, they also received a lot of support, and I have told them that they have no reason to speak up, because without being in the project area, they are benefiting from many things. The same story for San Juan, they were also threatening to block the road (project coordinator Escana, 1996).

Tensions between communities were in fact exacerbated by the project. Escana had always been the dominant community,²⁶ representing the other communities in the irrigation committee. In 1996, Escana presented a claim to the regional government and justice authorities, claiming that the project had been mismanaged. The claim as such was remarkable, because many community members were dependent on the project for part of their income.

From the community's perspective, questions continued regarding the operation of the system.²⁷ Concerns focused on the durability of the dam, considering the problems observed at the *intake*, the possibility of rapid sedimentation and leakage in the water reservoir, and the risk that sediment could ruin the drip irrigation systems. They feared that the main canals would again be affected if a new flood or stone avalanche affected the *intake*. From their point of view, the design and implementation of the canal had been like following a 'blind road' (straight down the hillside), without taking risks into account. The technical design of the system meant that constant monitoring was required of water in the main canals and of the operation of the broader system. In this regard, community members raised questions regarding the management of the irrigation system, the organization at the level of *islotes*,²⁸ and the kinds of crops that could be planted.

Overall they were conscious of their own inability to contribute effectively in discussions,²⁹ principally due to their lack of knowledge and experience with drip irrigation. *Comunarios* had lit-

the alternative than to 'trust' the technicians, but felt that explanations were overly technical, for example, in the application of drip irrigation in maize on a demonstration plot. Again, the project had no clear communication strategy or way to systematically involve participants in planning and design.

Looking back, the fears expressed by the community proved to be correct. Project implementation continued to muddle through. As relations remained conflictive, the communities involved decided in 2000 to expel the entire 'Escana project'. Between 2000 and 2004 little was done. Infrastructure deteriorated and a subsequent request for external support was denied due to the *white elephant* image that Escana had obtained in the meantime, according to a community leader interviewed in 2013. In 2004, a group of young farmers – the next generation from those with whom the project had started – took over leadership in the community. They finally managed to get approval for a PIEN-*riego* (small innovative irrigation project) under the *Sistema Boliviano de Tecnología Agropecuaria* (SIBTA) programme, supported by the Ministry of Agriculture. The programme facilitated some technical assistance and elaboration of a more detailed plan for concluding the connections between the 64 main *islotes* and the households connected to each, to enable connections at the level of sprinkler systems (*hidrantes*), with which individual households could start with drip irrigation. With support from the PIEN programme, the community also organized on 6 October 2006 a regional *feria de riego* ('irrigation event'), inviting more than 60 institutions, including private-sector companies and more than 150 communities. The success of the *feria* finally restored Escana's status and enabled it to start new negotiations.

The community decided to sell the few remaining capital goods from the Escana project and use US \$20,000 – around 50% of the amount raised – as their 'counterpart' contribution in their lobby for further support to complete the project. With a first supplementary contribution of US \$44,000 from Proagro, they convinced the municipality to contribute another \$20,000, finally prompting the regional government to provide the remaining \$80,000. Even with these contributions it still took another four years for the project to start implementation, in late 2008, and still on a very modest scale. When I visited Escana early 2008, the whole forestry component had been left abandoned, and sprinkler systems were operational in only about a third of the originally planned area. The project had not reached its original targets in 2010 either. Instead of full-scale dairy production, the emphasis had been placed on *oregano*, a cash crop not mentioned in the original project documents. The main livestock programme and dairy component were never implemented. Total project costs reached approximately US \$8 million, corresponding to around US \$30,000 per hectare.

What were the implications of the project in terms of pathway development in Escana? Some 15 years earlier, we identified two main production strategies. The first was oriented towards production and marketing of fruit, complemented by agricultural production (often using local hired labour), and for some families including work in the project. The second strategy was oriented more towards agriculture, working for others and, to a lesser extent, selling own production. In both cases frequent migration was common practice.

Today the differences are more significant. There is a group of families (approximately 20%) with limited or no access to irrigation. Although some of them still live in Escana, most migrate temporarily or almost continuously to Sucre, Argentina and recently also to Spain. Many return only for major festivities. A second and perhaps the largest group of families has access to 1.5-3 ha of irrigated land, with production oriented predominantly towards the market. They are able to hire labour in peak periods and continue to produce small quantities of fruit and horticulture.

Most live in Escana; some have returned from prolonged migration. The third and final group has access to more than 3 ha under irrigation, with production strongly focused on oregano. These families often hire labour, from within the community and from neighbouring communities. They reside in Sucre most of the time and see production in Escana as a complementary activity. They have means to invest in new technologies, and some have modern housing. Those in this group are considered to be ‘residents’. They participate to varying extents in community activities. As the community requires contributions to all kinds of activities and events, those in this group often elect to pay fines and remain absent, or they might hire labour to fulfil their duties. Or they accumulate ‘community obligations’, which they then fulfil during short periods in the community.

When we look at the role of external projects and interventions, besides the Escana project four main institutions have been involved in recent years. UNEC (a farmer association) has supported production and commercialization of oregano at the farm gate (buying directly from the community). Two NGOs, Proagro and Pasos, have supported the production of fruit, *tuberculos* and tomatoes. In 2010, around 35 producers in Escana became involved in oregano production. Production increased rapidly, as with a relatively small investment (approximately 10% of the total harvest value) three or four harvests could be obtained annually with a relatively secure market and limited labour demand. Every harvest produces some 1,000 kg/ha. At a price of about Bs 9/kg (in 2010), an annual income of roughly US \$5,000 could be obtained. For many families these incomes were complemented by sales of other products, such as peaches, figs, maize and horticulture outputs. The irrigation association, *Asociación de Regantes del Valle de Escana (ARVE)* developed into an important regional organization and member of the national irrigation association.

Irrigation in Escana worked as an important driver of transformation at various stages, but at a very high cost, not only financially, but also in terms of trust, organizational cohesion and time invested. The community ended up with relatively large-scale commercial farming. Many families even manage their farms from Sucre. Yet, even with its substantially improved economic prospects, Escana remains – at least in weekends – a ghost town or ‘*pueblo fantasma*’ (Dulon 2008), abandoned by its youth and wealthier families.

8.5 Internal and external responses to pathway differentiation

This section discusses forms of internal and external agency found in Escana and other communities and for each of the main systems.

Irrigation histories and pathway differentiation

As we have seen, some irrigation efforts have long-term historical roots. Irrigation infrastructure in Quila Quila probably dates back to the Inca period, while irrigation in Wasa Ñucchu dates back to colonial times. A range of communities inherited their systems – though usually only partial ones – from the hacienda. In Wasa Ñucchu, most community members gained access to land under irrigation only in the late 1980s, when they were able to buy plots from the former hacienda owner. Both in Quila Quila and in La Abra, relatives of former landlords still maintain access to irrigated land. With the transfer of irrigated land, community members often had to restore or rehabilitate irrigation infrastructure and redefine access rights.

Over the past decades, practically all communities realized minor or major efforts to establish or extend access to irrigation. Community members often worked together in groups to maintain, extend or improve existing small-scale structures. For systems built in more recent years, initiatives have come from both within the community as well as external organizations. The drought of 1982-1983 triggered external support for irrigation. Six or seven smaller systems were established shortly after the drought, enabling communities to guarantee at least the start of the agricultural cycle in case of late or irregular rainfall. Overall, the *irrigation* pathway appears to have been less affected by recurrent droughts, though Quila Quila and Sundur Wasi certainly suffered during the drought of 1997-1998 (Morales 2001), while in La Cañada the drought increased the community's urgency to diversify its water resources.

An overview of external interventions (appendix 8.1) and analysis of different irrigation systems (appendix 8.2) point to substantial differences in community involvement and external support. Initial efforts in response to the drought typically built upon existing rudimentary infrastructure. But irrigation approaches quickly evolved, induced also by secondary motives.³⁰ The massive land reclamation efforts and building of irrigation infrastructure in the Rio Chico valley had the important additional objective of providing horticultural products to urban residents. Similarly, the huge investments in the valley of Escana were oriented mainly towards provision of dairy, fruit and horticulture products for Sucre.

Due to the spread of new irrigation modalities and technologies (like boreholes and *atajados*) and the often latent potential for smaller or larger dams, irrigation has remained on the agenda of almost every community organization. Such demands increased further when municipal mandates were extended to systems for less than 100 ha. Municipalities appeared increasingly eager to respond to such requests, although often with limited project budgets. For some communities, gaining or extending access to irrigation became an almost permanent struggle.³¹ Notable differences in irrigation systems relate to the share of household participation and external contributions. Some communities would never have embarked upon current irrigation systems without external support, while others would have carried out the improvements anyway, although the external intervention probably did make a difference (e.g., in improving water efficiency). Boxes 8.1 and 8.2 discuss experiences in community participation in building and defining initial access rights for the different systems in the *irrigation decline* pathway communities. The *growth* pathway experience was already discussed in relation to the case of Escana, in section 8.4. That of La Cañada, also a *growth* pathway community, is presented in box 8.4. Table 8.3 summarizes irrigation history, community participation and system development for the main pathways.

Box 8.1 Small-scale gravity systems in marginal/decline pathway communities

Common elements in all systems were initial interactions with the emergency relief programme (PCHN), the discussions regarding design, difficulties in motivating all stakeholders to do their share in construction, and subsequent (re-)negotiation of water rights once the system was established. Although in most cases implementation was relatively smooth, for several canals there were recurrent problems and conflicts between participants afterwards. The principal reason has been *free-riding* behaviour of community members who did not do their share in construction, but later claimed access to irrigation water for plots. A second reason has been the absence of clear rules and sometimes of a relevant supervisory authority. A third reason, principally in Quila Qui-

la, relates to the limited operability of parts of the irrigation system. While one system remained inadequate, a second one became practically useless due to high levels of salinization. Community members indicated these problems to the organization (FSE) supporting the works, but for fear of losing the whole programme they continued to invest time and effort in constructing the system. Community members from Purunquilla (a downstream community, part of the extended *ayllu* of Quila Quila) hardly benefited at all, due to an unfinished distribution system between the communities. They also remained uncompensated for their work, which led to resentment among the different communities and participants involved. As one of them indicated during a workshop, “Eighty to 120 days, down the drain!”

For Quila Quila, little changed after 1996. The persisting conflict (see chapter six) undermined all of the multiple efforts to further extend and upgrade the existing systems. Introduction of the *Land Law* led community members to claim ‘abandoned’ irrigated lands of family members of one of the area’s former landlords, and to the subsequent return of this family. Their ‘return’, as they claimed to have never abandoned the land, led to a simmering dispute with a few *comunarios*.*

*The returning family clearly did not need the agricultural production to survive. I was astonished to learn that the woman, living in a very simple dwelling and starting with practically nothing, had built up a transport company and earned a small fortune in less than four months by bringing truckloads of produce from Santa Cruz to northern Argentina. She said she wanted to live in the community because she had grown up in the area and had become attached to the surroundings. She even sympathized with the *ayllu* groupings claiming collective titles, which could obviously also affect her own property.

Box 8.2 Small-scale riverside systems in riverside/decline pathway communities

Irrigation systems have been developed in a rather differentiated manner among the riverside communities. In La Abra, *comunarios* inherited a system from the former hacienda owner (in a very defined space of about 25 ha), but most households had to wait some four decades before they were able to acquire land from the former landlord.

In Tuero Chico, bordering the Pilcomayo river, several organizations were involved in a series of phases. Initial efforts in land reclamation and improvement of canal infrastructure were realized with the support of Caritas. These efforts remained inadequate, however, and the community sought support elsewhere, which they eventually obtained from Plan International and the municipality. Practically all families benefited from the combination of new infrastructure and the extension of land along the riverside. Remaining problems were high water levels and soil contamination, due to intensive mining operations upstream. Furthermore, several natural disasters occurred, destroying infrastructure for irrigation and community services.

Finally, the transition made by the inhabitants from the highlands of Ovejerias Alto to eight different valley communities implied a complete switch to very intensive small-scale irrigation requiring considerable external inputs and a change in crops and market orientation.

Table 8.3
Irrigation histories, participation and organizational set-up

Pathway/ Characteristics	Marginal decline pathway	Riverside decline/ riverside growth (*)	Growth/ Intensification (Escana)	Growth/ Intensification (La Cañada/RP)
Communities (years of construction)	Quila Quila (1988), Sundur Wasi (1983- 1988)	La Abra (1988, 2003), Tuero (1995, 2011), Rio Chico (1991- 2000) Wasa Ñucchu (1990, 1995, 2006, 2009)	Over the 20 years since 1990 with mul- tiple interventions prior to 2010	After 1996, before that time only unimproved wells
Systems	Small gravity systems	Small-scale river-fed / continuous irriga- tion	Large scale dam and sprinkler	Large and small-scale individual and collec- tive
Share of house- holds involved	20-50%	60-90%	>90%	+/- 70%
Labour contribu- tions (hh)	Sundur Wasi 40-120 days Quila Quila 30-70 days	5-20 (but far more for Rio Chico, due to building of <i>gabions</i>)	>100 (often paid or partially compen- sated)	30-250 days
Average irrigated area (per hh)	0.5-1 ha	0.3-1 ha	>1 ha	0.8-3.5 ha US \$500-1,500/ house- hold system
Estimated cost of system	US \$5,000-15,000 /system, (1-4 per community)	US \$20-200,000 per system	US \$8 million	>US \$70,000 for dam construction / 13 fami- lies
Organizational set-up	Small irrigation groups, self- supervised by water judge	Permanent water and free use in Ñucchu to more regulated in Abra and Tuero	Irrigation association of the valley of Es- cana	Mostly individual, but with a small (disputed) organization for gravity irrigation
Part of broader package?	No, participants received food com- pensation	Only in Rio Chico (incl. fruit produc- tion, some technical assistance and cred- it)	Yes, although pack- age completely changed over time	Yes, also technical assistance

Source: Community surveys, own elaboration. Note: *Only Wasa Ñucchu.

Changes in organizational structures, access rights and participation

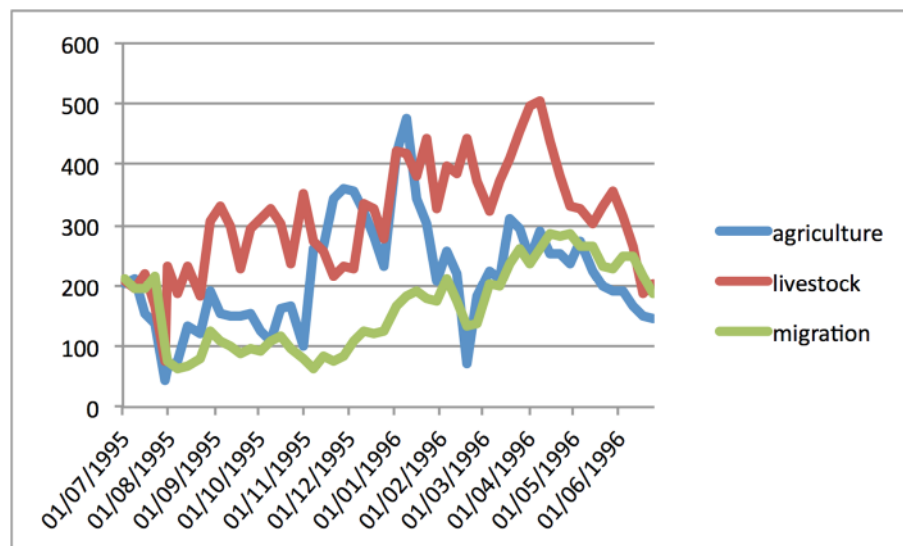
Agrawal and Gibson (1999) highlight the importance of analysing the “multiple actors with multiple interests that make up communities, the processes through which these actors interrelate, and, especially, the institutional arrangements that structure their interactions”. Divergent irrigation histories indeed led to substantial differences in organizational structures and access rights. The *sindicato* or *ayllu* authorities often assumed responsibility for the external negotiation of irrigation projects and for the resolution of conflicts related to irrigation practices. Traditionally direct control of water rights has been delegated to a *juez de aguas*, or in some cases the *alcalde*. The community embeddedness of these functions may be linked to rituals or annual festivities.

For communities with larger irrigation systems, parallel user organizations were sometimes established that did not coincide with the level of the *sindicato* and in some cases involved members of different communities or even *subcentralias*, generally with rotation of fulfilment of the main positions. These irrigation organizations were typically established as committees, associa-

tions or through the nomination of a few individual authorities to execute the overall management of the system, identifying appropriate use and dealing with issues of robbery or *free riding*. Today, only the more extended systems in Escana and La Abra maintain a separate irrigation association with formalized statutes and leadership.³² In the majority of the communities under study, irrigation systems were managed by smaller user groups or by community authorities.

Like in dryland areas, agricultural calendars in communities with irrigation were organized around a series of festivities. Figure 8.11 presents a cumulative activity calendar based on findings from six irrigation communities. Key periods were the return of migrants and start of agricultural activities at the end of July, around *Todos Santos* (All Souls Day, 1 November) and again after Carnival (February). On these occasions, communities celebrated and paid tribute to the *pachamama*. Many communities also practised *ch'alla* or *qoada* (payment to *Mother Earth*) or the branding of livestock on 1 August. In July-August, communities with more intensive irrigation did early sowing (*siembra misk'a*). After *Todos Santos*, the main crops were planted, followed by still relatively low temporary migration rates. For Carnival, migrants returned to the communities and households realized another ritual celebration or the branding of cattle, often celebrating the rotation of authorities like the *alcalde*. *Pasantes* were responsible for the organization of festivities, preparation of food and exchange of alcohol. After Carnival some communities started preparing for the *postrera* (a third planting in March and April), for which producers could obtain better market prices. Figure 8.11 clearly shows the higher level of temporary migration – mostly by men – after Carnival, ending somewhere in mid-July, reflecting that the *postrera* is less labour intensive than the main harvest, and more often left to women, sometimes with some external assistance.

Figure 8.11
Cumulative agricultural calendar of six irrigation communities, July 1995 through June 1996



Source: PIED studies, own elaboration. Note: Eight households per community were surveyed.

The scale of these festivities has declined over time. In Quila Quila, this may be explained by the disruption of a number of the smaller irrigation systems due to salinization, destruction by

riadas and lack of maintenance, but the ongoing internal conflict has certainly also contributed. In other communities, increasing outmigration has affected the intensity of festivities.

The definition of access rights and principles for water distribution are important to guarantee satisfactory operations and prevent recurrent conflict. Independent of irrigation modalities, distribution of water between households, plots or different crops, required considerable deliberation and interaction. Participation in irrigation groups or committees was generally limited to those with current access. For more complex systems (such as drip irrigation) and the *ex post* entry of participants (new families), irrigation committees had to establish more detailed rules and regulations, which in some communities were formalized in written *statutes*. The definition of rights varied between communities and systems, but also changed over time, both as a consequence of changes in water availability, due to shifts in cropping patterns and as a result of migration and changes in household participation. According to Boelens (2008), water rights are often based on principles of equity, but these concepts may differ between communities or different cultural groups.

Water rights were often awarded in relation to labour participation in construction of the system, land ownership in the area under irrigation and contributions to operations and maintenance. In some cases, they also depended on individual plot size, location, water availability, time schedules, household composition, crop needs and even historical rights. Systems characterized by scarcity and uncertainty regarding supply required different rules than those with relatively abundant supply (see chapter six). Intensification of irrigation had consequences for existing access rights.³³ While intensive irrigation generally implied a more intensive agricultural calendar, reducing the attractiveness of prolonged temporary migration, a demanding calendar also put more stress on some community organizations, further reducing the willingness of both permanent and temporary (or dual) residents to remain actively engaged in community actions. There was a clear need for transparent rules for water distribution, as uncertainty could stimulate inappropriate use, therefore also generating conflicts. This was all the more important when newcomers came in who had not delivered their share but did have potential access to land under irrigation. For communities with high levels of migration and absenteeism (in meetings and collective labour efforts) this was a reoccurring and difficult issue.

An extreme example of uncompensated labour efforts was the building of a medium-sized dam in La Cañada. The company that won the tender issued by the *Evo Cumple* programme obtained the licence in *obra vendida* (implying complete delivery). Community members, nevertheless, were asked to participate in construction to lower costs and ‘guarantee’ their rights. Preparing and operating the system required substantial amounts of labour from community members. Many of them failed to complete their share and subsequently lost their benefits. In the end, only 13 of the 30 families originally participating were able to access irrigation water, as they had fulfilled their 250 days in building the system. The others, working anywhere between 25 to 150 days, remained without compensation, resulting in a conflict that was still unresolved at our last visits to the community.³⁴ The system of *obra vendida* often lacks clarification on the role of the implementing constructor and the share and implications of community participation in the concerned public works.

Most of the smaller systems, nonetheless, were relatively simple and straightforward in their definition of access rights. Nonetheless, these too were sometimes faced with ‘irregular’ claims. Irrigation in Quila Quila was mainly used for the exploitation of small *orchards* close to the river or on any of the community’s rehabilitated terraces. After implementation of the three main sys-

tems, water shifts were defined in accordance with labour participation in construction and managed through a list elaborated by the *sindicato*. Initially, a committee had been established to monitor the shifts, but its responsibilities were taken over by the *secretario general*. As not everybody was convinced of the potential benefits of the system, some families did not contribute their full share, and indeed a small group remained without access. Problems began when those who did not contribute their full share nonetheless claimed access to water resources. According to community members such problems continued at least until 1996, as even the responsible authorities had given up their job of monitoring the system of shifts.

In Escana, a few community members declined to participate during construction, arguing that they would not be able to benefit from irrigation due to the relatively high altitude of their plots. Others had been able to purchase land close to the riverside and would therefore benefit relatively more from the construction and improvement of the irrigation canals. After construction of the system, access rights were 'confirmed' in a written community act. Limited water supply, however, obliged families to take all possible shifts, day or night, as missing a turn could not be compensated. Although those with larger land areas spent more days in construction, due to water scarcity they were allowed to irrigate only one of their plots. Community members later recognized this as a major mistake in the planning phase and a cause for recurrent conflict. Initially, there was a mediator (*juez de agua*), but this person migrated to Santa Cruz in 1994, leaving the system without supervision and causing a lot of internal problems. His responsibilities were finally assumed by an irrigation committee which managed the cleaning of the *canals*, the rotation of shifts and sanctions against those taking turns outside the established schedule. After destruction of one of the main canals by a severe *riada*, however, participants were reluctant to embark upon major repair efforts.

As most small systems were implemented in rather short timeframes, limited effort was made to involve users in design and establish adequate mechanisms for operations and maintenance and the supervision of equitable shifts. Initial miscalculations in water rights allocations and other factors led to occasional *free-rider* behaviour or a dominant position of some families. In addition, unequal access to land under irrigation and huge variations in water availability throughout the year and in different areas within a community have caused frequent conflicts regarding the use of water and application of shifts. Most conflicts between neighbours were resolved easily by local authorities through mediation, or occasionally by applying fines. Nonetheless, in a number of communities control mechanisms have not been fully adequate or operational, due to the absence of supervisory authorities or a persistent unwillingness to cooperate. In Escana, Quila Quila and La Abra, inequalities in access and ongoing internal or external conflict have delayed or constrained efforts to extend and upgrade irrigation infrastructure. The case of La Abra illustrates this (box 8.3).

Box 8.3 The irrigation statutes of La Abra

La Abra has gone quite far in formalizing water rights, including even adoption of formal statutes. Although this community had by far the largest area under irrigation in 1996, it continued to face internal struggles with the family of the former *landlord*, who still lived in the midst of the community in the old hacienda building. This landlord owned around 13 ha of the best and most accessible lands under irrigation. Although the family has now been incorporated in the *sindicato* structure (even assuming the function of secretary general!), its dominant position regarding the

definition of access to irrigation water still complicated and certainly delayed the decision-making process associated with upgrading the existing infrastructure.

Only 70% of the community benefits from irrigation on a regular basis. The remaining 30% benefits either partially or not at all. Those with partial benefits don't have access to the improved part of the irrigation channel, only having access to small *canals* that do not guarantee continued and sufficient water provision. Those families have been pressing for adjustments, but their requests have not been taken forward by community leaders. According to several community members, the main reason for the lack of responsiveness was the dominant position of the former landlord.

Once the financing of the upgrading of the system had been negotiated with the municipality, the company that was awarded the work met with the community in 2003 to discuss how the project would be completed, even formalizing agreements about future community participation. Even *before* finalizing the project and the overall infrastructure, a new agreement (*reglamento*) was elaborated, defining rights and rules for access to the system. This 29-page document built on a standard outline according to the guidelines of the *National Irrigation Plan/PRONAR*. It defined the rules and regulations of the irrigation association of La Abra and included a definition of obligations and rights of those with access to irrigation.³⁵ The distribution of water was to be realized at crossings, according to the percentage of the respective land areas in each section of the community. In principle, there would be no other system of shifts for the use of irrigation water, but free use for each of the different zones, only giving preference to those preparing their land for planting. The document very much confirmed the *status quo* by protecting the (predominant) access rights of the larger landowners. They could easily pay day labourers to provide their share of collective labours for maintenance and operations, and also pay the required minimal fee per hectare.

Supra-communal organizations

In addition to the local associations and user groups, several *supra-communal* organizations (involving a range of communities) were established to deal with irrigation and related issues. This was the case for Escana (with an irrigation association covering the three communities under the Escana project) and in La Cañada/Redención Pampa (in the form of farmer associations, which however were mainly oriented towards collective marketing), while Tuero Chico participated in a riverside organization to deal with contamination from the Pilcomayo river.

In the Rio Chico valley, following guidelines of the *National Watershed Programme* (PNC), a 'watershed management organization' was established covering approximately 22 valley communities. The government (the ministry, prefecture and municipalities involved) and other actors put considerable effort into realizing a *master plan for integrated water resource management*, involving the relevant actors in river management. Apart from the master plan (which delineates where new land reclamation is still possible or no longer allowed), main activities have been protective measures related to the constant fixing or rebuilding of river dams and capacity building for the riverside organization. So far the results have been limited, especially in terms of organizational strengthening. A main difficulty has been to create a sense of cohesion and common responsibility among all communities in the Rio Chico area, probably also due to their heterogeneous cultural backgrounds.³⁶ Over the past decade several new farmer groupings emerged (in many cases, descending from the hillside or coming from other communities along the river), making efforts

(with or without institutional support) to reclaim land alongside the river, mainly by building small *gabions* (dikes). Newly acquired land on one side of the river, however, has often had detrimental consequences for earlier established communities on the other side or further downstream, resulting in severe losses of land. In 2011, efforts to establish a new organization for water management among the communities of Rio Chico stalled, as the appointed *dirigente* migrated and nobody appeared willing to take over the job.

These examples indicate that even with relatively similar irrigation systems, final outcomes in organization, maintenance and access rights, as well as in terms of benefits, may vary widely between communities. While irrigation almost everywhere allows for more secure production and greater output, Wasa Ñucchu faced worsening land constraint, Tuero Chico faced severe problems of contamination, La Abra suffered under persisting inequalities in power and access, and Ovejerias/Rio Chico experienced frequent flooding and *riadas*. Furthermore, there have been multiple difficulties in establishing an effective supra-communal organizations for the river valley communities. In addition to these difficulties, irrigation has led to a range of other changes in productive practices, as discussed below.

Changes in productive practices

Changes in agricultural routines as a consequence of irrigation are a key factor in pathway differentiation. Although individually these changes may have only limited impact, together they can have important implications for community organizations, for productive practices and for related institutions. The table in appendix 7.2 presents an overview of constraints and changes in organizational and productive practices for each of the main pathways. Irrigation generally provokes more intensive use of soils, more frequent harvests, greater labour demands, increased diversity of marketable crops, substantial increases in external inputs (e.g., improved seeds, fertilizer and pesticides), less use of local seed varieties and manure/*estiércol*, more mechanization and innovations in post-harvest work (e.g., in selection, storage and packing). Additional labour requirements often imply full-time family involvement and even the hiring of additional labour, leaving less time for prolonged temporary migration and for community activities (like maintenance). Greater numbers of harvests and the possibility to shift planting and harvest times allows producers to take advantage of better market opportunities for a variety of crops. Yet, new crops generally require some technical assistance and in some cases new credit facilities. The table in appendix 7.2 also shows that the intensity of these practices differs according to pathway. Furthermore, mechanization, technical assistance and marketing associations were found mainly in the *growth* pathway communities.

The introduction of irrigation also implied a need to more strictly manage cattle. Practically all communities with more intensive irrigation schemes had built common fences to separate pastoral areas from irrigation infrastructure. These measures reduced the need for constant monitoring (particularly in communities with two or three harvests per year). Further intensification had led to a reduced emphasis on livestock management and a consequent decline in availability of organic fertilizer. In Escana, this led to the need to obtain fertilizer from neighbouring communities (Zantkuijl 2010). The increase in agricultural production, application of new technologies, shifting orientation towards the market and the overall increased value of land, alongside the differentiated and more intensive labour requirements, all had consequences for existing mutual exchange practices. La Cañada residents used an array of exchange practices in 1996, but many of these

had diminished or disappeared in 2011. Box 8.4 traces the evolution of irrigation infrastructure in this community (see also table 8.4).

Box 8.4 A mix of irrigation approaches in Redención Pampa/La Cañada

Redención Pampa/La Cañada is a relatively successful example of the extension of irrigation infrastructure. With involvement of at least seven external institutions (the prefecture, municipality, FPS, *Evo Cumple* programme and three NGOs) and several farmer associations, the investment in time, funding and expertise has been substantial. The interventions supported construction of more than 550 (largely individual) systems, benefiting around 930 families and affecting slightly more than 900 ha of irrigated land. Although the first interventions were largely uncoordinated, elaboration of a joint plan increased their effectiveness in the later years. An interesting mix of irrigation modalities was employed, varying from one larger dam to 28 small and medium-sized dams, 400 artificial lakes and 115 wells, alongside a range of canals and complementary infrastructure. Time invested varied between 50 to 250 days of labour. In addition, considerable time was required for operation and maintenance. Initial collective action focused on pressing NGOs and the municipality for improved irrigation systems.

The joint efforts of the different stakeholders were remarkably successful. The mix of systems allowed most households to obtain a considerably extended area under irrigation. Around 33 households from La Cañada participated in construction of a dam, which caused many problems as discussed in section 8.5. When we compare the situation of the same households³⁷ in 1996 and 2010, we find substantially improved access to irrigation. In 1996 only 5% of the land had access to partial irrigation. In 2010 about a quarter of the total area had been brought under permanent irrigation. Among the eight households surveyed in-depth, we observed at least five different irrigation systems. The choice of systems depended on the availability and location of the lands and the possibilities for capturing water from *pozos* (large wells constructed by households themselves) and *badenes* (river dams allowing flood water to be caught in pools from where it could later be pumped to fields). Those higher on the plain or hill were better positioned to capture water from artificial lakes or the new dam and water reservoir. In addition, households had to contribute at least part of the investment required. One family managed to convert all of its previously dryland plots to irrigated areas. Another family contributed around 60 days of labour to the construction of the dam, but received no access at all. A different family managed to combine various systems (two *pozos* and a *baden*) to considerably extend its area under irrigation.

Maintenance and management of pumps and other systems required permanent involvement, money, new techniques and often external training or capacity building. The extension of irrigated areas and introduction of new systems thus implied drastically increased labour involvement. Based on a small survey, we calculated that under prior dryland conditions average households spent around 111 days and hired another 18 labour days for potato, maize, barley and other grain production. The extension of irrigation almost doubled total labour efforts to around 221 days and tripled the involvement of external labour, principally due to the inclusion of the *misk'a* (early sowing) and *postrera* harvests. As one *comunario* commented:

Before, we finished the harvest and spent the rest of the time renovating the house and repairing or building new tools. Now, all the time is devoted to agriculture, a little more and we will sleep in the field (*comunario* La Cañada 2011).

Even with continuous irrigation, it was not possible to produce throughout the year, as June and July were too cold for production. The almost constant production facilitated the availability of seed for the next planting season, whereby seed harvested during *misk'a* was used during the *postrera*, and that from the *postrera* was used for the *misk'a* or the main harvest.

The increase in irrigation areas, and the extension of the planting season also led to the adoption of new crops, principally oregano and *amaranto* (a cereal), meant for export and typically promoted by external institutions. Introduction of oregano was facilitated by the agricultural cooperative in Redención Pampa and UNEC, and required a range of new cultivation techniques for adequate planting, harvesting and drying and selection. Oregano was harvested every three months, and sold to a cooperative at a price of around 9 Bs/kg. Similarly, *amaranto* was produced by practically all families and commercialized through a cooperative, as well as via a regional association (*Asociación de Productores Trigueros de Redención Pampa*). This crop, too, had excellent market value.

The change from dryland production to irrigation had a considerable impact on production levels. Potato production increased from 5,500 kg/ha to 12,000 kg/ha. For other crops the production levels also roughly doubled. Although production costs also increased considerably – due to greater use of external inputs, hired labour and the cost of irrigation (e.g., pumping) – net benefits were nonetheless substantial. A household with 0.8-3.5 ha might realize an annual profit between US \$1,600 and US \$6,000, which is enough for a reasonable quality of life and to send children to school and even university in Redención Pampa or Sucre. One farmer commented:

You can live with 0.25 ha of irrigated land, and with 0.5 ha you live well. Last year only with the *misk'ita*, I paid for my children to study in Sucre. With the remainder, we've improved a lot of stuff.. For those with more than one hectare, they are secure (*comunario* La Cañada 2011).

As a result, the price of land increased 10 to 15 times, reaching around US \$3,000, leading to an incipient land market. The growing need for labour also raised wages and reduced the need for migration. This led to an increasing monetization of labour relations, an expansion of local labour markets, attracting job-seekers from surrounding communities, and a gradual reduction in informal practices. Community members not only produce and sell, but are also consumers and increasingly sought services, like equipment to rent or transformation or transport of products. In the region around Redención Pampa, an *agglomeration* effect was evident, creating new dynamics and changes in specializations and divisions of tasks between the stakeholders involved.

There remain, nevertheless, substantial challenges regarding the effective use of water, management of crop diseases and long-term sustainability (e.g., related to groundwater levels). Households in La Abra (located in the valley below) suggested that the substantial increase in irrigation around Redención Pampa had reduced downstream water availability, affecting irrigation in La Abra, although further research is needed to determine this with certainty. Expanded irrigation and establishment of new associations has also had political consequences. The president of ADIC, an umbrella organization for most of the associations in the region, now co-determines or even instructs the municipal government as to what is to be done in the region. Redención Pampa and the municipality of Mojocoya today, nonetheless, have become acknowledged example of innovative irrigation practices.

Table 8.4
Access to irrigation in La Cañada (ha), 1996 and 2010

Household	Area under cultivation 1996 (ha)			Area under cultivation 2010 (ha)		
	Dryland	Irrigation	Total	Dryland	Irrigation	Total
Zárate	10.2	0.5 *	10.7	7.2	3 #	10.7
Palacios	3.2	1.8 *	5	3.2	1.8 *	5
Dávila	6.4	0	6.4		6.4 #	6.4
Vda. de López	9.25	0.25	9.5	9.25	0.25 *	9.5
Choque	9	0	9	9	0	9
Vda. de Reina	6.6	0	6.6	6.6	0	6.6
Védia	3.5	0	3.5	2.7	0.8 #	3.5
Ramírez	4.2	0.4 *	4.6	3.6	0.4 #; 0.6 *	4.6
Total area	52.3	2.9	55.3	41.5	2.6 * + 10.6 #	55.3

Source: PIED II, Aramayo (2010). Note: * Partial irrigation only; # permanent irrigation.

A considerable difference between the early irrigation systems and those built around Rendición Pampa is the additional time invested in supporting households not only to learn to build an extensive system themselves and to adjust production systems, but also to strengthen commercialization and organizational capacity. The lack of these complementary efforts in the initial systems should come as no surprise, as these early efforts were a quick response to the drought of 1982-1983 or, in the cases of Río Chico and Tuero Chico, to subsequent natural disasters. Nonetheless, after the destruction of the first *gabions* and irrigation canals, it took external actors a long time to implement more systematic analyses for prevention of flooding and alternative water management approaches. For La Abra, the question remains why the external agencies involved did not spend more time supporting a more flexible and balanced system, allowing for more egalitarian distribution of water rights.

8.6 Summary findings: pathways and irrigation

How and why did pathway differentiation occur in irrigation communities, and what were the implications for broader pathway development? Table 8.5 presents an overview of outcomes for the main irrigation pathways.

A systematic comparison with the *dryland* pathway indicates that, at least over the past 15 years, *irrigation* pathway communities were far better able to retain or actually increase production levels *per capita*, to diversify production and reduce risks, to extend the agricultural calendar by implementing multiple harvests per year and to increase their profits from marketing. Irrigation also led on average to a steeper decline in small livestock holdings (goats and sheep) and the availability of manure and consequently to higher dependence on external inputs. Although migration rates in the *irrigation-decline* pathway remained high or even increased, for the *irrigation-growth* pathway, both temporary and permanent migration rates declined, and migrants returned for improved labour opportunities back home. Overall, however, migration rates remained relatively high, particularly among men, even compared to dryland communities, leaving a greater burden on women. Irrigation did not resolve inequalities within communities, and land inequality remained similar in both pathways. Even with lower levels of production the poorest households

in the *irrigation* pathway had considerably higher monetary income from sale of output than the poorest households in the *dryland* pathway, largely due to the higher value of crops.

Table 8.5
Differentiation in outcomes in irrigation pathways

Decline pathway	Growth pathway
<p><i>Marginal (Sundur Wasí, Quila Quila)</i></p> <ul style="list-style-type: none"> - Irrigation has historical roots in QQ, far before land reform. Community made multiple failed requests to extend irrigation infrastructure - Marginal systems guarantee only main harvest and additional fruit or flower (QQ) production - Irrigation allowed for minimal market sales - Stagnation and internal disputes led to increased double residence and absenteeism during most of the dry season <p><i>Riverside (La Abra, Tuero Chico, Ovejerías)</i></p> <ul style="list-style-type: none"> - Drought-triggered search for irrigation - Land acquisition partly by land reclamation (all), partly by acquisition from former landlord (TC) and from third parties (OV) - Land access still controlled by family of former landlord (LA) - Strong decline in use of dryland areas, and shift to almost 100% irrigation with clear separation of livestock areas - Decline in livestock, in particular, goats and reduced availability of organic fertilizer - Some dairy production (OV) - Gradually extended systems, largely based upon collective labour and external support - Double or triple harvest - Vulnerable to river problems like irregular flows and flooding (all, but in particular OV) - Problems of contamination (TC) - Shifts in production (from sugarcane to potatoes to a wide range of fruits) - Crop diversification and market integration - High levels of national (all) and international migration (TC) - Irrigation association with formalized statutes (LA and also somewhat in TC) - Conflicts and reoccurring collateral damage related to new land reclamation efforts (RC) - Students follow secondary and higher education elsewhere, leading to departure and straining labour 	<p><i>Riverside (Wasa Nñucbu)</i></p> <ul style="list-style-type: none"> - System inherited from hacienda - Decline in use of dryland areas, now almost 100% irrigation, no further extension possible, separation of and decline in livestock - Increased dairy production, connected with regional association (Adeplech) - Triple harvest - Problems like flooding and contamination - Shifts in production (from <i>choclo</i> to horticulture and alfalfa for dairy production) - Strong market integration (Sucre) - High and sustained levels of international migration (to Argentina and Spain) - Relatively stable population - Profits from <i>ripio</i> cooperative for sustained and high additional income - Higher education elsewhere leads to early departure and strain on labour <p><i>Intensive mixed and sprinkler irrigation (La Cañada and Escana)</i></p> <ul style="list-style-type: none"> - Full conversion from dryland to irrigation - Shockwise upscaling of irrigation (both area and technology) towards >100 ha under drip irrigation - Triple harvest, specialized production, incl. oregano - More mechanized agricultural production - Overall smaller livestock herds - Faster recovery from 1982-1983 drought, due to better production in following years - Relatively successful economic associations for irrigation and commercialization - Return migration and overall declining levels of migration - High production and sales translate into accumulation among richer households and intermediaries, acquisition of trucks and access to second house in Sucre, also allowing students to follow studies in the city - Doubts regarding sustainability (dam and maintenance in ES, groundwater in LC).

The *irrigation* pathway represents significantly higher levels of settlement concentration, which may to some extent be explained by the desire of households to locate their housing close to already concentrated irrigation areas. But, as chapter ten will discuss, other factors play a role too. Irrigation impacts other production zones (dryland areas were left virtually abandoned). Overall, irrigation appears to have led to a reduction in informal exchange mechanisms (such as barter), due to the monetization of production, an overall rise in the price of labour and increased labour scarcity in the more intensive production environment with persisting migration practices.

Nonetheless, not all *irrigation* pathway communities made the same level of 'productive progress'. The two more populous and more extensive communities in the *decline* pathway, Quila Quila and Sundur Wasi, did reasonably well in maintaining and even increasing *per capita* production levels, but remained at low levels of production, technological advancement and market integration, probably due in part to productive circumstances (e.g., they are set in mountainous areas that are less accessible and have limited and interrupted water flows). Even though both benefited from diversification into fruit production, most of their agricultural production was still oriented towards consumption. Both communities eventually suffered from internal conflict (Quila Quila) or a divided internal organization (Sundur Wasi). The *riverside* group faced even greater difficulty in retaining production levels, being severely affected by problems of water contamination, recurrent 'natural' disasters and persistent constraints in access to land under irrigation, to some extent due to persistent local power imbalances. While the *decline* group, with its relatively lower levels of sales and income, faced higher and increased levels of principally national migration (mainly towards Sucre, Santa Cruz and intermediate towns), the *riverside* group exhibited a clear tendency towards international migration. For this group, persisting or even increasing migration rates, in particular, among young adults, may also be the result of only primary education being available in these communities.

The *growth* pathway communities performed considerably better. Even in a constrained labour environment they effectively multiplied production levels, principally through the introduction of more sophisticated irrigation techniques and multiple harvests each year, albeit with considerable external support. They managed to establish strong farmer associations for the organization and management of the irrigation system (as in Escana) and for marketing products (in both Escana and La Cañada). All of these communities had facilities for immediately selling cash crops at the farm gate for reasonable prices. These gains, however, came at considerable effort and cost. In Wasa Ñucchu, land fragmentation reached its limits, and the main reason for the modest decline in the still very high migration rates was the establishment, mechanization and capitalization (shareholder structure) of the relatively successful *riverside ripio* cooperative. In Escana it took more than 20 years for the irrigation system to become fully operational, largely due to continuous pressure from within the community to seek alternative ways to deal with a top-down designed and implemented irrigation project, which at first almost resulted in another *white elephant*. In the third *growth* community, an entirely different approach was taken, combining local experiences and innovative approaches, supported by a range of external institutions working more or less effectively together. The *growth* pathway communities had the highest levels of migration to international destinations (Argentina and Spain), followed by the remaining *riverside* communities. Introduction of intensified irrigation attracted people from outside the community, and may gradually lead to commoditization of land, therefore affecting the internal cohesion of communities. Reaffirming land rights (through *saneamiento*) with external support did not always resolve these tensions, as discussed in chapter six.

How did internal and external factors and agency influence and respond to these developments? External interventions were unequal in their regional distribution (and quite unbalanced in terms of funding). Most were principally oriented towards communities with perceived high potential and areas where considerable investments were already in place. In the initial stages (in the 1980s and 1990s), irrigation interventions seemed to be driven by a wide array of criteria and philosophies (e.g., poverty alleviation), with the Escana project being a typical example of a top-down – and imported design – intervention intended mainly to respond to increasing consumer

demand in urban areas. The PCHN's objective was to disseminate irrigation in as many communities as practically feasible at a relatively low cost.³⁸ Comparing the two approaches, the PCHN achieved widespread implementation of fairly sustainable systems, as most were upgrades or extensions of existing rudimentary infrastructure. In terms of cost-benefit analysis, the second approach had much greater impact. New investments in Escana and the Rio Chico valley failed to account for *sunk costs*, seeming to reflect an expectation of building or rehabilitating systems using recurrent annual investment budgets or increasingly inflated project budgets. The Escana project became by far the most expensive in the region, while the Rio Chico area continued to absorb a substantial share of annual budgets for rehabilitation of severely damaged *gabions*. Some of the newer systems were implemented in a rather *quick and dirty* fashion, however, leading to their almost immediate failure or breakdown. Municipal investments in irrigation became increasingly important, but were unequally distributed both between and within municipalities. NGOs, like Proagro, Plan International and Care, began to work more systematically in coordination with municipalities and in capacity building. Finally, the innovative approaches in Redención Pampa indicate that production levels comparable to those in Escana can be obtained with considerably lower investments, in shorter timeframes and by employing a far more manageable approach that also leaves more flexibility in households' involvement. That last approach, however, raises questions regarding beneficiary selection and counterpart contributions, as access to the different irrigation systems has proven to be highly unequal.

8.7 Conclusions

Irrigation has been an important driver in pathway differentiation. Differentiation occurred at various levels, between the *dryland* and *irrigation* pathways, within the *irrigation* pathway itself and in driving internal processes over a longer time period, perhaps also fuelling internal differentiation and divergent responses within communities.

As evident from table 8.2, most of the current irrigation communities are in fact the result of a range of transitions that have taken place since the land reform of 1952-1953. Initially, practically all of these communities were predominantly dryland; only a few inherited basic irrigation infrastructure from the hacienda. In many cases, presence of irrigation infrastructure resulted in persistent disputes or enduring inequality in access, reflecting path dependence in relation to 'postcolonial legacies'.

Back in 1996, the PIED-Andino project's first systematic comparison of irrigation systems and histories produced a more or less homogeneous picture. The practical consequences and outcomes at the household level were also quite similar, being more differentiated in levels than pointing in entirely different directions. The differentiation over time in terms of external contributions, institutional settings and especially in constraints and opportunities of access was, however, much wider than expected.

Changes in access to irrigation occurred, for instance, due to gradually changing practices related to intensification (e.g., use of external inputs and labour), changes in informal exchange mechanisms, variation in membership status and the *normalization* (Boelens 2008) or formalization of irrigation rights.

Recognition of water and water rights as driving factors in the formation of institutions has recently received more attention in the literature (see, e.g., Boelens *et al.* 1998; Boelens & Doornbos 2001; Boelens 2008; Guevara-Gil *et al.* 2010). According to Boelens (2008: 3), water is a driv-

ing force behind the formation of strong common property institutions. In practising water control, community members build upon an organized body of water rights, rules and resources. Boelens (*ibid.*: 6) argues that this body both “structures and is structured by water control practice”. Community members use and reproduce rights, but application of those rights leads to introduction of new contextual elements and transformation of current practices, and may also lead to unintended consequences. New contextual elements include not only externally induced ideas and legislation, but also differential perceptions and acceptance by communities, connected to their own customary practices. But access to irrigation has also been defined and constrained by existing power relations (as in La Abra), persisting conflict (in Quila Quila), increased contamination (in Tuero Chico), the externally supported introduction of entirely new technologies and new marketing arrangements (in Escana and La Cañada), or – in in another extreme case – as a consequence of severe drought and subsequent migration to the valley, followed by the construction and constant rebuilding of river defences (Ovejerias). While these external ‘events’ can in some cases be considered to be shocks or even ‘critical junctures’ (e.g., the external intervention in Escana or the drought in Ovejerias), their subsequent translation into new production systems took up to several decades and reflected erratic rather than linear processes.

Compared with developments in the *dryland* pathway from 1996 to 2011, the introduction or extension of irrigation influenced not only production levels, crop security and internal arrangements regarding access rights and rules, it also impacted the use and level of external inputs, seed varieties, fertilizer and pesticides, as well as household consumption patterns (in terms of food as well as monetary expenditures). It furthermore stimulated innovations and changes in post-harvest activities, such as storage and commercialization. Yet the use of traditional varieties and local organic fertilizer diminished, and irrigation had consequences for livestock numbers and management. The more intensive agricultural calendar demanded involvement of more household labour or the hiring of additional labour during peak periods. In intensive irrigation schemes that applied new technologies, farmers required technical assistance and perhaps credit facilities to maximize production opportunities. Increased intensification and market integration influenced the existing patterns of informal exchange, especially as the larger use of external inputs increased market dependence and exerted upward pressure on the price of labour and equipment. Although some irrigation practices built upon long-term internal community histories, most irrigation infrastructure was the result of a *coproduction* with external actors (Ostrom 1996). This occurred via a wide array of manners and rounds of interaction with and between households, communities and a range of external actors. Smaller systems were set up with minimal technical support and external involvement, with little follow-up in institution building, while other systems (both smaller and larger ones) were almost completely constructed, reconstructed and if needed upgraded by a continuously changing cast of external actors. The implementation of irrigation led to the provision of mostly collective infrastructure, but benefits largely depended on individual households’ resources and contributions or, in some cases, on pre-existing rights of access. Practically everywhere this resulted in internal differentiation in benefits and participation and, in part due to the limited availability of external assistance, in relatively weak community institutions for dealing with daily management and recurrent problems.

For Andean communities, collective involvement in new proposals for irrigation would ideally imply that design and operation of irrigation works contribute to a more or less equitable distribution of available water resources, but this was certainly not always the case. As such, differentiation occurred between the research communities, for instance, between Escana (with its French

design), La Cañada (with its multiple and mixed solutions) and La Abra (with its formalized irrigation statutes). Externally driven technologies and designs, furthermore, often departed from water efficiency ideals for individual plots and crops.³⁹ Community institutions were left to deal with changes in access rights and the frequently arising conflicts. Interests diverged between different user groups, between small and large landowners, and even between communities. The persistence of unequal distribution was caused not only by long-term colonial and postcolonial exclusion at the community level. Contemporary ‘normalization’ policies (Boelens 2008) confirmed the existing unequal distributions of land access and water rights, both between and within communities, rather than producing more equitable regimes of access. As the analysis in this chapter has shown, Bolivian legislation related to water and irrigation has faced many difficulties in responding to the rather diverse patterns of customary practices. Yet it has tended to reduce the space for manoeuvre, rather than to facilitate strong community involvement.

Lam and Ostrom (2009) assess the overall sustainability of irrigation performance, analysing the effects of continued assistance in infrastructure improvements, the availability of documented rules, the presence of a system of supervision and sanctions, and leadership and collective action. They conclude that these ‘conditions’ do not operate independently. Rather, for example, investment in infrastructure may have a positive impact only if (all) the other factors are also applied. In line with other findings, these authors suggest that effective irrigation management depends on the existence of a set of conditions, of which each alone would be insufficient (*ibid.*). With only collective action and formal sanctions, the latter could undermine the former. They also conclude that initial responses to natural disasters are often oriented towards the rehabilitation of existing infrastructure.

Following the principles for effective collective action formulated by Ostrom (2000), we found strong collective action only at the initial stages (i.e., at the demand and construction stages) and limited effectiveness of surveillance of the generally informal – or sometimes completely formalized – ‘rules of the game’. Once the systems were in place and in operation, complaints often-times arose about conflicts of interest or inadequate use. These did not automatically cause major problems for systems managed by small-scale and well-known user groups. But in cases of deviant behaviour, dysfunctional systems or perceived inequalities in access, disputes or paralysis were frequent consequences. This was found in at least half of the *irrigation* pathway communities over the 15 years under study, evidencing possible exceptions to the principles formulated by Ostrom (*ibid.*). Contingencies, power relations and the frequent disconnect between technical solutions and culturally defined access rights all contributed to undermine collective action efforts. The external context may thus reduce the overall validity of these ‘design principles’.

Collective action is time and space bound. Once investments are realized, the main focus moves to organization and the allocation of water rights. Although most simple systems worked relatively well, even with some *free-rider* behaviour, for the more complicated and major systems major bottlenecks were observed. Inadequate institutional adaptation, due principally to weak enforcement of common agreements, thus reduced internal cohesion, increased levels of conflict and also undermined willingness to embark upon future collective action efforts. In some cases this was due to persisting inequalities and power relations (La Abra), but in other cases it could also be attributed to the regular absence of ‘authorities’. Some of the communities studied showed increasing levels of both resource accumulation and persistent internal differentiation.

In line with the analysis of Lam and Ostrom (2009) regarding irrigation interventions in Nepal, it is interesting to see how irrigation infrastructure and institutions evolved in parallel among the research communities and in the region more widely. Top-down implementation of irrigation infrastructure resulted in difficult processes of institutional adaptation. For most systems, external intervention led to an extension, but also a ‘freezing’ of existing irrigation design patterns, leaving limited space and flexibility for households to adjust their water needs to different crops or for the community organization to accommodate diverging interests. In the research communities with relatively small gravity-based systems, this led to ‘minimal’ arrangements (e.g., irrigation committees and water authorities) but not to the ruling out of *free-rider* behaviour, underlining again the difficulty of keeping up the momentum for collective action. This should come as no surprise, as many of these systems were simple upgrades (using cement and some additional measures). Riverside systems suffered less from ‘interrupted’ water flows and problematic changes in water shifts, although incidental ‘normalization’ through formalized irrigation *statutes* largely confirmed the existing *status quo*, limiting space and flexibility for younger households. The majority of these systems had been in operation for quite some time, and although some had broken down, others were still being intensively used. Although irrigation broadened producers’ horizons, after the initial rise in productivity, there were limited changes in extensions of systems or in raising productivity overall, clearly indicating the ‘boundedness’ of these systems. Recently built systems, such as those along the riverside in Rio Chico and in Tuero Chico and the larger one in Escana, have turned out to be susceptible to damage from *riadas*. In Rio Chico, this has become a reoccurring phenomenon requiring constant rehabilitation and rebuilding.

Lam and Ostrom (1990) found that improvements limited to infrastructure and efficiency soon wither away, having fairly limited impact overall. That conclusion largely corresponds to our findings for the *irrigation decline* pathway. For most *growth* pathway communities, investment levels far exceeded those of the *decline* pathway, leading also to higher production levels. Initial investments in the *decline* pathway led to improved access and availability, but *per capita* production levels even declined or improved only marginally between 1996 and 2011, partly due to limited land areas and further land fragmentation, but also as a result of conflicts around new institutional arrangements (in Quila Quila and La Abra), contaminated water sources (in Tuero Chico), imbalances in internal power relations (La Abra) and deteriorating infrastructure. Continuous rehabilitation and adjustments were required to accommodate the changing and challenging environment in which farmers operate. Flexibility remains important, ruling out interventions with a focus limited to infrastructure investment. Among the research communities, irrigation projects certainly contributed to initial improvements. But even among those systems that did enable increased production levels, only a few, and some of them at considerable cost, led to a *self-reinforcing* trend, spurring subsequent resource accumulation.

Escana, one of the *growth* pathway communities, illustrates this. After a rather prolonged struggle, the community finally managed to establish a strong irrigation association and find its way beyond the original project implementers. With an unfinished but still rather promising system at hand, the ‘all or nothing’ scenario for individual households was simply too pressing for the new generation to abandon the undertaking entirely. Nonetheless, considering the scale of the infrastructure, the community will remain dependent on external support for recurrent maintenance.

The discrete largely individually managed systems in and around Redención Pampa provide more flexibility to individual households. Although this raises the cost of irrigation as such, the

possibility to produce a second or third harvest and marketable crops certainly compensates for these additional costs. The wide range of individually managed systems may, however, result in other long-term ‘common pool’ problems, related, for instance, to groundwater levels and increased erosion due to massive land removal (e.g., for construction of dams, *lagunas* and *pozos*). Existing institutional arrangements, such as the traditional water authorities (*alcalde* or *jueces de agua*) and the agriculture-linked calendar of ‘rituals’ and rotation of community leaders, but also the prevalence of traditional exchange mechanisms, seem to have declined in importance with the intensification and extension of the agricultural season and with increasing market integration, the latter being fomented by external actors.

Intensified irrigation thus appears to have led to *path creation*, but at the same time created new *dependencies* (on inputs, markets and external support) and *uncertainties* (new risks and doubt about the overall sustainability of systems, especially for households with limited access). Infrastructure, such as dams and major channels, suffer from sedimentation and deterioration which may be beyond the capacity of communities to remedy, while the emphasis on a few cash crops and external inputs increases external dependence. Most irrigation systems appear to be ‘quick and dirty’ *solutions* (Pritchett 2004), rather than considered responses to sufficiently deliberated community needs and demands. Current practices in irrigation interventions are still far from providing sustainable, manageable, balanced and equitable solutions to rural communities. One of the main reasons, also highlighted by Gerbrandy and Hoogendam (1998), is the limited time and attention spent in understanding and taking into account existing water rights – before implementation of new systems – therefore creating overlapping or contradicting systems of water rights, leading to disagreements and often outright conflict. The logics of agricultural production and irrigation water management taught in many (Andean) universities do not yet correspond to the distinct local histories and social or cultural arrangements present in agricultural production systems in the Andean valleys. The persisting disconnect in logics and resulting implementation modalities explains to a large extent the difficulties that communities continue to face in resolving common pool problems in irrigation.

Notes

¹ These include rainwater catchment areas in Talahuanca and San Juan and local pumping systems in Yurubamba.

² The *Ley Nacional de Aguas* of 1906 was in fact an unchanged version of a ministerial disposition of 1879, and promulgated as law at the start of the century (Castillo *et al* 2009)

³ National drinking water and irrigation policies were much influenced by developments in Cochabamba. Cochabamba was the scene of a so-called *water war* in 2000 and subsequent conflicts in 2003–2004, which resulted in strong opposition against any form of privatization of water use. Cochabamba was also the home region of a rather politicized irrigation movement, and exerted more influence on national irrigation policies than any other department.

⁴ In Chuquisaca, the highly contested political struggle surrounding the *Capitalia* and the *Constituyente* (the new constitution) towards 2009 blocked any form of effective cooperation. The relatively quick, but politically and operationally difficult transition of three successive regional government structures (CORDES until 1996, prefectures until 2009 and ‘autonomous’ and directly elected regional governments after 2009) did not help either.

⁵ According to Gutierrez (2005), the *Irrigation Law* expressed four main elements: (i) recognition and respect for small farmers' uses and customs; (ii) a new institutional framework; (iii) a decentralized framework of authorities; and (iv) social participation, expressed through the creation of the *National Irrigation Service* to manage water issues.

⁶ As this was several years before the drought, there was no particular focus on emergency relief.

⁷ See case study in section four.

⁸ Which proved however to be a cumbersome undertaking, see the case study in box 8.4.

⁹ In a 1996 study of all communities in Chuquisaca below 2,500 m, only one in nine had access to irrigation. Of those between 2,500 m and 3,000 m, about one third had access to irrigation. Above 3,000 m, again only about one in nine had access. These figures are difficult to compare with those of other departments, but seem to be far lower than for Cochabamba, the valley department with the strongest concentration of irrigation projects (Beetstra 1997).

¹⁰ San Juan de Orcas, Pampa Lupiara and Ovejerias Alto have none; there are marginal or failed systems in Cochapampa, Talahuanca and San Juan; and small but relatively effective systems in Yurubamba, Sundur Wasi and Quila Quila. These are all *puna alta*, *valle alta* or *pampa* communities.

¹¹ Wasa Ñucchu also benefited from alternative income sources, related to the ripio cooperative (see box 6.1) which may be one of the reasons for its still growing population and hence its diverging classification.

¹² A few years ago (2009) Escana was probably the only community in northern Chuquisaca with sprinkler irrigation. Recently similar – but small-scale – pilot systems were promoted in the Rio Chico valley.

¹³ A direct comparison of production levels does not always make sense, as the product orientation, timing and market value is often rather different (with generally higher-value crops in communities with irrigation), but we can compare trends between the different pathways.

¹⁴ The figure even underestimates total production: fruit production is not included and more than doubled in many irrigation communities.

¹⁵ We counted 10 crops on average for dryland communities versus almost 14 for irrigation communities.

¹⁶ The available data showed a decline in crop varieties for both pathways between 1996 and 2011, but this may also be due to the lesser detail of the information gathered at the field level, as farmers may have given little attention to smaller or mixed cropping arrangements.

¹⁷ Taking into account that the irrigation schemes in Sundur Wasi and Tuero Chico were not yet very intensive in 1996, the differences in labour throughout the year probably further intensified in the second group.

¹⁸ Principally in gaining access to land.

¹⁹ Data for 2011 cannot be systematically compared with 1996, as we had no possibilities to repeat the very detailed and extensive household time survey.

²⁰ Tuero Chico, La Abra and Ovejerias - but the latter one is not included in the graph, due to the entirely different (dryland) situation in 1996.

²¹ Care should be taken in a direct comparisons of production levels. La Abra had the highest levels of production and sales *per capita* in 1996, but Wasa Ñucchu (*riverside growth* pathway) had much higher production levels per hectare, while both communities in the *intensification growth* pathway had a much larger share in fruit production and sales.

²² With the exception of Tuero Chico all *irrigation* pathway communities counted with at least 20 fruit trees per household, getting up to around one hundred for Escana and La Abra.

²³ Most fruit is generally sold (almost 90% of the total harvest). This benefited, in particular, Escana and to lesser degree La Cañada and La Abra.

²⁴ According to the project document, the feasibility of the project was sufficiently proven as even an increase in expenditures of about 15% and a decline in income of 15% would still result in a rate of return above 15%. The project document expected that production would start generating benefits in the second year.

²⁵ The project budget, largely paid by UNDP/UNCDF, had in the meantime increased to US \$5 million, leading to uncertainty as to whether all the different components could effectively be financed. In addition, multiple rumours regarding mismanagement added to the mounting dissatisfaction. Although community members were to some extent involved in construction efforts (and paid for their work) and in setting up the forestry seedlings project, many preferred to continue migrating to Santa Cruz and Argentina.

²⁶ In 1996, the *subcentralia* was in the hands of Escana. A very small group of families managed the main functions within the community, the *subcentralia*, as well as the *project committee*. In 1995, seven of those functions were managed by four members from the Barrientos family. These functions included the *Secretario General*, *Subcentral*, *Comité de Proyecto*, *Comité de Vigilancia*, *Consejal*, *suplente consejal* and *Secretario de Actas*. These kinship relations evidently facilitated coordination between them, but also resulted in minor conflicts with one of them due to his more 'submissive' attitude towards the project.

²⁷ This became clear during an exchange visit to Cochabamba, organized by the University of Cochabamba/PEIRAV to learn about experiences with drip irrigation in the valley of Mizque. The unequal relations between the project and the communities, implied that many core aspects of the design of the project were never, or only very late in the process, discussed in an open forum.

²⁸ *Islotes* are the distribution points down from the lateral canals to bring the water to the *hidrantes* (sprinkler systems), which allow individual households to irrigate their land.

²⁹ In addition to the questions raised by the community, many issues remained unclear. Among these were the definition of rights and shifts in use of water, the consequences for land ownership and access to irrigation, ownership of infrastructure and installations, payment for maintenance, responsibilities for the maintenance of the dam and main reservoir, and the possible implications at the household level, for instance, in relation to the division of tasks between men and women and possible impacts in relation to migration.

³⁰ Nonetheless, the construction of numerous but simple rainwater catchment systems in dryland communities originated as a response to basic food security demands (although probably also for the purpose of gaining political support).

³¹ After the incidental support Quila Quila received in 1988, the community received support from at least three different consultancy missions regarding possible irrigation investments, submitted an additional three proposals to *Fondo Indígena* and made three subsequent requests to the municipality (in 2006-2008), none of which was honoured.

³² La Cañada, Tuero Chico and Ovejerías Río Chico have associations that deal with irrigation issues, but their focus is more on commercialization, water contamination and watershed management.

³³ In Escana, the – much delayed – introduction of large-scale irrigation and a substantial increase in access for most members certainly softened the extremely unequal land distribution in the community (see chapter six), but it was accompanied by a long period of uncertainty regarding consequences for individual households.

³⁴ This is quite an extreme example and different from what we found in other communities, but it nevertheless signals the importance of clear definition of participation requirements and rights.

³⁵ The statutes establish that access rights are defined in relation to the surface area under irrigation, with the exception of specifically indicated areas that receive water only on a fixed date. It also establishes that labour efforts be commensurate with those areas and that a fixed (but symbolic) amount be paid per hectare. Furthermore, the statutes define a number of disciplinary measures.

³⁶ A clear example of this heterogeneous background is the community of Valle Paraiso, a recently (2004) established community in the Rio Chico area with 24 households coming from at least eight different communities (presenting an almost opposite scenario to Ovejerias Alto, which saw the dispersal of its population to another eight communities in the valley). Of the 24 households only 6 had minimal access to land, while the remaining families had some livestock but mainly worked for others or rented land for agricultural production, according to 2012 Valle Paraiso *Plan de Desarrollo Comunal*.

³⁷ This implies a life-cycle analysis, different from the comparison between the two surveys. In 2010 we paid a second visit to all the families of the 1996 survey.

³⁸ Aramayo (2010) calculated the household costs per system as some US \$1,500 for *pozos* with an additional \$400 for the *pump*, \$500 for the *badenes*, \$2,000 for *lagunas* and 250 labour days for dam construction.

³⁹ This is different from the social relations perspective, which tends to emphasize social rights (Boelens 2008).



Escana, drip irrigation in 2011. Source: PIED-Andino



La Cañada, a farmer in front of his self constructed well in 2011. Source: Author

9

Education for all - to leave

They are adults now. They can't assume responsibilities, they need to make progress, therefore they don't stay, we always lack money, agricultural production is insufficient, there is no rain, they need to leave the community (interview with the president of the mothers club in San Juan de Orcas 2011).

If we speak only Quechua, we need teachers that teach everything in Spanish (Castellano),... We want them to always teach in Spanish, because then [our children] will not suffer if they leave the community (community leader Pampa Lupiara 2011).

9.1 Introduction

Education is probably the most consistently voiced demand within communities, dating back even before the land reform. A lot has improved in the provision of education in rural areas in Bolivia. However, progress has been slow, erratic and uneven between regions and between the research communities, which have suffered persisting difficulties in synchronizing the minimal supply with acceptable quality of education. Bolivia's *educational reform programme* of 1994 implied significant changes in *curriculum design*, but it was never completely implemented. In the meanwhile, a new and even more ambitious educational law has been approved. Numerous authors have analysed recent developments at the national level with regard to changes in educational policies (Heymann 2012; Contreras & Simoni 2003; SNV 2006; Pablo 2010; Yapu 2011). Yapu (*ibid.*) published an analysis of educational changes based on our research in six of the survey communities.

Building on the work of Yapu (*ibid.*), and extending the findings to all of the survey communities, this chapter discusses the influence of public service provision, particularly education, on community pathways. Health service provision follows a similar pattern, although its presence and relation with the community organization is less intensive than education. The current study looks at health only indirectly, as its provision largely parallels educational policies. The types of outcomes and impacts of education services were similar among most communities, but differences in timing, sequencing, complementary services and levels of provision led to some diverging trends as well, in particular between communities with and without access to secondary education. Differences found in community collective action and demand related to provision of public services, as well as in the substantial external support provided by a wide range of governmental and non-governmental organizations.

The first two sections of this chapter review historical developments related to education in the Andean valleys and main outcomes in the research communities. The sections thereafter discuss the multiple forms of interactions and related constraints between community agency and external interventions and the differential impacts in rural community pathways. The research questions posed in this chapter are as follows:

How and why did pathway differentiation take place around education, and what were the implications for broader pathway development? How did internal and external factors and agency influence and respond to these developments?

9.2 Educational history in rural areas

Since the beginning of the 20th century communities have struggled to gain access to education. In his PhD thesis “The Clamor for Schools”, Brienen (2011) extensively describes the multiple battles indigenous communities in Bolivia have fought to get access to education. His main focus is on the *escuela ayllu* or Warisata school,¹ and the different perceptions regarding the role this indigenous school played in defending indigenous education. He also analyses how indigenous efforts to gain access to their own school in rural areas were triggered by a drive among communities to obtain a level playing field with the dominant white society. For parents, children’s education became a means to prevent them from the same suffering they themselves had experienced. An important argument in Brienen (*ibid.*) is that while official policies were focused on education as a means to civilize the indigenous population, and to make them adapt to Western standards, it was in fact the indigenous communities that realized and implemented by far the largest numbers of schools in rural areas throughout Bolivia. The government itself lacked the means (or at least the willingness to spend sufficient resources) and capacity, so indigenous communities did so on their own behalf. Brienen (*ibid.*) also concludes that even before the recognition of these schools, they became an alternative reference point for dealing with central government, instead of the merely repressive local governments, which in fact existed only in name or to serve the needs of the landlords. According to Brienen (*ibid.*), in 1940, the Ministry of Education for the first time made an attempt to come up with a complete reform of rural and indigenous education. This reform was to spread the Warisata model and lessons learnt and to “educate the indigenous peoples of Bolivia into a ‘new breed of Indians’.” (Brienen 2002).

By the end of the 1940s, throughout the country, indigenous communities had established approximately a thousand schools. These schools were not yet part of the formal educational system, however. Their emphasis was mainly on literacy. When these schools became recognized, they also became a channel for delivery of certain services, in addition to regular education. Large-scale vaccination campaigns were implemented through local schools. These had considerable impact in reducing child mortality in the following decades (Klein 2011). Beginning with Warisata, the smaller schools began asking for support to set up a curriculum and exchange methodologies. Sharing between the larger and better equipped schools in the community centres and the smaller schools in rural communities around them later became recognized and established in the relation between *nuclear* schools and the surrounding *sectionals*. In the region of Chuquisaca, the school of Mojocoya was probably one of those nuclear schools in the early 1930s. According to Yapu (2011) this might also explain the current positioning of Mojocoya as an indigenous municipality.²

One of the main problems in education both before and after 1950 was lack of qualified teachers. Already before the land reform of 1952-1953, communities, often against the will of the *landlord*, strived to organize their own school and were even willing to pay for their own teacher. Landlords, of course, feared that education would eventually result in internal trouble and resistance against the ongoing practices of exploitation under the hacienda system. However,

with the formal recognition of the possibility to establish their own schools, communities had a first line of defence against prohibitions by landlords.

Most of our research communities were established on the basis of a hacienda or several haciendas together. Their struggles for formal recognition as a *sindicato* in the initial years after 1952-1953 were also linked to the foundation of schools. As 1953 marked a moment of liberty for people to define where they wanted to live and giving them access to their own land, this was also a point when the location of schools was discussed. Obviously the prevailing wish was to keep the school as close as possible to housing. In the more dispersed areas this often led to the splitting up of communities, in which case a group of *ranchos* decided to establish their own *sindicato* together. Most of these schools later became recognized as sectional schools related to a larger *nuclear* school in the region. Pampa Lupiara is an example of a community that made the transition from a sectional school to *nucleo* after roughly 20 years (box 9.1).

Box 9.1 Pampa Lupiara, a short history of educational change

The school in Pampa Lupiara started operating almost immediately after the land reform in the house of a community family. A few years later, probably in 1954, around 50 families built the first classroom. The initial two years of operations were paid for by the parents themselves. Only after 1958 did the school become 'fiscalized' and free. The first teacher, 'Professor' Oscar Meneses, is well remembered and remained in the community for many years. Establishment of the school became a permanent symbol of revolt against the hacienda and the discrimination the *tattitos* suffered from the townspeople in Tarabuco. The school originally depended on the *nucleo* in Candelaria, afterwards in El Cororo, then in Wasa Cancha. It became established as a *nucleo* in Lupiara only in 1975, with the neighbouring communities of Labran Mayu, San Jorge de Kollpa, Rincon Lupiara and Qiscoli as associated sectionals. The number of classrooms was expanded in 1986, and in 1996 the education level was extended to the 7th grade. The school counted six teachers at this point, and few students continued on to secondary education in Sucre or Tarabuco. The school has since grown in size and student population. In 1999, it had 250 pupils – 136 boys and 114 girls. In 2009, the school delivered its first 'promotion' (group of *bachelors* finishing secondary education) and reached 416 pupils – 220 boys and 196 girls. In 2011, Pampa Lupiara had 18 teachers, a director and an administrator, 13 classrooms in good condition and 10 modest living quarters for teachers. In addition, the school had a paved sports field, electricity, computers, drinking water (though with interrupted provision) and toilets, and it benefited from municipal services such as school transport and daily breakfast. Plan International and UNICEF have supported projects to improve the quality of teaching. Since 2006, the government has paid a *bono* (conditional cash transfer) to stimulate parents to send their children to school and to provide them with the relevant school materials. Pampa Lupiara applied for a boarding centre, but this request had not yet been fulfilled.

Like most communities, Pampa Lupiara experienced considerable changes in educational levels over the past decades, particularly in the period between 1999 and 2010. The rapid growth in the number of pupils, however, has come to an end. After an initial decline in 2009 and 2010 the school had only 340 pupils in 2011 (a decrease of around 20% in two years' time). This decline persisted even after the community introduced a fine of Bs 500 for those not keeping their child in school at least through grade eight. Another (but still uncertain) trend is the gradual increase in

the number of pupils that had to repeat their grade, as well as the gradual abandonment of studies after level eight, in particular among girls.

As in other communities, the *Junta de Auxilio Escolar* (JAE), a kind of parent-teacher association, is the main organization for community interaction with the school. The JAE is not really involved in the management of projects or in improving the infrastructure of the school, and neither are parents actively engaged or able to support their children with homework. According to the school director, parents still lack knowledge of the educational process. They concern themselves mainly with education infrastructure but not really its content. Parents are eager for their children to learn Spanish, because it is needed to facilitate migration objectives, and they often express clear resistance against teaching in Quechua.

Together with Escana, Pampa Lupiara probably has the longest educational history among the research communities, although many more started small schools of their own in the first years after the land reform. In Lupiara this history includes the slow and difficult process of establishing a comprehensive primary school and the sudden and rapid expansion of secondary education. Apart from the large, modern buildings in the community, education has become central to community life, influencing community dynamics in multiple ways.

Education policies after the land reform

After the land reform the first rural schools were constructed under the Paz Estenssoro government, in the belief that incorporation of indigenous communities would be most easily realized through assimilation and the use of principally Spanish in class (Lambert 2012). Children who only spoke Quechua or Aymara at home, were confronted with classes in a language that was foreign to them (*ibid.*). In 1955, following implementation of the *Código de la Educación Boliviana*, a national-level system of parent-teacher associations (*Junta de Auxilio Escolar* or JAE) was established. The JAEs, however, were more at the service of the school management than being independent organizations with their own decision-making power (Machaga 2007, cited in IOB 2011).

Practically all of the initial schools in the research communities were built by the communities themselves. Schools were simple *adobe* structures, often without windows, lacking even the most basic equipment, including tables and chairs. The most cumbersome part for communities was to attract teachers and to arrange for their (rather modest) salaries. *Comunarios* remember having persuaded a teacher to come to their school by offering some form of in-kind compensation. At that time, just as before 1952, few teachers were formally certified. Many had not finished primary education or had only basic formal education from their time as conscripts in the army. For schools to obtain recognition and basic salaries covered by the government has therefore been an achievement that has demanded significant time and effort.

As noted by Klein (2011) and Brienen (2002, 2011), health efforts were also initiated in rural communities in the late 1940s and early 1950s with massive vaccination campaigns. These campaigns were organized through existing schools, which provided a useful platform for community involvement. We found a few isolated projects before 1983 in the sphere of education, health and drinking water, but for most communities, more intensive development efforts began only after 1983. High levels of child mortality appear to have driven agendas for local health care in some communities. According to Urioste (1988), under-five child mortality reached almost 40% among Quechua communities between 1975 and 1981. Many suffered problems related to diarrhoea,

cholera, *chagas* and even malaria. Women suffered complications during pregnancy and birth. Delivery of rural health services was for a long time dominated by NGOs, instead of state institutions. Just as in education facilities and road construction, communities often also built their own simple structures intended as basic health centres.

It took indeed about four decades until the first major change would occur in government policies in education, following an almost standstill under 30 years of military rule and a decade of economic and social adjustment. Following major protests regarding indigenous rights and the long *March for Territory and Dignity* of 1991 (see chapter six), indigenous demands finally received more attention, resulting in several major reforms. The *Law on Educational Reform* of 1994 had as its principle objective to improve the quality of education, introducing intercultural and bilingual education, promoting community participation, increasing the coverage of public education and prioritizing mainly primary education. Testing was done in *pilot* communities, and pedagogical advisors supported teachers in the implementation, advising on average a *nucleo* having about six schools. A major change was a new vision regarding the basic curriculum. According to Contreras and Simoni (2003: 26), the pre-reform approach was known as ‘pedagogy by objectives’, strongly influenced by *behaviourism*. The main focus of the educational reform process was *constructivism*, oriented towards the “attainment of basic learning needs and attention to cultural, linguistic and individual diversity”, including both monolingual and bilingual modalities, student-centred methods and based on active class participation (*ibid.*).

The educational reform process was closely linked to the *Law on Popular Participation* and the *Law on Administrative Decentralization*, with their objective being to bring decision-making closer to the local level. Regarding the educational system, this meant decision-making within individual schools and leaving more flexibility for district educational authorities and municipalities to play a role in facilitating education at the community level. The responsibility for educational infrastructure was indeed transferred to municipalities, which also had to assume regular maintenance and the provision of basic school materials and equipment (SNV 2006). The intention was to bring policymakers closer to the schools, and to make schools a more integral part of rural dynamics and rural life, amongst others by providing bilingual teaching and tailoring teaching modules and methods to the local context and practices. With the introduction of the *Law on Educational Reform*, the JAEs, together with the CEPOS (educational councils for indigenous peoples) were to become the backbone of community participation in education. The possibility to adapt part of the curriculum to local circumstances received limited attention, however, as did the required accent on teacher training (with an emphasis on competences) and the tailoring of educational resources (e.g., libraries, ‘learning corners’ and teaching materials).

The *educational reform programme* was taken forward from 1994 until the entry of the MAS government in 2006, when preparations started for elaboration of a new law, the *Ley Avelino Siñani – Elizardo Pérez*, placing more emphasis on aspects such as the desired ‘decolonization’ of education, territorial integration, intercultural dialogue and technical training. The new law was approved in late 2010, leading to at least five years of uncertainty and a ‘legal vacuum’ (Lambert 2012) regarding the application of bilingual education and the direction of educational policies. Since the Morales government took office, a number of additional complementary programmes have been launched or extended to the national level, modelled partly on existing experiences. Until 1996, school enrolment was only obligatory until grade five. Approval of the new law in

2010 made secondary education compulsory, even though conditions in most communities do not yet allow full participation.

The rhythm of policy changes reflects the trends in relation to land (see chapter six), although the first educational reform efforts began almost a decade before the land reform (though sometimes taking unexpected and probably undesired turns). Shortly after the land reform act, the first – but meagre – shift in educational policies took place in 1955. As in land reform, in education almost four decades passed before the next major policy reform was implemented in 1994. Another 15 years later, the MAS government approved again far-reaching reforms in both areas, although, as yet, these still remain very much on paper.

Changes in the region

Compared to the situation back in the early 1950s, the provision of educational infrastructure and services in northern Chuquisaca have changed dramatically, but the pace of change was initially slow. According to ACLO (1975), Oropeza province,³ with a population of 57,000, still counted only 100 primary schools in 1975. Among these schools, just 10-12 reached grade five, and only one extended to the secondary level (*ibid.*). None of these schools had a library, electricity or basic sanitary services; only two schools had access to drinking water; and there were only 31 dormitories for teachers, indicating the still relatively harsh working conditions. Among the more than 14,286 children under 17 years of age, 6,326 attended no schooling at all, and only 5,246 were officially registered. According to ACLO (*ibid.*), of every 100 pupils attending school, 18 learned to read, only 9 were able to finish primary school, and just 1 reached the intermediary level. In addition to the lack of educational infrastructure and accessibility, most teachers were *interinos*,⁴ without supervision and, if stationed anywhere close to Sucre, only working from Tuesday to Thursday.

The logistical difficulties in reaching out to these still relatively isolated schools under the prevailing road conditions were nicely illustrated in an early survey by ACLO (1975): the supervisor for the Chuqui Chuqui *nucleo* in Rio Chico would have to cover 512 km or walk roughly 91 hours to visit the 18 schools under his supervision. For travel and lodging, he might spend around Bs 840 (roughly US \$42) of his own resources. Unsurprisingly, in the four years prior to the survey not one major technical or methodological change had been realized to improve educational results (*ibid.*).

By 2001 the situation had changed fundamentally. According to various sources,⁵ between the city of Sucre and the municipalities of Yotala and Poroma, there were 268 educational units, with 1,953 classrooms, serving roughly 66,000 registered pupils (of a population of 86,000 4-18 years of age), the large majority (60,000) living in Sucre. Among the municipalities of northern Chuquisaca, Yotala, Poroma, Zudáñez, Mojocoya, Tarabuco and Yamparáez, the average net enrolment rate was 88% for primary school and 15% for secondary school. But still only 37% of those starting education finished primary school. A great bottleneck remained secondary education, as only 8 of the 27 municipalities in Chuquisaca had coverage rates greater than 20%, and only a quarter of students starting secondary school completed their *bachillerato* (Montellano 2011).

Yapu (2008, 2011), also using data from the PIED studies, concludes that between 2003 and 2008 there was little change in educational infrastructure in the region. Among four of the municipalities (Mojocoya, Yamparáez, Tarabuco and Zudáñez), only one *nucleo* was added, in Mojo-

coya with eight additional educational units. At the same time, the number of teachers increased by 35-140%, with the highest figures again noted for Mojocoya. The provision of boarding facilities depended in many cases on external funding, with, for example, six different institutions providing support only in Mojocoya. Educational indicators generally improved, but recent progress has not been very substantial, at the national level and for Chuquisaca (Yapu 2011). Against this backdrop we will look in more detail at developments in the research communities.

9.3 Outcomes in education

Recent trends in the survey communities

Practically all of the research communities experienced considerable improvement in access to education (and health) over the past decades, largely following major trends at the national level. Although several communities did not (and probably will not) offer more than primary education, many more students attend secondary education today, either in their own or in a neighbouring community. For a few, this opens the road to higher education, in Sucre or, for example, in the town of Redención Pampa. Geographically *nucleos* (e.g., in Escana, Pampa Lupiara, Yurubamba, Redención Pampa, San Juan, Quila Quila and San Jose de Paredon) were generally situated in the larger, better accessible and more dominant villages, San Juan in this case being the exception (though its *nucleo* covers only primary education). Education certainly makes a difference for those communities with better access, particularly for those with *nucleos*. Gaining access to secondary education, and in a few cases (Redención Pampa) also university education, facilitates easier access to urban destinations. But even the availability of secondary education in communities has not withheld *comunarios* from sending their children to schools either in a neighbouring town or in Sucre.

Table 9.1 presents the dates of establishment and changes in educational levels and attendance as well as availability of boarding facilities grouped according to the different pathways. The nine communities with only primary education stagnated and even diminished somewhat both in average level of education and in school enrolment figures. On the other hand, the recent establishment of secondary schools led to a considerable increase in education levels and enrolment figures in their communities.

9.3.1 Curriculum development

While access levels clearly increased across the board, changes in the quality of education are more difficult to determine. The *educational reform programme* of 1994 was only partially implemented in rural areas. Following communities' demands and also the main sentiment among teachers, most of the emphasis has been on education in Spanish and basic curriculum. Bilingual education and the stronger emphasis on local content received fairly limited attention. For those communities where we carried out a more detailed survey of educational changes,⁶ only in Pampa Lupiara and Talahuanca did we find some appreciation of teachers who were able to teach in Quechua, but in all cases underlining the strong emphasis on teaching in Spanish. Many schools lacked the required materials – some of them still used books from before 1994. Teachers had not received adequate or sufficient training to effectively implement the educational reform law. Lambert (2012) reports similar findings for the Aymara region around La Paz.

Table 9.1
Public service provision in education

Educational level / pathway	Pathway	Community	Year of first school (secondary)	Educational level in 1996 (1-12)	Educational level in 2011 (1-12)	Change enrolment % 1999-2010	Boarding facilities 2011 (distance)
<i>Primary</i>							
Decline	Dryland	Ovejerías Alto	1986	6	0	-56%	None
		Cochapampa San Juan	1990	4	5	nd	None
Growth	Irrigation	Tuero Chico	1991	8	8	-16%	None
		La Abra	1981	5	4	-73%	Anfaya
		Ovejerías RC	1995	5	6	-50%	Yacambe (10 km)
		Sundur Wasi	nd	nd	6*	nd	In valley
		Talahuanca	1993	5	6	-21%	None
Decline	Dryland	Talahuanca	1980	3	3	20%	Yamparáez (6 km)
		Wasa Ñucchu	1983	5	5	-44%	In Anfaya
<i>Secondary</i>							
Decline	Dryland	SJ de Orcas	1995/ (2008)	5	12	89%	Yes
		Quila Quila	1985/ (2005)	7	12	-7%	None
Growth	Dryland	Pampa Lupiara	1954/ (2006)	6	12	50%	None
		Yurubamba	1995/ (2002?)	7	12	nd	None
		Escana	1948/ 1975 (1996?)	10	12	-15%	Yes + Yamparáez (5 km)
		La Cañada*	1973 ?	12	12	nd	Red. Pampa

Source: PIED studies, own elaboration. Note: *La Cañada had no school of its own, but pupils went to the nearby town of Redención Pampa.

Building up educational infrastructure and complementary services

With the gradual expansion of educational services, a range of complementary programmes was implemented, some of which have benefited all communities, while others were oriented mainly to those with secondary education. Among the most visible services, and probably those most valued by communities, were provision of school breakfasts (and in some cases lunch), transport services, boarding facilities (generally related to *nucleos*) and elements related to the educational reform programme itself, such as the libraries, *rincones de aprendizaje* (learning corners) and the introduction of one or two years of preschool. In addition, a range of public services were implemented to improve educational infrastructure, such as sports fields, drinking water, latrines, showers, electricity generated by solar panels, computer rooms, greenhouses and school gardens. NGOs supported programmes related to the quality of education, preschool and early childhood development, participation of girls in school and capacity building for teachers. Both NGOs and municipalities supported the expansion of classrooms and teacher dormitories, while the MAS government started in 2006 a system of conditional cash transfers aiming to keep children in school and defray the costs of learning materials.

An important factor defining enrolment has been demographic changes, partly influenced by the extension of health services. As mentioned before, in 1975 child mortality rates (under five) were almost 40% among the Quechua population. In 1992, for the six municipalities of northern Chuquisaca (excluding Sucre), child mortality rates (<1 year) had gone down to 115 (per 1,000) and in 2001 to 95, but still varying between 75 for Mojocoya and 110 for Poroma. Most health centres provided regular vaccination services twice a year.

The long list of projects and complementary services may generate the impression that most schools attained a rather complete and adequate infrastructure. This is certainly not the case. Table 9.2 shows the substantial variation in projects and investments between secondary (11.5 projects) and primary schools (4.5 projects). The table does not include school transport, solar panels, greenhouses, sports fields, latrines and *bonos* (conditional cash transfers).

While the recent constructions, extensions and improvements of educational infrastructure led to relatively adequate provision in several communities with secondary education (e.g., in Escana, San Juan de Orcas and Yurubamba, though less so in Pampa Lupiara and Quila Quila), this was less true for those with only primary education (e.g., Tuero Chico and La Abra), where the quality of basic infrastructure and regularity of additional services remained lagging. Libraries were often empty, schools lacked basic materials, and solar panels, greenhouses, drinking water and latrines were as likely to be out of order or abandoned as operational. New structures did not always add to the existing capacity. Old classrooms sometimes received alternate uses, either as health posts or boarding facilities (Escana), as dormitories for teachers (several communities), as preschools (Talahuanca) or as meeting rooms; or they were simply abandoned (La Abra, Ovejeras).

The large number of construction projects in San Juan de Orcas reflects the splitting up of municipal projects over a number of individual classrooms (built over a period of nine years), the boarding centre and an administrative centre for the *nucleo*. Over time, quality in design of schools and boarding facilities certainly improved compared to the initial investments (which often exhibited substantial maintenance problems), partly due to the implementation of new building standards by *Fondo Productivo Social* (FPS) and others. Those new standards, however, also led to changes in interactions between communities and external actors, as we will see in the following section.

Comparing the situation in 2011 with that three to four decades earlier, education – much more than health – had become centre stage in most communities, although health outcomes were certainly important too.⁷ Practically everywhere, old or new school buildings and a range of complementary infrastructure were established in the centre of communities. Schools not only provided the main locations for daily activities, but also became centres for meetings and festivities. The infrastructure, sports fields and surrounding areas were collective property and the result of collective action efforts realized over decades. Even communities that faced severe difficulties still strove for further improvement or to retain at least minimum conditions.

Table 9.2
School construction, upgrading and other education-related projects

Pathway	Communities	School construction	Upgrading/extension	Equipment	Cap. build/literacy	Other	Boarding centre	Pre-school/nutrition	Educational centre	Total
Primary-decline	Cochapampa	1			1			1		3
	Ovejeras Alto*		1	1						2
	San Juan	3	5		1					9
Primary-decline	La Abra	1	1							2
	Sundur Huasi	2				1				3
Primary-growth	Tuero	2			1			1		4
	Talahuanca	4	2		2			1		9
Second.-decline	Wasa Ñucchu	1		1		1		1		4
	Quila Quila*	3		2		2		1		8
Second.-growth	SJ de Orcas	12			2	2	7			23
	Pamp. Lupiara	6	4	2	2			2	2	18
Second.-growth	Yurubamba	4		1						5
	Escana	8			1	1	1	2		13
	La Cañada**					1		1		2
	Total	47	13	7	10	8	8	10	2	105

Source: PIED studies, own elaboration. Note: * Data for Ovejeras Rio Chico are not included.

** La Cañada had no school of its own, but does have access to primary and secondary education in Redención Pampa, data not included.

9.4 Internal and external agency as drivers of educational change

A wide range of factors may help to explain the unequal distribution between communities in educational facilities and outcomes. These include early community demands, communities' capacities and willingness to embark on collective action efforts, the implicit but underlying competition between communities in claiming access to public resources, and differences in perceptions and responses among individual households and even students themselves.

Analysing a primary school in a small community in the Andean valley of Tarija in 1996, Punch (2004) finds a range of constraints affecting confidence in the educational system, probably also influencing the long-term benefits of school attendance. She mentions, amongst others, failure and repetition of years, uninspiring teaching methods (e.g., copying textbook exercises), high labour demands at home (leading to subsequent late enrolment and limited time for homework), frequent illnesses and continuous (seasonal) migration to nearby towns. Combining students in multigrade classrooms, furthermore, reduced teacher attention and opportunities for focused learning. Teachers were underpaid, lacked adequate training and were often reluctant to dedicate time to preparing lessons. They were also frequently absent, due to labour strikes, competing interests in their personal lives and other reasons, some justified and some not. Parents also lost interest if they had little confidence in teachers and educational content and needed children for livestock tasks or other activities. Stories told by migrants returning from employment elsewhere often presented a picture more attractive than investment of the substantial time and money required to attend secondary education in a nearby town or city. These images and

constraints together reduced motivation and effective participation, with many students not even finishing primary school (*ibid.*).

The factors identified by Punch (*ibid.*) for a valley community in Tarija are similar to those encountered in Cochapampa, Talahuanca and San Juan. These communities experienced few changes in level of education and school enrolment. Students were ‘lost’ early on to alternate labour opportunities in the community or to migration (both for work and for education elsewhere). A range of schools had to revert to multigrade classrooms, diminishing further the effectiveness of education and increasing the burden on teachers and students.

Notwithstanding the many ‘constraining’ factors, education remained a high priority among all the survey communities and the families involved (Yapu 2010). As noted, collective action in the initial stages was important to obtain minimal levels of access. But for education as well as for health, bottom-up processes alone do not account for the actual distribution, as external actors quickly stepped in and started to play a major role. Education became essentially a ‘coproduction’.⁸ The question then arises of what scenarios of interaction between citizens and external agencies deliver the most effective outcomes (Ostrom 1996). Banerjee *et al.* (2007: 3,122) indicates that external factors and change processes, such as the use of new technologies, ways of service provision and “the compulsions of the state” are often largely unrelated to local dynamics.

Is education a driver for change and pathway differentiation? We sought to answer this question via in-depth fieldwork studies on educational change in six communities. Looking back at the summary outcomes of the previous section we find Cochapampa and, to a lesser extent, Talahuanca at the bottom of the scale in terms of educational outcomes, while Escana, Pampa Lupiara and San Juan de Orcas reached the highest attainment, extending through secondary education, and they experienced the most substantial changes over time. San Juan and Quila Quila started off well, but stalled halfway, while Ovejerias made a full transition (to a range of new schools). Tuero Chico and La Abra were able to make relatively effective use of boarding schools elsewhere, and many of their students completed secondary education. Education influences or may even give new dynamism to community life, but local circumstances and external factors may constrain educational efforts as well.

Table 9.3 presents an initial picture (probably still incomplete) of differences in project histories related to education and health in the research communities. Most communities that had access to secondary education at the time of our fieldwork had obtained their initial access to education earlier. The timeline of interventions alongside the wide range of institutions involved illustrates the (ir)regularities in distribution and sequencing of external interventions. This raises questions of timing, coordination, effectiveness and complementarity, both from an institutional point of view as well as from the perspective of communities themselves. In the initial stages, organization of support might have been relatively easy, as communities basically lacked everything. The table does not immediately highlight differences in main pathways, but it does confirm the benefit of *early movers* in attaining the status of *nucleo* or gaining access to secondary schooling. This was not automatic, however, as considerable time was required for Pampa Lupiara (22 years) and Escana to advance from the establishment of schools to obtaining *nucleo* status, and Yurubamba only caught up recently.

Table 9.3
History and frequency of education projects

Pathway	Level	Community	Year (starting 1955)										Total		
			55	60	70	75	80	85	90	95	00	05		10	
Dryland decline	1	San Juan #	1		2				1		2	3			9
Dryland growth	2	P. Lupiara #	1					2		1	1	10	4		18
Irrigation growth	2	Escana #	1	1	1					2		5	4		13
Irrigation decline	2	Quila Quila #		1			4	1				1	1		8
Dryland decline	2	SJ Orcas #			1		1		1	1	4	12	3		23
Dryland growth	1	Talahuanca			2	3	1		1				2		9
Dryland decline	1	Cochapampa					1	1	1						3
Dryland decline	1	Ovejeria						1	1						2
Irrigation decline	1	Tuero						2	1		1				4
Irrigation growth	1	Wasa Nucchu					3		1						4
Irrigation decline	1	La Abra							1				1		2
Dryland growth	2	Yurubamba #							1	1	1		1		4
Irrigation growth	2	La Cañada							1	1					2
Dryland decline	1	Sundur Huasi							1		1		1		3
Total			3	2	6	3	14	3	14	4	25	26	6		104

Source: PIED studies, own elaboration. Note: # With a *nucleo* in either primary (San Juan) or secondary (rest). These communities had higher-level health facilities. Level: 1=primary, 2= secondary education.

The establishment of the first (often rudimentary) schools required a concession of land to the school, advocacy and paperwork, and sometimes the internal collection of contributions to pay teacher salaries (*items*). After a decade or two, communities decided to rebuild (almost everywhere) and often relocate school buildings, and in a few cases they split up internally because of excessive distance (e.g., La Abra and Cochapampa) or due to ongoing disputes (as in Quila Quila and Escana). Further improvements in equipment and teaching materials, such as glass windows, a blackboard, additional classrooms and electricity connections, were often the result of continuous requests and negotiations and, not least, substantial labour contributions of the entire community. Once a school was up and running, the community had to remain involved, not only in terms of parental interest, to assist the teacher and discuss curriculum issues, but also to organize or support the organization of school activities, breakfasts, water provision, cleaning and minor repairs. At the same time, new demands arose for further extensions, improvements and complementary programmes.

For practically all *nucleos* or secondary schools, the school was not only an internal affair, but required involvement and coordination with neighbouring communities. Community labour to build schools and maintain them was common practice until at least 1996. With the introduction of municipal decentralization, and principally due to new modalities of school construction and with municipalities assuming ownership and responsibility for maintenance, community participation in public works gradually declined.

An important step in defining the educational profile of a community was its recognition as a *nucleo* or sectional community. The first group, after the initial educational cycles, gained access to secondary education around the late 1990s or early 2000s, and students became generally able to attain higher schooling outcomes. Those communities, with the exception of San Juan de Orcas,

still showed some population growth in the first decade of the 2000s. The second group had access only to primary education in their own communities; for secondary education, they had to travel to a neighbouring community, a nearby town or even the city of Sucre, and were often dependent on the availability of suitable boarding facilities. Dropout rates were generally higher in these sectional communities, and involvement of parents in education was less consistent than in the first group. Nonetheless, practically all communities experienced an initial rise in enrolment and subsequent decline in later years. Once decided,⁹ the definition of *nucleo* versus *sectional* schools may have had long-term consequences for the broader educational structure within communities. Those that became a *nucleo*, gained access to a range of additional facilities, like improved sports fields and boarding facilities. Figure 9.1 shows the central position of Escana within its *nucleo* network, while San Juan (with only a primary-level *nucleo*) and Talahuanca (only primary sectional) lost a number of students to the town of Yamparáez.

For communities like Yurubamba and San Juan de Orcas, their new status as *nucleo* did not bring automatic advantages. Neighbouring communities with good conditions in some cases competed for a similar status or to attract boarding facilities, for which they lobbied both to municipal representatives and NGOs. In competition with the neighbouring community of Sassanta, Yurubamba requested both an extension of its secondary school facilities and a boarding centre, while San Juan de Orcas nearly lost its position and the attractiveness of its own boarding centre to Pojpo.

Micro-politics around the school

To understand how community agency influenced educational outcomes and pathways we must look in more detail at the interactions between communities and the ‘broader’ educational structure. The organizational structure of schools within their community typically had its own logic, often depending on the specific history, status (*nucleo* or sectional), size, dynamics and continuous negotiation processes and (in)formal relations between the community organization and school itself (the director, teachers and administrative staff).

The school, at the same time, followed national legislation, regulations and guidelines for operation, monitoring and supervision. It was financed by local governments and received various forms of external support in the form of capacity building, curriculum reform and the like. Ultimately, the school was a negotiated structure (Giddens 1984), in constant change, driven by different forms of agency, rooted in networks and routines that structured interactions and defined and redefined structures. Such a micro-political perspective on schools as an educational institution must take into account the diverse and changing contextual settings in which the interactions between internal and external forms of agency take place. Connections between community members and organizations and the school board and directorate, teachers, governments and NGOs may be cooperative, conflictive or indifferent (Montellano 2011), and their outcomes might lead to coproduction, or following Mason (2009), to either failure “in an endless and vicious cycle” or “sustainable, positive, system-wide change and development in education”.

Figure 9.1
Distribution of nucleos and sectionals in Yamparáez in 2007



Source: PDM Yamparáez, 2007.

The community organization responsible by law for education was the *Junta de Auxilio Escolar* (JAE). The first JAEs were founded with a limited mandate and did little more than ‘assist’ teachers in their daily work (Contreras & Simoni 2003). The introduction of the 1994 educational reform law gave JAEs a new mandate. They were now to become more closely involved in school affairs, participating in defining the content of the school’s educational projects; supervising im-

plementation of these projects; organizing assistance to the director, teachers and administrative personal; supervising financial resources; supporting development of curriculum and extracurricular activities; and even requesting dismissal of the director or teachers in cases of severe misbehaviour. According to Pablo (2010), more than just participation, this mandate implied a transfer of some state responsibilities to the JAEs, giving them a policing role, making parents at the same time ‘clients’ as well as ‘bosses’ (*ibid.*). Partly as a consequence of the narrow focus on teacher assistance, mutual complaints and sometimes direct confrontations were frequent in some communities.

Even though most day-to-day affairs were discussed in the JAE, on more principal issues, *sindicato* or *ayllu* authorities sometimes took the lead, and teachers or directors were generally invited to participate in community meetings. School participation, in the end, nonetheless depended much on decisions made at the household level. Individual households could decide, even acting against community decisions or possible sanctions, to take their children out of school or to send them elsewhere for further education. Although today even secondary education is free and compulsory, the available options to access secondary school have remained limited. Some households – or in some cases individual students – may opt, for instance, to migrate or access secondary education elsewhere.

Today, every community has a JAE, and all of these entities are part of a district and national organizational structure. Communities do differ in the dynamics of their JAE, but the main focus almost everywhere remains organizing assistance to teachers and students. JAEs also play a role in elaborating *annual educational plans*, supporting daily activities, such as school breakfasts, organizing school transport and events and sometimes arranging supplementary school materials. Although the JAE today is mandated to play a role in planning and curriculum development, this seldom occurs. The means to oversee the quality and content of education remain curtailed, due to national instructions and guidelines and the limited capacity and venues for influencing these effectively.

Most JAEs appear similar in their daily operations and focus, although there are certainly differences in ‘job interpretation’. The general composition and participation in the JAE is decided at the community assembly, and issues related to the school may often be placed on the agenda of the regular *sindicato* or *ayllu* meetings. The JAE thus operates in parallel to these other community organizational structures, and although on paper and vis-à-vis the school it has a substantial mandate, within the community it often lacks the political weight to take important decisions. This partly relates to the way representatives are nominated and the general lack of interest in fulfilling these positions, which provide less prestige than positions in the *sindicato* or *ayllu*. Histories and practices of JAE member selection differ, depending also on the size and status of the school. In Pampa Lupiara, the JAE had 14 different *cargos*, similar to the *sindicato* structure, including a president, a secretary for external relations, *actas*, finance and 10 so-called ‘vocals’, representing different segments of the community. The JAE’s 14 board members normally met once a month with an additional meeting held to inform parents of outcomes. It was very difficult to guarantee participation, as few *comunarios* wanted to assume this ‘voluntary’ job. In Pampa Lupiara, members were elected from among parents, but this was not the case everywhere, as in Talahuanca (with only 6 positions) even families without children were allowed or sometimes even obligated to participate. According to a teacher in Talahuanca, “the community makes the mistake of obligating them when they don’t have children [being less motivated to promote activi-

ties], and not knowing how to read or write makes it difficult for them to function as president or member of the parent-teacher association” (interview, July 2010).

In communities with *nucleo* status, the issue of parent participation was even more complicated. Parents from neighbouring communities often had to travel long distances, and transport facilities were sometimes unavailable. They were therefore even less willing to participate in the JAE. This put some schools in a difficult position (e.g., in San Juan and in Escana). Parents with an already declining interest in assuming responsibilities in community organizations became even more unwilling when they had to take on more than their own ‘fair’ share. While the *nucleos* had the benefit of direct access to services, the households involved also carried most of the burden. For the JAE in the town of Yamparáez, supervising a *nucleo* with boarding students from Escana and San Juan, it became almost impossible to find men willing to assume these positions. In 2010, the entire board was made up of women, and men even refused to come to parent meetings for fear of being elected to the board (Montellano 2011). One reason for the limited interest among men might be that the main activity of the JAE was organizing breakfast preparation and monitoring teachers.

On the part of the school, frequencies and patterns of interactions with the JAE depended on its size as well as the level of education and number of teachers involved. For smaller schools, such as in Talahuana, interactions between the JAE and the teacher working in the community were relatively informal and cooperative, especially as teachers normally stayed around for several years. But in the *nucleo* and secondary schools with 10 to 20 teachers, the director assumed a more predominant role in daily interactions. The director was the main authority within a relatively vertically organized institution with a tradition of top-down annual planning (Montellano 2011). Community representatives may complain about the behaviour, lack of punctuality and absence of individual teachers or the lack of progress among students, but they were seldom involved in systematic discussions of educational policy issues. Parents were also hardly aware (or remained uninformed) of government policies, for instance, related to the new *Abelino Sinani* law. In practice, instead of being a democratic platform for dialogue between the board of the school and the JAE, JAE meetings were basically venues where social differences between teachers and parents were accentuated.¹⁰

Impact, relevance and responses to changes in educational services

The previous section elaborated on the wide range of education-related programmes implemented in the research communities. Those programmes had common but also diverging impacts on the functioning of schools and community dynamics. Before the introduction of school transport, children often had to walk between one and four hours to attend school. School transport today also facilitates the regular (and punctual) arrival of teachers. Provision of breakfast, and sometimes lunch, stimulates better concentration during school hours. In addition, local produce is sometimes used, providing additional income to farmers. Only a few communities offered *early childhood development* services or had established preschools to facilitate smooth and early entry into the educational system and to provide parents, women in particular, more time for other activities. Finally, the conditional cash transfer facility (*bono juancito pinto*) initiated under the MAS government, has made an important contribution to parents’ acquisition of school materials, although it remains uncertain whether the *bono* of Bs 200 (around US \$30) has in fact promoted greater school attendance or has been used for alternate purposes, as suggested by remarks regarding a farmer absent from a community meeting: “He is getting drunk with Juancito

[the conditional cash transfer]”. In San Juan, parents skipped enrolment of their children in pre-school, as the *bono* was only paid from the first year of primary school onwards.

Boarding accommodations were available in only a few communities, generally those with secondary education. These, nonetheless, facilitated active and continuous participation of students from outside the community, even when parents had migrated to the school location too. Although the importance of boarding facilities should probably not be overestimated, as many were operating far under their capacity, they had brought a range of positive and negative externalities. These included reduced labour availability at home – though also less absenteeism from school – and additional costs, paid for by both parents and students (by working during holidays). Boarding facilities provided additional opportunities for learning and experimentation as well, which particularly favoured girls’ continued attendance in secondary education (Yapu 2011). The long-term absence from home may facilitate a next move to a city or more permanent migration elsewhere. While students’ residing at home allowed them to spend time doing household chores or in agricultural production, the advantage of boarding was to have more time available for study, which, according to several teachers, led to better school results.

The challenges of school enrolment

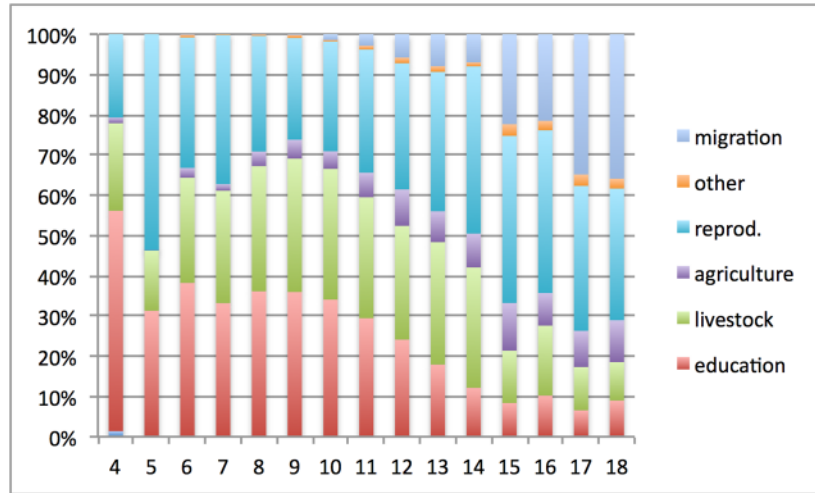
The gradual introduction of compulsory education and its expansion to the secondary level has brought substantial challenges for school enrolment. Figures 9.2, 9.3 and 9.4 show the situation in 1996 among the 17 research communities included in the PIED-Andino survey. The figures show the time spent on school for the population 4–18 years of age in relation to other community practices, such as agriculture, livestock, migration and reproductive activities (e.g., cooking and cleaning).

Figure 9.2 shows that far from schooling being the predominant and exclusive activity, students dedicated just as much time to caring for livestock and reproductive activities throughout the year, with more time spent in agriculture and migration rates rapidly rising among those older than 12 years of age. Only Escana¹¹ had local access to secondary education in 1996, which explains the rapid decline in school participation figures for those older than 12. Among those attending school in Escana, we counted on average 150 days spent in school, for Tuero Chico this was 100 days and for Cochapampa even less, while students spent roughly double the amount of time caring for livestock. Figure 9.3 presents the substantial difference between girls and boys in time spent in school, with almost 50% higher rates for boys, who also spent more time in agriculture and dedicated slightly more time to migration. Girls, however, spent far more time on livestock and reproductive activities.

Finally, figure 9.4 presents the interaction with the agricultural calendar, indicating that time dedicated to livestock, agriculture and migration was certainly not limited to holidays. For boys and girls, the additional time spent on livestock and other activities may have severely curtailed attention to school and homework.

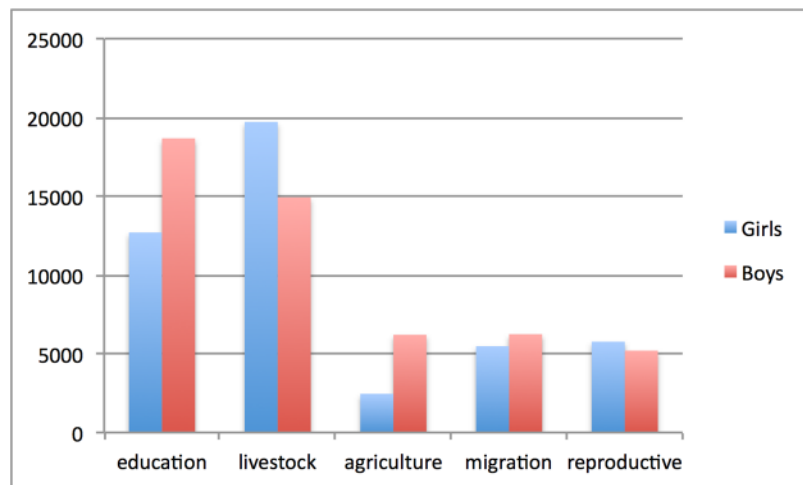
The increasing availability of secondary education from 1996 to 2011 and the recent introduction of compulsory secondary education have substantially impacted labour availability and led to postponement of migration. This trend has been exacerbated by the parallel decline in household size.¹² Households had on average 1.5 to 2 children (4–18 years of age) in more or less continual school attendance. This drastically reduced the labour available within the household for agriculture and, even more, for ‘lighter’ work, like caring for livestock.

Figure 9.2
Time shares on activities in 17 communities for population aged 4-18, 1996



Source: PIED studies, own elaboration. Note: N=136 households.

Figure 9.3
Time (days) spent on activities in 17 communities for population aged 4-18, July 1995 through June 1996



Source: PIED studies, own elaboration. Note: N=136 households.

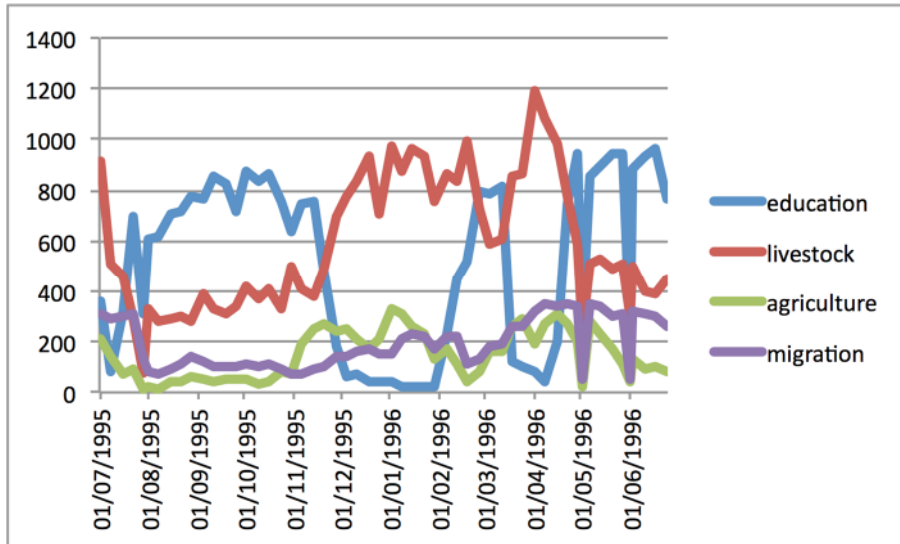
In addition to annual variations, school participation also fluctuated over time. Overall, enrolment remained stagnant or even declined for a number of communities.

Figures 9.5 and 9.6 show the diverging trends in school participation between communities and differentiated according to the main pathways. As evident from figure 9.6, the *growth* pathways had the higher enrolment figures and growth rates (experiencing on average a 34% increase

in enrolment compared to 2% for the *decline* pathways). Disaggregating this further, the larger communities with secondary education all exhibited at least several years of growth (especially between 1999 and 2005) culminating in a 33% increase in enrolment, while most of the smaller communities – or those with primary education only – exhibited a steady drop over time, resulting in an almost identical decline (33%). One of the two largest schools is the Franz Tamayo College, located in the town of Redención Pampa and therefore an attractive alternative for students from La Cañada and other neighbouring communities. The more recently established secondary schools in Pampa Lupiara and San Juan de Orcas also showed relatively rapid growth in student numbers. This seems surprising for San Juan de Orcas, a community with a declining population. Here, the influx of students from neighbouring communities can be attributed to the fact that it offers higher levels of secondary education and to its recent establishment of a boarding facility. The earlier decline in Escana can be explained in part by the interruption after 2004 in the finishing of the irrigation infrastructure (which was resumed only in 2008 and completed in 2010, see chapter eight). This led many families to migrate to Sucre and Argentina. In Quila Quila the decline was due to establishment of a separate *ayllu* school in Pukurani, partly related to the ‘ideological’ conflict between the *ayllu* and *sindicato* structure, discussed in chapter six. The figures also show an initial decline in 2010, even for those communities that expanded into secondary education between 2000 and 2005. Detailed figures for Pampa Lupiara and San Juan de Orcas confirm these trends. However, as data for the last two years were probably gathered using a different methodology, caution is required in interpretation.

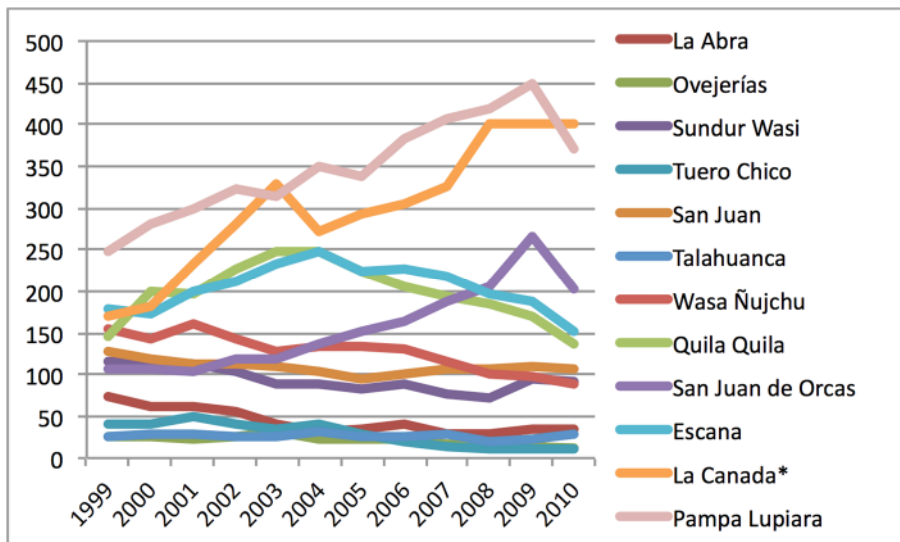
For some communities with primary education only, including Tuero Chico, Cochapampa¹³ and La Abra, their limited size and declining enrolment may end in school closure. It is probably no coincidence that these communities all experienced a process of separation from formerly larger communities, which in the case of La Abra even extended to the establishment of a separate school.¹⁴ The primary school in Ñucchu still benefited from the fact that it brought students together from three communities located close to each other (especially as they were connected by pedestrian bridges). But overall in the three Ñucchus there was concern for the viability of the school, which counted 156 students in 1995, but had only 88 in 2010. Another community not included in the figures is Ovejerías Alto, as this community lost its entire student population in a period of just a year or two (1995-1996). In Ovejerías, the lack of (drinking) water in the higher areas, the availability of alternate schooling options in the Río Chico valley and the abrupt departure of the teacher led to closure of the school in 1996. A group of community members took all of the remaining school equipment (including doors and blackboards) to the valley. Thus, the school was virtually stripped, leaving no prospect for its reinstatement (pictured below).

Figure 9.4
Activity calendar (days) in 17 communities for population aged 4-18,
July 1995 through June 1996



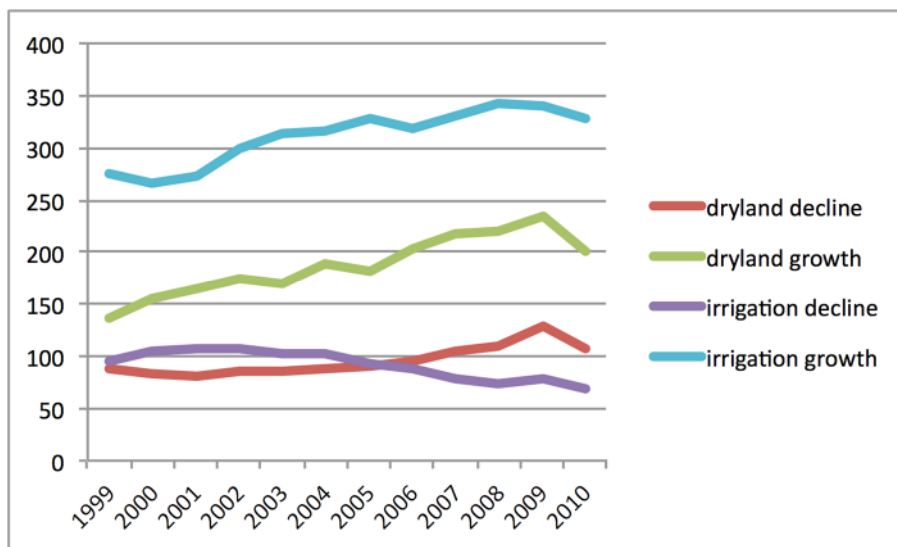
Source: PIED studies, own elaboration.

Figure 9.5
Trends in school enrolment (abs. numbers), 1999-2010



Source: SEDUCA and community reports.

Figure 9.6
Trends in school enrolment by pathway (abs. numbers), 1999-2010



Source: SEDUCA and community reports. Note: * Relates to school in Redención Pampa.

Differences in the rate of growth or decline in student populations may be associated with the date of establishment of the primary or secondary school. Primary schools in the *growth* pathway communities were established 12 years on average before those in *decline* pathway communities, but the extension or establishment of a secondary school (gradually building up to the *bachillerato*) generates an additional growth effect in the first couple of years. Considering the strong population decline in San Juan, the reduction in enrolment in its primary school has not been very marked. This is largely due to the fact that San Juan is the only primary-level *nucleo* in the municipality of Yamparáez, and it still receives pupils from neighbouring communities in the higher primary grades. The decline in the lower grades and early education is already threatening the number of *items* (teacher salaries) available. San Juan would normally become a logical place to establish a *nucleo* for secondary education, but its proximity to the main town of Yamparáez – with a large secondary school – and the declining population numbers within San Juan and its neighbouring communities have considerably reduced this prospect.

The consequences of declining enrolment are particularly severe for *non-nucleo* primary schools. As a first response to declining populations, grades are combined into so-called *multigrado* classes. This is disadvantageous because teachers need to divide their attention among different educational levels.¹⁵ In addition, communities risk losing *items* when the number of pupils drops below a certain threshold. Consequently, school infrastructure becomes oversized and may also suffer from lack of maintenance.

The most extreme example I encountered in 2011 was in the community of Llavisa (part of the 1996 PIED survey), where there was just one classroom and one teacher for the entire primary school. Although larger schools may have some parallel classes, most of the smaller primary schools were to some extent already *multigrado*. The decline and sometimes substantial fluctuations in student populations per grade are major worries for schools as well as for communities. At the primary level, the mere existence of a school may be at risk, while dropout rates rise rapid-

ly in the initial years of secondary school.¹⁶ Nonetheless, compared with the extremely low net coverage rate in 2001 in the municipality of Poroma – 4% and 0.7%, respectively, for boys and girls – communities like San Juan de Orcas certainly experienced major improvements in secondary school enrolment. Figure 9.7 presents gender differentiation in enrolment in 2011 in that same community.

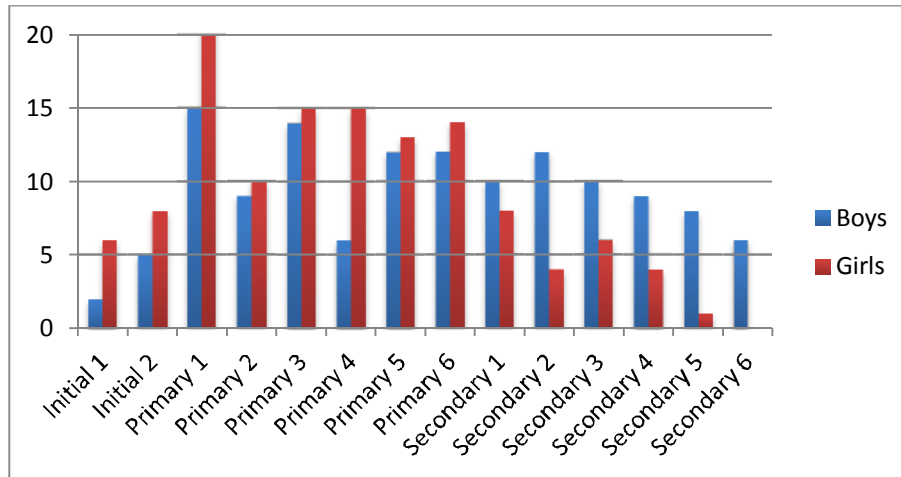
For Pampa Lupiara, the trends in dropout rates and differentiation between boys and girls are similar to those in San Juan de Orcas. While the average number of boys declined from 25-26 in primary school to around 11-17 in secondary school, for girls the number declined from 25-29 to just 4 in secondary school over the period from 2006 to 2010. The share of drop-outs or repeaters increased from less than 1% in 1999 to 5-8% in the period after 2000, with an exceptionally high rate of 17% in 2009. Fieldwork interviews in Pampa Lupiara highlighted five motives for the decline in school attendance:

- limited school facilities, in particular at the secondary level;
- economic limitations preventing parents from keeping their children in school after grade eight;
- parents' lack of involvement in their children's education, reflected in limited follow-up and capacity to help with homework and provide schooling materials;
- increased temporary migration of parents;
- increased migration of adolescents – from age 14 – and absences from school due to illness, harvesting work and migration (in particular in Sucre and Santa Cruz).

To respond to these negative developments, some communities have taken measures such as levying fines (up to Bs 500) for those not bringing their children to school in the community. Pampa Lupiara, Cochapampa, San Juan and Tuero Chico introduced fines to guarantee attendance at least until the end of primary education, but even so these latter three communities may well face further abandonment and eventual school closure, following in the footsteps of Ovejeras. Smaller communities also tried to increase participation through other measures. Both in Talahuanca and San Juan illiterate parents were obligated to join the government literacy programme, in the hope that participation would stimulate their involvement in relation to the school. Community leaders indicated that community support might be withheld if they did not participate.

The extension of secondary education in some cases led to surprising developments. In Pampa Lupiara, it motivated the four older children of Flores Pachacopa to finish their secondary schooling. The eldest, 29 years old at the time of the fieldwork, finished his *bachillerato* in 2010, the second son, who was 26 years old and a daughter, 23 years old, were finalizing their 5th and 4th years of secondary school, respectively, and the youngest daughter, age 20, had even returned to the 5th grade of primary school. In this family, direct (and easy) access to education certainly reignited dormant aspirations.

Figure 9.7
Gender composition of student enrolment in San Juan de Orcas, 2011



Source: PIED report on San Juan de Orcas, own elaboration.

The *irrigation growth* pathway communities of Escana and La Cañada had probably produced the highest numbers of *bachilleres* and a relatively large number of professionals, due to their longer history of direct access to secondary education in the community or a nearby town. For other communities, the introduction of secondary education was more recent. Pampa Lupiara celebrated its first group of *bachilleres* in 2009 and San Juan de Orcas only in 2011. The number of young people in *dryland* communities with only primary education had dropped substantially and in some communities (e.g., Talahuanca and Cochapampa) was either zero or just a few. The *irrigation decline* pathway communities¹⁷ did relatively well, due to their sustained access to boarding facilities in the region and relatively high capacity of parents to support their children throughout secondary education. La Abra, an isolated community, had already produced more than 40 students finishing high school, most of them studying at the secondary level in Redención Pampa or in Yacambe, a nearby community with its own boarding centre. Before the establishment of the boarding centre and the provision of school transport, students had to walk several hours every day to attend secondary school. The long-term effect of having more professionals is certainly ambiguous for development of the community, as most of them will permanently migrate.

Higher rates of enrolment have multiple consequences for community life. In addition to the overall decline in household size, the gradual increase in attendance of both primary and secondary schooling and the greater frequency of continuing education in urban areas have increased the need for contract labour during agricultural peak periods. As a *comunario* from Talahuanca commented in 2011, “We don’t want our children to stay out of school, we prefer to leave the sheep the whole day enclosed in the corral, instead of them missing school”. Higher levels of education and professionalization also reduce interest in returning to farm in the community. They may also imply changes in the readiness of young people to assume leadership positions, the way community meetings are conducted and the direction of discussions regarding technological innovations and political developments.

The pace of curriculum reform

Bilingual education was among the principal objectives of the educational reform programme of 1994. In addition, emphasis was placed on participatory methodologies, experimental practices and fields, introduction of school libraries and teacher training. This section focuses mainly on bilingual education, as well as on the focus of the curriculum, as these were important aspects driving the quality of education and students' prospects for completing higher levels of education. It is important to emphasize again that between 1955 and 1994 limited changes were introduced in the curriculum and in teaching modalities.

As both old and new teachers had to be trained and materials adapted and circulated, it would have taken many years to achieve nationwide implementation of the 1994 reform, even if the programme had been carried out according to plan. Teachers did initially receive additional training from pedagogical advisors or consultants. According to Lambert (2012) these advisors, generally themselves equipped with a few months of training, often earned significantly higher salaries than the teachers did. This difference in earnings, combined with the fact that many assumed more the role of 'instructor' than advisor, caused much resentment and resistance among teachers (*ibid.*). In San Juan de Orcas, both teachers and community members were suspicious of the advisors, "they come with regulations from abroad, they come to control" (community meeting, San Juan de Orcas 1996). This is not completely surprising, as the Sanchez de Lozada government (1994-1997) which introduced the educational reform programme was directly associated with neoliberal policies and external support (*ibid.*). An evaluation of the educational reform process highlights the difficulties in the period between 1996 and 2002, noting that the reform was both fragmented and overloaded at some point: "Teachers were overwhelmed. New and more demanding curricula and pedagogy turned their worlds upside down. Incorporating bilingual and intercultural education added further stress and challenged long-held assumptions and values" (Contreras & Simoni 2003: 15).

Not only were teachers burdened with a new agenda and an often diametrically different paradigm of working. Parents, too, mobilized against teaching in Quechua, and against bilingual education in general. They felt (and generally still believe) that Spanish is the way forward for their children to find their place in society. Parents also disagreed with new educational methods introduced in the context of the reform programme (e.g., 'learning in the field'), which they considered irrelevant to their children's education. In practice, projects and new didactics and sequencing required students and teachers to leave the classroom and 'experiment' in the fields (Yapu 2011). Nonetheless, the persisting disconnect between the curriculum and the immediate rural context remains surprising and is illustrative of the overwhelming perception of education as basically the way forward for children to prepare them for a life elsewhere. Likewise, the quality and availability of teaching materials varied widely. Only in Quila Quila did we encounter an explicit effort to establish a 'culturally adapted' curriculum, but the foundation of a separate indigenous school had undermined attendance at the main school and led to subsequent disputes. The 'ideological' underpinnings of this alternative school, which the *ayllu* (see chapters three and six) had managed to establish with NGO support in the remote area of Punkurani, was perfectly in tune with the ideal of an autonomous indigenous territory, with its own curriculum and teachers.¹⁸ We found a more positive (and widely supported) experience in the community of San Jose del Paredón, where a pilot had been implemented in bilingual education along with a revalorization of local culture (Yapu 2011).

Notwithstanding the abovementioned difficulties, the overall conclusion of the evaluation report by Contreras and Simoni (2003: 36) is generally positive regarding the impact of the educational reform programme:

[T]he new system of evaluation which initially baffled parents, brought them closer to the school and caused them to participate more in their children's school experience. The new method of teaching reading, which takes longer for students to learn but enables them to have an improved comprehension of what they read, also brought parents closer to the school.

It further highlights observations expressed by parents in a focus group, "Children demonstrate greater self-confidence and are more expressive, articulate, and inquisitive" (*ibid.*: 36). Citing Mengoa Panclas *et al.* (2002), Contreras and Simoni (2003: 33), however, also mention a study indicating that just half of the teachers used a constructivist approach:

The remaining half were almost evenly split, with one-quarter using a mixed approach and the other quarter declining to specify. Only a small fraction of teachers had fully comprehended the learning modules' use. Most saw them as activity books to develop creative games with children – a potential waste of time.

For the older teachers, adapting to a new approach after decades of applying a standard, top-down curriculum in Spanish and discouraging the use of native languages, was almost impossible, reflecting path dependence and a tendency towards 'lock-in'. The change required a different method of teaching, constant critical reflection, more space for experimentation among students, less emphasis on control and a complete turn-around of the customary disciplinary measures (previously including corporal punishment). New teachers were not yet trained, and this would take years to consolidate (*ibid.*). Lambert's (2012) more recent analysis confirms the success of the initial pilots and the positive outcomes related to increased indigenous participation, declining drop-out rates and greater engagement and achievement among indigenous children, but also points to a wide range of problems and the still disappointing results in bilingual education.

Even in those communities where elements of the educational reform programme were advanced, implementation was only partial. In San Juan, implementation was very limited. The school established a few 'learning corners' and developed some teaching materials reflecting the reform programme, but teachers did not use them. The experience in Escana was more positive. Teachers indicated that students increased their classroom participation in the initial years and lost some of their 'timidity'. Quechua experienced a brief resurgence, but interest among teachers soon diminished. In Talahuanca, teachers were still combining Quechua and Spanish, as they had done before the *educational reform programme* began (Yapu 2011). In Pampa Lupiara, 70% of the teachers still used 'learning corners' and taught in both Spanish and Quechua, while the remainder used only Spanish. Even in this community, with its strong emphasis on traditional culture,¹⁹ resistance against teaching Quechua was strong. According to Lambert (2012), many parents did not understand why their children should be learning Quechua, a language they already spoke and which had often been a reason for discrimination and marginalization.

The *educational reform programme* also encountered bureaucratic and logistic obstacles. A review of the experience of the *nucleo* school in the town of Yamparáez (also attended by students from

Escana and San Juan) reveals that the annual school calendar was often not fully implemented. About three days a month were lost to either workshops for teachers, special meetings, paydays, sports events or labour strikes (Montellano 2011). In addition, teaching was interrupted by climatic hazards and temporary inaccessibility. Teachers, dependent on transport availability, often travelled in the weekends, arriving late on Mondays. In Quila Quila this provoked numerous disagreements between the JAE and the school. Contreras and Simoni (2003: 49) note the reluctance of district-level offices to adapt the annual calendar to local circumstances, “despite long-known problems caused in agricultural areas by a rigid, centrally determined school schedule”.

Lambert (2012) concludes that the programme for bilingual education had been in crisis since 2002, due to several years of political instability (2003-2005) and multiple changes in government, both before and after the entry of the Morales administration. Further contributing to this was a lack of qualified teachers – and their frequent confrontations with the pedagogical consultants who were supposed to be training them – and, especially, the diverging ideas about the goals of the bilingual education programme (*ibid.*). Problems were exacerbated by suspicions and sometimes radically opposed visions amongst the indigenous communities themselves.

While progress was made in terms of access to schooling, the picture emerging from the research communities and the literature suggests that the quality and content of education left much room for improvement. This limited the effective entry of graduated students into universities and other institutions of higher learning and the usefulness of their education for finding better job opportunities than they might have done without a diploma. Nonetheless, higher education certainly contributed to ‘personal development’, facilitating a more vocal presence of women in community meetings, in assuming leadership roles and in defending their rights as *empleada*. It may evidently also contribute to achievement of greater educational attainment and well-being for future generations.

External engagement and community participation

External actors played – and still play – a major role in building up educational infrastructure and in a range of complementary programmes. In the initial decades after the land reform, from the 1950s to the 1980s, educational infrastructure was mainly implemented by the *Servicio Nacional de Desarrollo de Comunidades* (SNDC) (with support from USAID), and NGOs such as ACLO, Plan International, IPTK and Caritas, with Plan International playing the most active role. NGOs supported school construction as well as complementary activities and curriculum reform. The regional government – in the form of the *Corporación de Desarrollo de Chuquisaca* (CORDECH) – played a minor role, while the Ministry of Education was active mainly in curriculum reform, teacher training and distribution of resources among the various governmental actors. UNICEF and social funds such as *Fondo de Inversión Social* (FIS) and FPS became involved in recent decades. Furthermore, the municipality came to play a dominant role in education, assuming responsibility for school construction and maintenance with district educational units acting as the main point of contact for the schools and the parent-teacher associations.

Municipalities signed a wide range of cooperation agreements with external partners, often involving substantial contributions from both sides. Among the six municipalities of northern Chuquisaca, roughly 11% of total education outlays and about 9% of health spending was tied to these kinds of agreements, with counterpart contributions varying from 20% to 80% of the total. UNICEF (via various programmes related to education, health and sanitation), ALFALIT and Yó

si puedo (both related to literacy), PAN, PEN and PLANE were the principal actors in Poroma and Yamparáez, though other organizations were involved too, including prefecture-level departments of education (SEDUCAs), Save the Children and *Fundación Treveris*. Nationally, a number of educational reform activities was initiated.²⁰ Under the Morales government, some communities received support through the *Evo Cumple programme*, while conditional cash transfers (*bonos*) were channelled in part through local governments. Although the widened mandate of municipalities contributed to better coordination of educational efforts at the municipal and community level, the attention given to education nonetheless varied between municipalities (figure 9.8) and also between communities (figure 9.9).

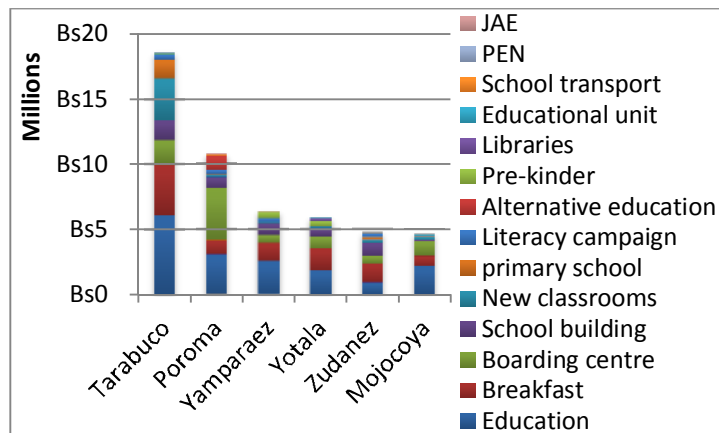
Among our research communities, principal beneficiaries of educational support programmes and particularly of municipal expenditures between 2000 and 2008 were San Juan de Orcas (Poroma), Pampa Lupiara (Tarabuco) and Escana (Yamparáez), and to a lesser extent Quila Quila, San Juan and Talahuanca. Three of these are classified as *growth* pathway, and five have *nucleos*. The first two communities clearly benefited from the higher priority placed by their municipality on education. For the *sectional* schools in La Abra, Tuero Chico, Ovejerías and Sundur Wasi (all *decline* pathway communities) municipal accounts show no expenditures on education between 2000 and 2008. This does not mean they received no support, however, as expenditures related to, for example, school transport are included under general municipal expenditures.

While in the past, the initiative often came from the communities themselves, today coordination of educational activities is generally in the hands of the school director, the municipality or the district directorate for education. Communities still submit specific demands in coordination with the school, but for larger investments they were increasingly dependent on decisions taken at the level of the municipality. Histories of external interventions differ substantially between smaller and larger communities, and particularly between those with only primary education and those gradually building up secondary education offerings, as the experiences of Talahuanca and San Juan de Orcas illustrate.

Talahuanca built its first school in 1975 without any external support. In 1978 it decided to expand the structure and managed to obtain support from the regional government (for materials), from the municipality and from Treveris and ACLO (two NGOs related to the Catholic Church). The NGOs supported the purchase of desks and chairs and provided technical advice. In 1992, new classrooms were built with the support of CORDECH, and the old spaces were repurposed for a new preschool. The 1996 PIED-Andino assessment documents these joint efforts as among the community's most important achievements, as about half of the population had learned to read and write. The community then managed to extend the school from 3rd grade to 5th grade and to gain an additional *item*, resulting in two teachers working in multigrade classrooms covering 20-30 pupils, as enrolment rates fluctuated dramatically from year to year. For the 6th and 7th grade, some pupils continued to attend school in the nearby community of Mollepunku, facilitated by the introduction of school transport in 2008. For secondary education, students needed to go to Yamparáez (10 km away) or to Sucre, but the costs of doing so were prohibitive for many households. The community was actively involved in school life, participated in the JAE, in preparation of breakfasts, in the acquisition of school materials and also in collective production of horticultural products. The teachers received support from UNICEF on how to teach effectively in multigrade classrooms. Nonetheless, the multigrade classroom system did not work well, as there was only one rectangular room available, which made it difficult to

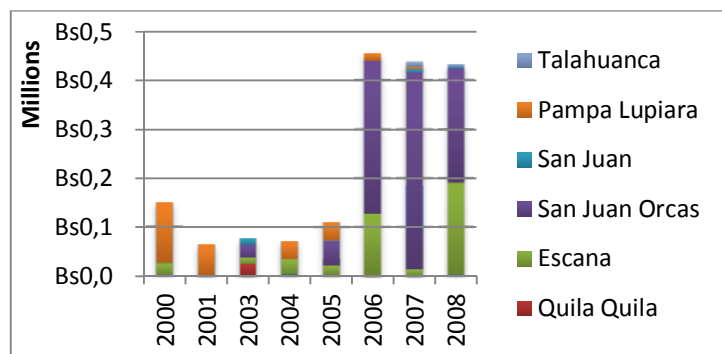
work with different groups of students. At a community meeting in 2011, community members indicated that no one had yet been able to reach the level of *bachillerato*.

Figure 9.8
Disaggregation of expenditures in education in six municipalities (Bs), 2000-2008



Source: Data Ministry of Planning and Ministry of Finance, own elaboration.

Figure 9.9
Municipal expenditures in education in survey communities (Bs)*



Source: Data from Ministry of Planning and Ministry of Finance, own elaboration. Note: * Wasa Ñucchu and La Cañada have no school of their own. No data were available for Cochapampa and Yurubamba.

The second case, that of San Juan de Orcas, presents a different dynamic. San Juan de Orcas was in a situation similar to that of Talahuanca in 1996. It experienced a rapid process of extension into secondary education, including the building of new infrastructure for primary and secondary schooling, establishment of boarding accommodations, development of new facilities for technical and vocational education (in construction), a new computer room (*telecentro*) and a range of smaller but often ongoing activities related to sanitary services, capacity building, nutrition and school transport. At least 20 projects were implemented in relation to education and health from 2000-2008, with the municipality being the principal actor (figure 9.9), but also involving support

from UNICEF, NOR-SUD, Proscam, *Yo si Puedo* and PLANE and some smaller programmes. At least 12 of these projects were supported directly by the municipality.

San Juan de Orcas seemed to have arrived at a point at which the presence of existing investments often formed the (internal and external) justification for the further building up of complementary services, as these would serve a larger student population. In 2011, the community had some 255 students (almost 10 times the number in Talahuanca), and short-term prospects indicated some further growth. Not all of the investments were synchronized or complementary to one another, however, and some were unsustainable. In 2011, solar ‘hot-water’ showers were non-operational due to water scarcity, the greenhouse (for horticultural production for the school) had been damaged by a hailstorm and the boarding centre faced declining numbers of residents (dropping from 65 to only 40 in 2010, as many parents brought their children to Sucre or elsewhere). UNICEF, one of the strongest collaborators in education had decided to reduce its further contributions and move elsewhere, and asked the municipality to gradually take over its counterpart contribution to school transport. Other programmes, including those of PLANE, Proscam and *Yo si Puedo*, and support of NOR-SUD were also temporary in character, for instance, focusing on short courses for teachers.

While communities like Talahuanca and San Juan de Orcas still made direct contributions (in labour, funds or products), the level of ‘collective action’ had gradually diminished in labour terms and was becoming more infrequent. For the building of the school in Talahuanca in 1978, substantial labour contributions were registered, but for the new school buildings constructed in 2005 in San Juan de Orcas the community did not participate at all²¹ due to the new modality of *obra vendida* (‘sold work’ or a project outsourced through tendering). Even under *obra vendida*, community contributions were sometimes requested, leading to contradicting opinions and occasionally outright conflict (see case study of La Cañada in chapter eight). Today, most collective action in education is related to the (rotating) fulfilment of JAE positions, preparing school breakfasts and lunches (often with in-kind contributions, like potatoes or maize) and providing money for students to reside at a boarding facility. Over time, schooling has shifted from being largely a community initiative, to a form of coproduction (with substantial initiative and labour provided by the community), to requiring only minimal participation and small monetary contributions, with the predominant roles being played by external actors. At first, the changes in the dynamics of education in San Juan de Orcas appear to have led to what Mason (2009: 118) would describe as an *autocatalytic* state, generating “its own momentum in a particular direction”, but sustainable change in education is still far from certain. In this community, local involvement is in fact declining, and due to increased migration, numbers of students (both from within the community and from neighbouring communities) also appeared to be reaching their limits.

9.6 Summary findings: pathways and education

How and why did pathway differentiation take place around education and what implications did this have for broader pathway development? Looking back at the communities with primary schools, the trend in Cochapampa appeared similar to that in the other *dryland* community of Talahuanca, while riverside *irrigation* pathway communities, including Tuero Chico, La Abra, Ovejerias Rio and Wasa Ñucchu, had better access to secondary schools nearby or through boarding facilities. However, several of these primary schools were facing imminent closure. In Ovejerias, the lack of drinking water and the alternative schooling opportunities elsewhere were

the main drivers for closure of the school, which led to departure of the few remaining families with children and the ‘demographic collapse’ of the community.

For the communities with secondary education, the *growth* pathway communities of Yurubamba and Pampa Lupiara were more or less at the same ‘stage’ as San Juan de Orcas (although Pampa Lupiara had a much longer history of primary education), while the *irrigation* pathway communities of Escana and Quila Quila were already in a new transition, facing a gradual decline. Although the return of (relatively well educated) migrants associated with the availability of ‘new’ irrigation infrastructure (see chapter eight) may give a new impetus to the already high levels of education in Escana, none of the communities had as yet reached ‘sustainable’ levels of educational development. La Cañada, lacking a school of its own, was the only community benefiting from the *agglomeration* dynamics in the nearby rural town of Redención Pampa, where most of its residents had a (second) home. In Quila Quila, following the conflicts regarding access to land and the ideological differences between the *ayllu* and *sindicato*, an alternative school was established for students from the *ayllu* segment, further increasing factionalism between the disputing parties and *de facto* undermining both schools. Over time the benefits obtained by *early movers* materialized only for the *nucleo* communities. But more recently established *nucleo* schools also managed to attract more support, from NGOs and from municipalities.

Differentiation between communities took place along a number of lines. While some communities benefited as *early movers*, a crucial step was to obtain the status of *nucleo* or to gain access to higher levels of secondary education. For a number of communities this worked well, and their efforts were rewarded. We saw – at least during the past decade – an increasing trend in numbers of pupils, higher levels of participation among girls, increased numbers of classrooms and teachers, and provision of other facilities, like boarding accommodations, which affected time availability for learning, labour availability for other purposes and school attendance among girls.

For smaller communities with primary education only, shifting demographics and continued migration may form a considerable threat to the survival of the school and indirectly to the attractiveness of these communities themselves. The competition between communities, whatever their size, to establish their own individual (sectional) schools, combined with the splitting up of larger communities, whose residents had faced large walking distances to schools, has opened a box of Pandora which may be difficult to control. Tough measures and sanctions aimed at maintaining enrolment in community schools may provide some breathing space in the short run, but they are unlikely to avert a further decline in class sizes, the switch to *multigrade* teaching and eventually school closures.

Whether students attend primary or secondary education, schooling is seen as a means of access to a life outside of the community. While the plan may be for young people to follow this route, in practice, the ability, capacity and willingness to embark upon temporary migration, double residence or even international migration differs between communities. The communities with access to higher levels of education, boarding facilities for secondary school, and especially, more intensive *irrigation* infrastructure also tended to send their elder children to study in Sucre or to international migration destinations, particularly Argentina and Spain. *Dryland* pathway communities were more focused on temporary labour opportunities (complementing their rather cyclical agricultural calendar) in Sucre or Santa Cruz, though such labour often interfered with educational calendars. In contrast, for the *irrigation* pathway communities international migration

(enabled by higher incomes and facilitated by contacts in migrant networks abroad) simply meant either leaving children behind with grandparents or entire families leaving the community. This affected, in particular, the *decline irrigation* pathway communities with primary education only.

Taken together, this implies that at least in four *decline* pathway communities diminishing school enrolment both underlay and contributed to the further decline in populations, leading to a range of externalities (amongst others reducing household labour availability and collective action potential). Perhaps more importantly, declining school enrolment highlights a community's reduced attractiveness to young households, leading them to partially or completely abandon the community. For the *growth* pathway, four out of the six communities offered higher education facilities; two of them producing rapidly expanding numbers of *bachilleres* and the other two with a relatively large group of students managing to enter university. The other two communities had primary education only, but were doing relatively well in maintaining their student populations, with at least no imminent school closure looming.

How did internal and external factors and agency influence and respond to these developments? Directly after the land reform, public provision of education and health in rural communities was still virtually absent, despite the persistent 'clamour for schools' among indigenous populations. In 1975, the situation had hardly improved and in 1996 the large majority still only had access to – low quality – primary education. Today, all communities have access to education within relatively close proximity or even within their own community, and 6 of the 14 communities had full secondary education in the immediate vicinity. Most also had achieved substantially higher rates of school enrolment among both boys and girls. The provision of health services followed a similar pattern. The overall distribution of education and health services and (complementary) actions related to these public goods has been irregular, translating into differentiated outcomes and impacts. Practically all communities built their own first school, paid the first *items* and lobbied for recognition, subsequent improvements and further extension and a range of complementary services. This process was erratic over time, in some cases extending over decades, but in others concentrated in less than 10 years. Practically everywhere it led to a stepwise but *non-linear* incremental process and gradual changes in the 'structure' of educational services. In all communities, this process required huge collective action efforts of the community and intensive dealings with a range of external actors. It was also beset by setbacks in terms of declining student numbers and loss of *items*.

The cumulative impact of educational investments was to change the levels of education in the region, increasing literacy rates and gradually, although very slowly, increasing the numbers of *bachilleres* or in some cases even (university or high school graduated) professionals. While in 1996, only one community counted a few students entering university, today the majority prides itself on having at least some university students – although here rural communities continue to fall far short in comparison with urban counterparts. The range of programmes and efforts by national and local government and by NGOs has helped to improve the overall quality and coherence of education efforts: building schools, providing transport, offering breakfast and lunch and providing *conditional cash transfers* to keep children in school. Furthermore, boarding facilities have supported school participation and added value to education for both parents and children. Overall, outcomes in education paint a positive picture, at least along the lines of the Millennium Development Goals.

Nonetheless, results did not always match community dynamics and were sometimes hardly sustainable. School buildings were often insufficient or oversized and rapidly deteriorating (e.g., with crumbling walls, broken windows and leaking roofs) due to deficient building standards or lack of maintenance. Educational levels, too, will be difficult to sustain, to a large extent due to the rapidly declining (student) population and increased competition between communities. For many of the complementary services, design and implementation problems and inadequate training led to their limited use or abandonment. Another important and basically shared element of community agency was resistance against bilingual education and other methodological aspects of the educational reform programme.

Education was therefore an important factor accentuating pathway differentiation, at the community level as well as among individual households. With substantial external support, communities did their utmost to increase access to education. But following their parents and their own goals, the main beneficiaries have largely chosen to opt out of the community, finding a living elsewhere, basically using education as a step to other destinations, and undermining the long-term sustainability of educational services in their own communities. Government, municipalities, NGOs and rural communities not only face challenges of *decolonization*,²² they must also seek to make education relevant to both rural life and urban destinations, to better plan and tailor education for widely divergent rural dynamics and to identify alternative policies for those communities that are shrinking and increasingly elderly. Today, the main outcome of *education for all* is that most students leave community life, often indefinitely.

9.7 Conclusions

The provision of education as a public good in rural areas has been a complex and erratic process, initially driven largely by community actions, and at a later stage, propelled far more by the often disparate actions of external actors. Taking again the land reform as an arbitrary benchmark for the ‘initial conditions’, practically none of the communities had access in 1952 to even minimal levels of education. Nonetheless, the legacies of the past, translated into ‘retrospective memories’ (Garud 2010) and in the initial ‘clamour for schools’ (Brienen 2011), reflect the importance of the decades prior to the land reform. The land reform certainly provided the initial space for communities to take up the educational agenda on their own conditions, marking a period of slow and incremental change in the first decades, and far more rapid and self-reinforcing trends in more recent decades. While the ‘initial conditions’ were similar across communities (their almost complete lack of access to education), some of the main factors differentiating community access over time relate to community size, accessibility and the ‘initial actions’ undertaken.

Reviewing educational histories, we identify different levels of interaction between internal and external actors in education. Building upon the first initial efforts (the *one-shot game*), cooperation around schools was organized in several rounds of community cooperation (*definitely repeated games*) and interaction with external partners (*coproduction*), aimed at the gradual expansion of educational services (Ostrom 1996). The process was not a smooth path. From the findings in the research communities it appears more appropriate to speak of gradual or even shockwise positive or negative shifts in the existing ‘structural properties’ of educational arrangements (Archer 2010).

Schooling affected not only the levels of education and literacy, but also led to new and complex institutional structures in communities, where endogenous and exogenous elements mingled in a variety of ways. The school itself became the centre stage of community life (as a rather visible and central construction, often with a sports field and areas used for community meetings). But it was also a reflection of prolonged collective action efforts and of ‘prospective memories’ (Garud 2010), focused on a better future for children. The school also increasingly became a ‘negotiated structure’ (Giddens 1984; Montellano 2011) at the interface between the community assembly, new parallel structures like the JAE and the school director and teachers, but also between the different communities involved. Educational trajectories in these communities reflect different levels of path dependence and differentiation, related, for instance, to *early movers*, gaining the status of *nucleo*, building up to secondary levels and even attaining access to boarding facilities. From a broader institutional perspective, we find strong levels of convergence and path dependence in institutional trajectories, for instance, in terms of the predominant focus of the JAEs on organizing assistance to teachers rather than becoming involved as an active interlocutor on the quality of education or on the slow implementation of educational reform processes. While the JAE is relatively unique in its persistence as an externally (and top-down) initiated parallel structure, its rather narrow interpretation of its mandate at the community level underlines differences in perceptions regarding the importance of various aspects of education as well as the difficulty of imposing ‘rules of the game’ (North 2005) on organizations that interact closely with the community assembly.

Paradoxical trends show that some *early mover* communities that were able to expand primary schools and attract additional teachers, subsequently lost students due to migration, to schools in nearby towns and to neighbouring communities. They were forced to restructure into less effective multigrade systems. Other schools established at a later stage were transformed over a relatively short period into extensive centres for secondary education offering a range of additional services and more specialized education, sometimes even with vocational facilities, allowing for a better transition to the labour market. The differentiation between these vicious and virtuous circles is, however, far from straightforward. Achieving secondary education facilities and/or *nucleo* status certainly made a difference in protecting initial gains or leading to self-reinforcing trends. Nonetheless, in the long run even sustained higher education will undermine the attractiveness of community life.²³

The delivery of public services in education exhibits many of the elements and constraints highlighted by Punch (2004) and Pritchett and Woolcock (2004). Inherent in the overall response to the gaps and problems identified were many of the classic answers to recurrent failure: “intensification, amputation and more policy reform” (Pritchett & Woolcock *ibid.*: 11). Recurrent – but often explicable – ‘failures’ indeed abound: the long-term – path dependent – predominance of a top-down and standardized curriculum; teachers with limited training, low pay and little interest in rural areas; low commitment of school personnel to the community; high dropout rates; and limited emphasis on real learning. Schools remained under-stocked (in terms of teaching materials); parents resisted bilingual education; and curriculum content and teaching methods hardly responded to local realities, leading to *lock-in*.

The first answers to the problems identified were indeed ‘gap-filling’ and ‘intensification’, followed by various ‘reform efforts’ (Pritchett & Woolcock 2004). The first round, inspired by Education-for-All objectives, mainly focused on the massive extension of primary education, and

hardly on educational content. Subsequent policy reforms addressed some of the main curriculum problems identified in the first phase. The overall limited quality of school buildings was probably one of the reasons for the reorganization of construction and maintenance functions (to municipalities and FPS) and the partial outsourcing of school construction. Management problems, fine-tuning of educational schedules with 'real' demands at the regional and community level, the continued bottleneck of secondary education and cultural misunderstandings received limited attention.

The second round, including the expansion of secondary education and a range of complementary programmes, was supported by numerous actors. It gave new life to community involvement, spurred enrolment rates and included more attention to curriculum content and educational aspects. Shifts in the structure of cooperation, from dispersed and limited operations of government programmes and NGOs to a more decentralized approach through municipalities, favoured a better fine-tuning and a more systematic delivery of complementary services (such as funding for construction of additional classrooms, maintenance, school breakfasts and transport, as well as conditional cash transfers). These interventions would probably have had little substantial impact on their own, but combined with the easier access to secondary education they certainly contributed to raise enrolment rates and, to some extent, to *path creation*, as these trends differed markedly from those in the first round.

The outlook and implications of the changes in educational services remain, however, uncertain. Improved access allows communities to retain their youth until the end of secondary school, to prepare them for higher education or job opportunities elsewhere, and occasionally for young adults to return to the community as 'professionals' or otherwise. Secondary schooling may also generate new dynamics in community life, with more movement, complementary programmes and the external presence of teachers. However, most communities and schools were clearly experiencing a gradual demographic transition, influenced by developments within the community and surroundings, which may affect the long-term viability and prospects of education.

Similar to the experiences in land reform and irrigation, national-level 'normalization' policies in education failed at the regional and local level. Long-term delays in reform measures and in attaining new capacities, as well as underlying endogenous processes (including demographic shifts) at the community level, eroded some of the possible benefits as well. Stronger municipal involvement increased the coordination of a range of programmes, but the lack of clear prioritization within municipalities, and the wide range of parallel programmes, meant that there were few sustained and effectively coordinated efforts at the community level.

For some communities, increasing external support dramatically improved access in a short timeframe, leading to *agglomeration* effects (Gunatilaka 2000; Plummer & Sheppard 2006; Boschma & Lambooy 1999) and a range of externalities and additional services that benefited community dynamics. At the primary school level, bottlenecks have been persistent, related to the relatively low numbers of students, the concentration of teaching in multigrade classrooms, and limited or relatively expensive options for attending secondary education elsewhere. Education for these communities has been a process of *bounded* change, providing little space for effective and full-fledged education and offering few prospects for better jobs, although certainly contributing to emancipatory processes. In all communities, education had strong feedback effects, including negative repercussions in terms of labour availability for agricultural work, aggravating the already constrained labour situation due to the decline in household size over time. Combined

with a gradually diminished interest and loss of confidence in the possible benefits of education, and in view of the reduced requirement of community participation, this may further undermine the long-term drive for education in rural areas. The initial and *de facto* continued division between *nucleos* and *sectional* schools certainly gives the better prospects to those with *nucleo* status, largely benefiting *growth* pathway communities.

The trends above pose considerable challenges for educational service delivery in poor, relatively small and often dispersed rural areas. The sustainable provision of educational services is further complicated by the substantial differences between communities, irregular teacher assistance, the lack of complementary services and often inadequate supply of materials. Problems with sufficient *critical mass* (Oliver 1985, 1988) in student enrolment, persistent bottlenecks in reaching beyond certain educational levels and the parallel increase of migration rates may even threaten continued provision of education or lead to other negative feedback mechanisms in the local economy. Several communities have tried to reverse the declining trends in enrolment – principally in primary schools – by introducing fines or other ‘compulsory’ measures. Those measures appear to be temporary stopgaps, however, rather than permanent solutions. Few communities with primary schools only were able to manage effective access to secondary education. Direct access to boarding facilities or to education in nearby towns certainly favoured their position, but this often required considerable sacrifice from both students and parents. For the communities with primary education only, progress has thus generally been bounded and eventually led to *lock-in*, while most of those with secondary education benefited from effective coproduction, a snowball effect of interventions and increased possibilities for *path creation*.

On the curriculum side, it has been even more difficult to achieve the desired shift in focus and quality of education (Contreras & Simoni 2003; Lambert 2012). This includes, for instance, the difficulty of changing habits and routines among older teachers (accustomed to the philosophy and curriculum of the early 1950s, and largely rejecting the changes proposed by the educational reform programme). Similarly, parents rejected the introduction of bilingual education, while the government was ineffective in disseminating materials and in providing teacher training.

Over a timespan of decades, we see several elements of path dependence, feedback mechanisms and self-reinforcing trends structuring pathway development. Among the most visible elements were population size and the often related early definition of *nucleo* versus *sectional* communities, which led to self-reinforcing processes based upon early adoption and additional *agglomeration* effects in the communities with secondary education. But even the larger secondary schools were running out of steam and starting to face initial declines in enrolment. In addition, while migration trends in *dryland* pathway communities led to mere interference with the school calendar, for the *irrigation* pathway, a larger share of families sent their children to schools in the city or abandoned the community entirely, moving abroad with their children. These factors, taken together, led to either a softening or a strengthening of existing pathway differentiation. The smaller communities in the *decline* pathway suffered principally from declining enrolment and possible school closure, while the smaller ones in the *growth* pathway were less affected by the decline in enrolment. Similarly, access to secondary education and/or boarding facilities led to higher levels of *bachilleres*, which also stimulated more rapid outmigration or, in a few cases, the return of professionals to the community.

Other elements, like the long-term impact of early government policy decisions regarding curriculum content (1955) and the subsequent difficulties in adjusting curriculum reform (1994), as

well as the policy vacuum between 2002 and 2010 also had substantial impact on the content of teaching processes, teaching materials and teacher capacities over time. These *normalization* policies (Boelens 2008) reflect the difficulty of finding common ground at the community level, and in fine-tuning interventions and services to the multiple responses and forms of resistance at the household, community and even supra-communal level.

While bilingual education and new pedagogical approaches were supposed to be better attuned to local practices, different views from *comunarios* led to *disembedded* interventions. Even when new policies related to the educational reform programme were tested and proven, the different perceptions led to difficult encounters, both among and between teachers as well as with and within communities. Curriculum innovations and new implementation *practices* were short lived and generally led to disappointing results.

Education has certainly been a transformational element in rural communities, as witnessed by the at first slow and incremental change and later the rapid expansion of educational services, leading to new pathways and increased access to further education in some communities. Nonetheless, the persisting mismatch in approach regarding educational content and quality reflects the difficulty of attaining sustainable change in education (Mason 2009). In addition, the gradual transition from community participation, to coproduction, to a rather externally managed agenda has undermined rather than stimulated ‘collective action’ and ‘ownership’. Overall, education histories exhibit a complex mixture of path dependencies and recurrent but often temporary efforts towards *path creation*.

Over the past three decades education has literally become the centre of rural community dynamics. However, the continued drive for education and the related and persistent outward orientation of communities, paradoxically, also undermines the sustainability of the related institutions and infrastructure in multiple ways.

Notes

¹ The Warisita school was the first ‘model’ indigenous-school and stood as an example for developments in the rest of the country in the reform programme of 1940 (Brienen 2011).

² Mojocoya was one of the pilot schools in the early 1930s, together with Warisita and several others. The fact that Mojocoya recently opted to become established as an indigenous municipality may reflect these historical roots (Yapu 2011: 59).

³ Covering the area north, south and east of Sucre, including amongst others the communities of Quila Quila, San Juan de Orcas, Wasa Ñucchu and Tuero Chico.

⁴ Temporary teachers without fixed appointments.

⁵ Sources: *Instituto Nacional de Estadística* (INE), *Unidad de Análisis de Políticas Sociales y Económicas* (UDAPE) y *Ministerio de Educación y Cultura*.

⁶ Escana, Talahuanca, San Juan, San Juan de Orcas, Lupiara and La Cañada.

⁷ Most health centres noted reduced malnutrition, diarrhoea and tuberculosis. In 1996, in Escana the health centre still noted 42% malnutrition among schoolchildren. In Yurubamba no child mortality was reported during a recent five-year period. Nonetheless, *chagas* disease is still rampant in communities without housing improvement, such as Quila Quila, especially affecting children.

⁸ Ostrom (1996: 1) defines a coproduction as the “process through which inputs used to produce a good or service are contributed by individuals who are not ‘in’ the same organization”.

⁹ In Escana, the decision was taken early on by the educational authorities: “From the *Jefatura* they instructed that this would be the *nucleo central*, and that the surrounding communities (e.g., Saucipampa and San Jose de Molles) would remain as *sectional* schools, dependent on this *nucleo*. In the sectionals only small schools had to be built” (community meeting, 1996).

¹⁰ Active and vocal participation among students or student councils in school affairs also appeared to be completely absent in the research communities.

¹¹ La Cañada had easy access to educational facilities in Redención Pampa.

¹² From an average of 6.6 to 4.6 members per household among the 14 research communities over the past 15 years (see chapter three).

¹³ No details were available for Cochapampa, but the trend is probably similar to that of Tuero Chico.

¹⁴ For La Abra, ACLO (1979) indicates that the school had only 40 registered students in 1968, of which 30% were girls. School enrolment probably increased to about 75% in the early 1990s, before gradually starting to decline in the second half of the 1990s.

¹⁵ If teachers have adequate training, this should not be a major obstacle, as this is common practice in, for instance, Montessori schools. But in general teachers in Bolivia are unprepared for those changes.

¹⁶ In San Juan de Orcas, among the 21 students in the 7th grade of primary school in 2006 only 9 had made it to the 5th grade of the secondary level in 2011. Of the 9 girls, only one continued her studies thereafter.

¹⁷ The riverside communities of Tuero Chico, Ovejerías Rio and La Abra.

¹⁸ The school formally continued as a sectional under the *nucleo* school in Quila Quila, leading again to persistent problems, as the splitting of the school population into two schools affected the operating of the old ‘regular’ school in Quila Quila, which lost not only a number of pupils, but also risked further reduction in its teaching staff.

¹⁹ Pampa Lupiara was the only research community where a large segment of the population still wore traditional clothing and where community members actively participated in the annual regional cultural festivities.

²⁰ Including PEN, PROME and PFCEE.

²¹ The lack of participation cannot be blamed on the community, as just a few years earlier (in 2001) community members still contributed 15-30 days of labour for the construction of the sports field of the school, and in 2003 they contributed again 7 days each for the building of an additional classroom. Non-participation in both cases was fined with a fee of Bs 30 per day.

²² ‘Decolonization’ was one of the principal initial objectives of the MAS government, in particular driven by minister Patzi (Lopes Cardozo 2011).

²³ Some households may, however, benefit from radically improved productive conditions and ‘double residence’ modalities. This was evident to a certain extent in the *growth* pathway communities, especially those with intensified irrigation.



Ovejerias Alto: the abandoned school in 2011. Source: Author



Wasa Ñucchu, primary school 1996. Source: Author



Pampa Lupiara, secondary school. Source: Zulema Ramos

The kissing bug¹ and other drivers of service delivery and rural urbanization

[W]e have endeavored to provide an analytical and historical framework for understanding why there is – and perhaps must necessarily be – an absence of a uniform consensus regarding how to improve service delivery (Pritchett & Woolcock 2004: 207).

10.1 Introduction

In 1975, La Cañada was one of the many poor rural communities surrounding the small town of Redención Pampa. Established as a result of the fusion of a group of families coming from at least three different haciendas, La Cañada slowly grew in population until the early 1990s. By that time, Redención Pampa had increased from about 300 inhabitants to roughly 10 times that number. Part of La Cañada was, for practical purposes, absorbed by the town, and much of the community benefited from access to public services in Redención Pampa. In 1996, a segment of the community decided to separate and establish the independent community of San Julian, as they felt they were receiving less access to public services. At the same time, substantial investments were made in irrigation (see chapter eight), leading to a complete overhaul of the production system, reducing the importance of livestock and access to cattle-grazing areas and providing the community greater access to markets. Traditional exchange mechanisms declined in importance, and a number of community members became traders or involved in tertiary services (managing shops, transforming agricultural outputs and even as *tramitador*, organizing paperwork). There was a strong increase in access to tertiary education, including a local university. In addition, and after numerous ‘strikes and battles’, communities surrounding the town of Redención Pampa managed to ‘capture’ the status of ‘municipal capital’ from the town of Mojocoya and transfer it to Redención Pampa. Combined with improved access and the rapid growth of the urban area and the further intensification of agricultural production, developments in the Redención Pampa area led to *agglomeration* effects, which also influenced neighbouring communities, including La Cañada.

In summary, in a period of less than 30 years, La Cañada changed from a small, still relatively isolated and dispersed rural community with an emphasis on dryland production into a section of a municipal capital, with access to all major public services and a strong emphasis on intensified irrigation. These changes together led to some fundamental transformations in the community organization and exchange practices and eventually also to internal division when about half of the community members decided to split off.

After the land reform, communities in this region of Bolivia inherited minimal or no infrastructure at all, apart from some very rudimentary roads. This implied that public services had to be built up from scratch. Over a 50-year period and often supported by external actors, communities embarked on multiple efforts related to the construction, maintenance and improvement of roads, water and sanitation, housing, electricity, community centres, churches and cemeteries.

From the late 1970s, communities started building their own small health centres and presenting demands for more public services. There was a clear trend towards settlement concentration and even some ‘urbanization’, which the first-phase PIED-Andino research documented (Le Grand 1998c). With the extension in coverage rates, the role of external parties became more substantial, and equity in service provision among communities also became an issue. Public service delivery in small rural communities to large extent became a coproduction,² with a varying balance of participation of either side.

Coproduction implies the need to work together – often at different levels – in the formulation and prioritization of demands or specific needs, but also in design, location, implementation, operation and maintenance, and future contributions. Coproduction differs, in this respect, for public health and educational services, or between housing improvements and drinking water. Following Pritchett and Woolcock (2004), this differentiation can be analysed by looking at the interaction between *policies* (discretionary, but not transaction-intensive), *programmes* (nondiscretionary but transaction-intensive) and *practices* (discretionary and intensive). The most problematic part of this agenda is often related to practices, as these require tailor-made solutions, generally dependent on the local context, in which considerable discretion is given to individual implementers to carry out programmes according to their own judgement. Pritchett and Woolcock (*ibid.*) define this as a ‘needs-supply-civil service’ model. The result of this model is that major emphasis is given to (visible) infrastructure provision, but far less to the day-to-day and more complex elements of service delivery. Acknowledging the difficult balance between large-scale service delivery and tailor-made approaches, Pritchett and Woolcock (*ibid.*: 207) underline that “discretionary, transaction-intensive services intrinsically embody the tension between two desirable goals for public services – that they be ‘technocratically correct’ and that they be ‘locally responsive’”. Pritchett (2010: 2) concludes that implementation issues receive insufficient attention, remaining a “conspicuously under-appreciated, under-theorized and under-researched area, usually considered only as an afterthought to the heavy intellectual lifting associated with defining objectives, designing policies and formulating strategies”.

This chapter reflects on the different ‘rounds’ in the service delivery process that have taken place in different sectors and the difficulties and successes in implementation, interaction and cooperation (or coproduction) between internal and external agency at subsequent stages. The research questions posed in this chapter are as follows:

How and why did pathway differentiation occur around public service delivery, and what were the implications for broader pathway development, in particular, related to settlement concentration? How did internal and external factors and agency influence and respond to these developments?

10.2 Changing appearances: short histories of public service delivery

Like in La Cañada, over the past three decades an almost silent transformation has taken place in most of the research communities. From remote and scattered houses of mud, clay and thatched roofs, and from the far corners uphill to the bottom of the valley, communities have gradually become more concentrated, establishing a core settlement around a church, school or health centre.³ Although a few houses were already located around the church, the settlements became larger, more structured and were often spread along a main road. Among the more recent changes were housing improvements, access to drinking water and sometimes latrines, and at a later stage,

electricity. Formerly scattered communities thus became small urbanized settlements with a relatively large *binterland* in the valleys, plains or uphill.

This trend has had two main variations. One produced very concentrated communities for which the older *ranchos* (hamlets) were left practically abandoned or with houses used only during agricultural production periods or when caring for livestock. Another resulted in a combination of still 'surviving' *ranchos* and a slow but gradually increasing dynamic in a 'core settlement'. The first group includes Wasa Ñucchu, Tuero Chico, La Abra, Escana and the new riverside communities of Ovejerías Río Chico. The second group includes Yurubamba, San Juan de Orcas, Cochapampa and to a lesser degree Pampa Lupiara, San Juan, Sundur Wasi and Quila Quila. La Cañada represents a variation of both groups, as the community became part of the rural town of Redención Pampa, while also remaining similar to the second category, as the remote hamlets and second houses continued to be utilized. The main exceptions today are Ovejerías Alto (dispersed and abandoned) and Talahuanca, which remains a dispersed community without a clear centre, although the school, church and sports field together have *de facto* become the midpoint and main venue for meetings. The first group largely corresponds to communities with more intensive *irrigation* (riverside and growth-intensification), while the second group is mainly made up of *dryland* pathway communities and communities with only marginal irrigation (Quila Quila and Sundur Wasi).

The question arises as to whether the different settlement patterns indeed occurred as a consequence of irrigation. As discussed in chapter eight, irrigation infrastructure was generally built in relatively concentrated areas (with an intensive labour calendar throughout the year), and therefore also invites households to try to live as close as possible to their most productive fields. At the opposite end of the spectrum, for dryland communities, which are generally larger in territory, agricultural plots are spread out over many areas, and community members may prefer (to retain) a home close to their fields. But, as we will see, other factors, too, contributed to changes in settlement patterns.

The partially abandoned core settlement in Quila Quila and the housing structure around the old church in San Juan de Orcas have a long history, going back to the Spanish *reducciones* (see chapter six). Yet, for the majority of communities, their current settlement structure only originated after the land reform, when community members obtained access to land previously in possession of the hacienda. As noted before, hacienda owners often remained in the area for a long time (and in La Abra until today), retaining some of the best lands under irrigation and part of the old infrastructure. In Wasa Ñucchu, the remnants of the hacienda building are still a vivid reminder of the regime of exploitation that ended 60 years ago. After the land reform, infrastructure development started slowly, and in the initial decades communities experienced few changes. The state was practically absent. The first development actors (institutions like SNDC and ACLO) had insufficient funding and capacity to attain extensive coverage rates, or like CORDECH, did not focus on rural communities at all (Healy 1983; Irahola 2010). Although the situation was similar for most communities, the sequencing and actual building up of public services and changes in housing and settlement resulted in different outcomes (tables 10.1 and 10.2).

The sequencing of development interventions related to public service delivery roughly began with education and road development from the early 1950s, followed by drinking water and health projects starting generally in the 1980s, housing and latrines mainly from the early 1990s,

electricity and public telephony (usually one cabin) towards the end of the century, and mobile communications and television only over the past decade.

Table 10.1
A history of service delivery in 14 communities after 1952
(nr. of projects per sector)

Decade/ sector	55	60	70	75	80	85	90	95	00	05	10	Total
Education	1	2	6	3	15	3	14	4	25	26	5	104
Roads and bridges	1	1	1		10	4	9	4	16	10		56
Other	1		3		6	5	7	2	11	7	6	48
Water & sanitation			1	1	5	1	8	6	19	11	3	55
Health				3	9	4	9	1	5	17	2	50
Cap build and comm.					11	1	6		5	7		30
Energy			1				1	1	5	9	2	19
Housing					1	1	3		3	3	2	13
Total	3	3	12	7	57	19	57	18	89	90	20	375

Source: PIED studies, own elaboration. Note: The past decade also included service delivery elements not related to public infrastructure, such as conditional cash transfers (not included in the table).

Table 10.2
A history of service delivery in 14 communities after 1952
(projects per community)

Pathway	Communities	55	60	70	75	80	85	90	95	00	05	10	Total
Dryland decline	San Juan	1		3		1	1	7		9	12	2	36
Dryland growth	Pampa Lupiara	1		1		5	1	5	3	18	12	3	49
Dryland decline	Ovejeras Alto	1				3	2	2		1			9
Irrigation growth	Escana		1	2	2	2	9	5	16	12			49
Irrigation decline	Quila Quila		1	1	1	13	1	3	1	7	8	1	37
Irrigation decline	Sundur Huasi		1				1	4		2	8	3	19
Dryland growth	Talahuanca			3	3	4	1	3	1	3	7		25
Irrigation growth	Wasa Ñucchu			1		10	2	1	1	8	2	1	26
Dryland decline	San Juan Orcas			1		5	5	4	1	13	18	3	50
Dryland decline	Cochapampa				1	6	1	2	1	5	1	1	18
Irrigation decline	Tuero					6	1	6	1	6	4	1	25
Dryland growth	Yurubamba					1	2	3	2	1	2	4	15
Irrigation growth	La Cañada					1		2	2				5
Irrigation decline	La Abra						1	6			4	1	12
Total		3	3	12	7	57	19	57	18	89	90	20	375

Source: PIED studies, own elaboration.

The distribution of these interventions has been far from balanced and synchronized. While some communities obtained their first public services, like improved road access, a primary school or health centre, in the 1960s and 1970s, for most, such interventions ‘took off’ only after 1983, when development aid efforts spread across a wide number of communities. Escana already had relatively well developed infrastructure in 1996, including a secondary school, health

centre, drinking water, improved housing and a promise to connect to electricity in the next year. That same year, both Talahuanca and San Juan de Orcas were still relatively isolated communities, with only an old church and a small number of mud houses scattered around the church and in different hamlets across the village, without any further infrastructure. Fifteen years later, the centre of the community of San Juan de Orcas had become – at least from a public service perspective – similar to Escana, while Talahuanca remained largely unchanged, apart from marginal improvements around the school and a newly built church.

In the 1950s, communities were still relatively isolated, and could often be reached only by a one- or two-day walk, with products carried by donkeys or – occasionally – llamas, or following hours driving along tortuous mountain roads. The first rudimentary road construction efforts started around the 1960s, but most road improvements were implemented only in the early 1980s, leaving communities for decades accessible only via a dirt track passable in the dry season. The extension and improvement of the main road connecting Sucre with the lower valleys (Monteagudo) and northern Potosí was slow and often interrupted. Nonetheless, this road was paved in the late 1990s (continuing to northern Potosí in 2013), as was the road connecting Sucre with Potosí and Cochabamba. This substantially shortened travel time and facilitated market access, however, also increasing competition between places that were previously still out of the picture. Back in 1996, three communities still had rudimentary road access, four had reasonable access and only five had more or less good and permanent road access. Today, leaving Sucre, practically all communities are easily reachable within a day and some even in an hour or two. Two communities are still occasionally difficult to access: Quila Quila due to strong river currents and Ovejerias, which has an almost impassable access road due largely to destruction by *riadas* and lack of maintenance. Others still face complicated access during the rainy season, as heavy rainfall, occasional flooding and overloaded trucks may render roads impassable. Reviewing the communities' histories, the benefits of building upon the existing road infrastructure of the former hacienda are evident only for Escana and Pampa Lupiara, while Yurubamba and La Cañada were already close to major (but unpaved) roads. Most of the other communities were either completely inaccessible, or faced considerable challenges in establishing more permanent road access. Major rivers in the region did (and sometimes still do) prevent any transport during the rainy season from mid-November to the end of March. As communities were the result of a fusion of different *ranchos*, or chose a different location for their school or community centre, almost everywhere additional road extension or upgrading work had to be done.

While road improvement principally benefits those with their own transport or larger scale production and sales, for drinking water, this is different. The history of drinking water access has been as turbulent and cumbersome as the improvement of road connections. In 1975 Escana was the first rural community in the province of Yamparáez to obtain access to drinking water. The community had always fetched water from wells, often at several hours' walking distance, or otherwise from the river, which was a main cause of diarrhoea and other diseases. Water became particularly scarce during the dry season, as wells dried up and people needed to walk even farther. They normally collected water in old ceramic amphorae, carried on their back or by donkey.

Housing quality and patterns also changed slowly. Before the land reform, houses were built with stone or clay walls and a thatched roof. Families working on the hacienda were not allowed to build a permanent home, but had only temporary dwellings. After the land reform and establishment of new communities, people relocated their houses, either to a more central location or

in small *ranchos* near their plots. In communities like Talahuanca and Pampa Lupiara, we still find more or less the same housing pattern as a few decades ago, the only changes being the addition of a small number of houses for new families and more intensive use of tiles instead of thatched roofs. Large-scale housing improvement efforts began in the 1980s, as understanding grew that poor quality housing was a main factor contributing to *chagas* disease and tuberculosis.

10.3 Outcomes in public service provision

Over a period of decades, communities accomplished major changes in public service delivery and infrastructure. The previous section provided some examples of differentiation in the levels, sequencing and patterns of infrastructure development. Over time, nonetheless, most communities attained a considerable improvement in service delivery. This section analyses the principal outcomes and differentiation in access, coverage and operation and maintenance, as well as a few externalities that service delivery provision brought.

Table 10.3 presents a summary classification of settlement concentration and service provision. A first conclusion is that neither of these correlates very strongly with population growth or decline over the longer term. Initial population growth and lack of space may indeed have led to settlement concentration, but dispersed as well as concentrated settlements exhibit growing and declining population trends today. Disconnects between the building up of public services and population growth may, however, have resulted in differential outcomes in the use and possible over-dimensioning of public services in the long term. A second conclusion is that about half of the *dryland* pathway communities still have relatively dispersed settlement patterns and low levels of public service provision, while the other half have semi-concentrated settlements and medium levels of service provision. Among the *irrigation* pathway communities, there are also two groups. The first resembles the latter group of *dryland* communities, while the second group has highly concentrated settlements and also greater levels of service provision. Access to education services hardly relates to the provision of other services, but – as indicated in the previous chapter – does correlate strongly with population trends.⁴

As there is virtually no differentiation between *decline* and *growth* pathway communities, the further discussion on settlement concentration and public service provision focuses on the differentiation between the *irrigation* and *dryland* pathways, while in a few cases, examining why some communities did not follow the general pattern of further settlement concentration.

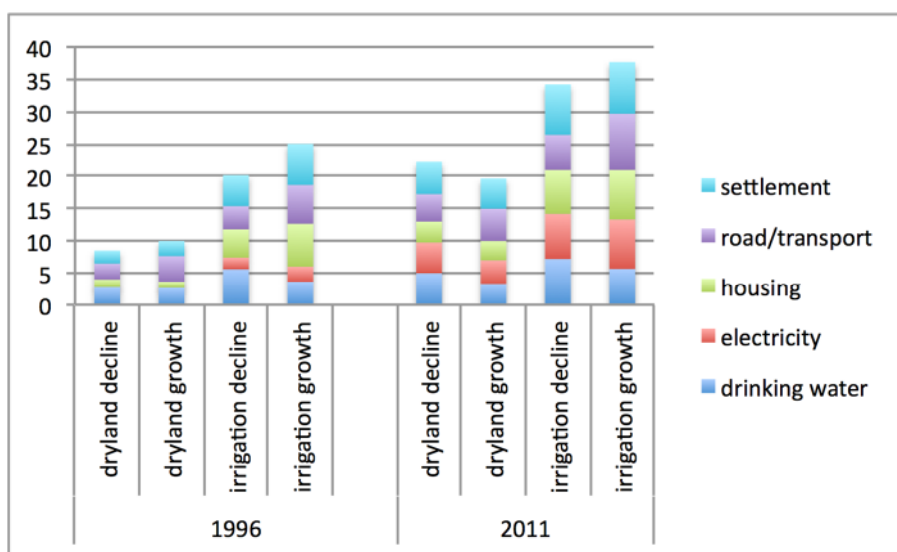
Figure 10.1 (based on table 3.6, chapter three) presents a comparative assessment of the quality and access levels of main public services and the level of settlement concentration. The *irrigation* pathway communities scored considerably higher in access to public services. Nonetheless, over time, and in particular considering the changes over the last 15 years, the *dryland* pathway communities, in particular the more marginal ones, did almost as well or even better than some *irrigation* pathway communities. This illustrates both the gradual fulfilment or ‘saturation’ of basic community needs under the *irrigation-growth* pathway, but also the catch-up effect among (marginal) *dryland* communities. Surprisingly, the – in productive terms – relatively advanced *dryland-growth* pathway communities did significantly worse. This was partly due to the inclusion of Talahuanca, which made very little progress, but neither Yurubamba nor Pampa Lupiara managed to realize major improvements in terms of quality of housing and access to electricity, and both were still struggling to provide access to drinking water in the more remote areas.

Table 10.3
Outcomes in terms of education, service delivery and settlement pattern

<i>Pathway</i>	<i>Primary schooling</i>	<i>Secondary schooling</i>	<i>Settlement/ service provision</i>
Dryland	Talahuanca/Ovejerias	Pampa Lupiara	Dispersed / low public service provision
Dryland	Cochapampa, San Juan	San Juan de Orcas, Yurubamba	Semi-concentrated / medium-level service provision
Irrigation decline	Sundur Wasi	Quila Quila	Semi-concentrated / medium service provision
Irrigation riverside/intensive	Tuero Chico, La Abra, Ovejerias Rio Chico, Wasa Nucchu	Escana, La Cañada	Concentrated / high-level service provision

Source: PIED studies, own elaboration.

Figure 10.1
Changes in rating of service delivery levels, 1996 and 2011



Source: PIED studies, own elaboration. Note: The ranking process is based upon a comparative assessment, ranking each service on a scale between 1 and 10, taking into account, for instance, whether roads were accessible throughout the year, enable larger transport (trucks) and the frequency of transport encountered. Classification is based upon external judgement, not necessarily reflecting community values. Abandoned houses in Ovejerias were ranked as '0', non-improved housing with thatched roofs in San Juan de Orcas '1', while 'modern' and recently realized housing improvements (including kitchens, latrines and even showers in Tuero Chico and La Abra) were ranked '9' or '10'.

Escaping isolation

Improved road access may bring a range of 'development' benefits, such as a reduction in travel time (and considerably more comfort and less dust), a broadening of market possibilities, but also an increasing presence of development agencies. Road access alone, however, is not a suffi-

cient condition, as benefits depend on a range of factors, including possibilities to bring products to markets, availability of regular transport from within or outside the community, and whether *comunarios* manage to appropriate a (larger) share of those benefits. Indeed, differences were evident in accrual of benefits. Talahuanca profited from early road construction by a private-sector company that built and maintained a gas pipeline, but 15 years later had only school transport with the occasional arrival of a small truck during harvest. For their regular visits to Sucre, most people continue to walk. At the other extreme, Wasa Ñucchu had a small *micro* (transport) service running several times a day throughout the year. Escana and San Juan de Orcas had a once a day transport service (a microbus) to and from Sucre, allowing residents to bring agricultural produce to the market on a small scale. More voluminous trading was still dominated by a few and principally external traders. Among those of the *pampa-growth* pathway, the relatively high levels of production and income generated from potato sales enabled many of these communities to acquire their own trucks (see chapter eight), allowing families to bring their products to the market whenever they deem convenient.

In rural transport apparently minor aspects, like having a minimal road width, can become important. Rudimentary roads allow for the entry of only small trucks. These probably charge the same fees as larger ones, but more produce can be transported in larger trucks providing additional benefits. Indeed, the excellent access of Yurubamba, Escana and La Cañada (all *growth* pathway communities) facilitated the entry of bigger trucks and enabled households to sell their produce on a larger scale. In La Abra, soon after finalizing the improved (and widened) road the number of trucks within the community increased from three to nine. Thus, road access may lead to or accentuate differentiation. Road access is not only important for marketing of production, but also for households with double residence, for those working temporarily in the city, for acquiring needed paperwork (*tramites*) and for accessing secondary schools and boarding facilities.

Struggling for (equitable and continued) water provision

Access to drinking water is mainly measured by the available quality and quantity of water resources and the possibility – and effective implementation – of a sustainable and equitable distribution system. Among the research communities this was more the exception than the rule. Many communities had dispersed and often interrupted drinking water sources. Sources may dry up, be of more permanent access, or become disputed or contaminated.

One of the main reasons for the ‘collapse’ of Ovejeras Alto⁵ in addition to – and connected with – the closure of the school, was the extremely limited availability of water, both for human consumption and for livestock. Just two to three years before the ‘collapse’, 10-20 families still regularly visited the highland community, although most of them were already living permanently in the valley. In 2008, PASOS, an NGO working in the area, conducted a diagnostic study together with those families, including an inventory of water sources in this very sizeable community (almost 15 km from north to south and 12 km from east to west). They counted only 11 sources, in addition to the (contaminated) water available from the main river in the valley and the ravines marking the boundaries of the community. Among the 11 sources, four had extremely low flow rates of 0.012-0.07 litres per second, only one had a ‘regular’ flow, and only two of those were classified as suitable for human consumption (the remainder being fit only for animals). The few remaining sources were practically irrelevant. Ten of these water sources were held as individual property, but they could, after installation of tapping points (*bebedores*) benefit 5-10 families (Peducassé Castro 2008), these probably being the ‘extended families’ of water source owners. While

Ovejerias is at the extreme in drinking water scarcity, other communities also continued to suffer restricted access. Pampa Lupiara and Talahuanca had partially operating systems, but in both cases these were interrupted or only functioned for a small section of the community. Wasa Ñucchu, San Juan and Yurubamba also suffered interruptions for several years. Although there are no detailed data on water quality, community members in Escana, Tuero Chico and Wasa Ñucchu stressed the importance of having access from a water tap at home (on the patio), instead of fetching water from mountain springs at several hours walking distance or from dirty or contaminated rivers in the neighbourhood. Just as in Ovejerias, not all springs were free from contamination. Tuero Chico was particularly vulnerable, due to its location on the Pilcomayo river (with water flows coming from the mining areas in Potosí). Miller *et al.* (2004) investigated contamination levels along the Pilcomayo river, finding that Tuero Chico had to use contaminated water sources and redesign its drinking water system because of contamination.⁶

Drinking water systems operate between 2 and 25 years (with respectively Pampa Lupiara and Escana at both extremes), though many do not fulfil their expected operational lifespan. When systems fail, communities are generally unable to arrange for repair or maintenance themselves. In the case of public water points, maintenance is even more of a problem. This might be due to construction failures, extreme weather events (*riadas*), inappropriate use or damage caused by livestock or playing children. In Talahuanca, except for one tap, all water points and water tanks were broken within 10 years of their installation. In Pampa Lupiara and Wasa Ñucchu, as even water wells were unavailable, water pumping was recently used as an alternative. Pumping was done by electricity (if available) or using diesel pumps. An advantage of pumps is that even under more difficult circumstances and water scarcity, drinking water can be obtained, but they also require higher recurrent expenditures, for example, to pay for electricity or diesel and to arrange a permanent 'volunteer' to operate and maintain the pump.

Unsurprisingly, the impact of drinking water provision differs between communities and may also change over time. Most systems in the large *dryland* pathway communities lacked full coverage, as some households lived too far from sources or in areas too high for water pressure to reach, or in some cases due to 'appropriation' by some families:

Most projects of common interest are shared among families that are living in the centre of the community and do not benefit the rest which is living on the hillside (former community leader, La Abra 2011).

Nonetheless, the advances in access between 1996 and 2011 are impressive, resulting in improved quality and quantities available at the household level in most communities. Drinking water has been installed more quickly and systematically in communities with a core settlement (both *dryland* and *irrigation* pathway communities, but benefiting a larger share of the population in the second group). This led to additional differences between houses in the core settlement, close to the school, where water points allowed for cooking, washing and a small horticultural space, and the more remote houses uphill, close to agricultural fields and used also when caring for livestock. Drinking water provision has been important for households, not only as an objective in itself, but also in saving time, as drinking water previously had to be collected, and time and money had to be invested in (caring for) donkeys and the fabrication of *cantaros*, large ceramic jars. The introduction of drinking water improved basic health conditions, as it enormously facilitated the washing of clothes and cooking materials and sometimes even allowed for small-scale horticultural production around the house. Time savings are difficult to estimate and gener-

alize, but a comparison between communities (similar in size and physical conditions) which had access to drinking water in 1996 with communities that did not have access, found huge potential gains, of one to two hours per day per family, principally benefiting *irrigation* pathway communities and the new concentrated settlement areas of several dryland communities. These time gains were especially important for women and children, who were the ones usually charged with fetching drinking water and probably also the most intensive users.

Communities showed limited interest in improved latrines. These projects had generally been pushed from the supply side (among others by UNICEF and several NGOs), but the infrastructure (in multiple varieties) was hardly used, often abandoned and had high failure rates (in this case meaning that latrines were not used as intended, though they were sometimes in use as a storage space). This is perhaps a typical example of a mismatch between external ideas and community perceptions, practices and habits.

Spreading the light

Electricity provision started much later than most other public services, and although the long-term impact is potentially huge, due to its recent implementation it had not yet led to major changes in daily practices. Wasa Ñucchu was in 1995 still the only community with access to electricity, which is probably unsurprising considering its location close to Sucre and close to the other Ñucchus, forming an attractive riverside *balneario* (resort) for Sucre residents. Escana, profiting from its large irrigation project, obtained (partial) access in 1996, and a few other communities received solar panels to provide electricity at least to the health centre or primary school. Only after 2005 did connections to the electricity grid expand rapidly in rural northern Chuquisaca. Today, except for Talahuanca and Ovejerias, all communities have electricity in at least the centre of the community. But partial coverage is still the norm rather than the exception. In communities that are more difficult to provide access, like Talahuanca (and Llavisa), solar panels were installed, but both systems quickly fell into disrepair.

Before accessing electricity, households often used kerosene lamps or lighting by small burners (*mecheros*). Today most households with electricity have a few light bulbs and electrical domestic equipment, such as blenders, small televisions and DVD players. Refrigerators were found in only a small group of households in the better accessible communities. Electricity improves the quality of life, by reducing the need for kerosene and allowing children (and sometimes parents) time to study at night. This, in fact, was one of the principal remarks made by parents on the benefits of electricity. Provision of electricity influences consumption patterns, and it may also impact the further assimilation of Spanish by parents and children and other cultural habits in the longer term. Although many families bought televisions, their actual use was limited almost everywhere to the viewing of videos or DVDs, as in most communities broadcast signals were too weak, or no antenna was available for better reception. Some direct transmissions could be received in La Cañada in 2011 – apart from Bolivian state television these were mostly Brazilian channels and *telenovelas*. Some municipalities, such as Mojocoya and Yamparáez, actively promoted local or regional television, and Yamparáez even funded a special programme for transmission and broadcasting in Escana.

Electricity infrastructure was often developed in parallel with establishment of a core settlement. But it had not as yet led to any productive transformation on a larger scale. There were few communities where households used electricity for transformation or for pumping water for irri-

gation. In the Rio Chico area, the initial electricity infrastructure was not three phase (*trifasico*), which would have facilitated heavy energy use and the transformation of products on a larger scale. Families operating mills often used other energy sources. Electricity did favour the opening of a few additional shops and, in communities along the road (like San Juan de Orcas), even the setting up of two small restaurants. Although electricity (and water) provision have brought regular bills, due to the relatively low cost of energy, the savings from kerosene alone might compensate for the additional expenditure. In Escana, a community with a relatively long history of electrification and probably one of the highest levels of 'consumption goods', the average energy bill in 2011 was around Bs 15 (US \$2) per month.

Kissing bugs as driver of housing improvements

Housing improvements in the research area originated mainly as a response to tuberculosis and *chagas* disease (*trypanosomiasis*). Trypanosomiasis particularly affects communities in the valleys, where this vector disease is transmitted by an insect (called *vinchuca* in Bolivia and the 'kissing bug' in the region). Infected people may develop chronic heart and digestive system problems, sometimes leading to death. The cause is not always acknowledged, as symptoms may develop over many years. *Vinchucas* nest in thatched roofs and mud walls, which is the main reason why housing improvements can be hugely beneficial for public health and reduction of (adult) mortality in those villages. The Andean valleys of Chuquisaca have among the highest infection rates in the country. *Chagas* is especially rife in the lower valleys, but may spread to higher altitudes. Among the research communities, the riverside and other valley irrigation communities were indeed the first to benefit in the early 1990s from housing improvement programmes. In a few communities, coverage remained only partial, however, dramatically reducing the effectiveness of the programmes as we will see in the next section.

Housing improvements typically took the form of either entirely newly built structures (e.g., small 'bungalows') or improvements of existing structures. The latter had the advantage of retaining the existing design of the house or modifying it only slightly. Examples of improvements were the plastering of adobe walls, replacement of thatched roofs with tiles and implementing ways to keep small livestock (in particular, chickens, sheep and pigs) at a greater distance from the house in separate corrals (livestock abodes are also a source of *chagas*). These were relatively cheap solutions, as most households were able to realize most of the work themselves when given access to cement, paint and technical assistance. An additional advantage was that household members learned basic skills that were useful in further maintenance, improvements or even for temporary jobs elsewhere. The other alternative, building entirely new houses, was popular among NGOs like *Plan International*, and is also advocated by the current government. Funds such as the *Evo Cumple programme* have made massive investments in new housing in the Rio Chico valley. Although new builds certainly have advantages, such as more uniform standards and the possibility of incorporating modern innovations, the benefits have in practice been limited. Furthermore, new builds are far more expensive and generate less ownership than refurbishment.

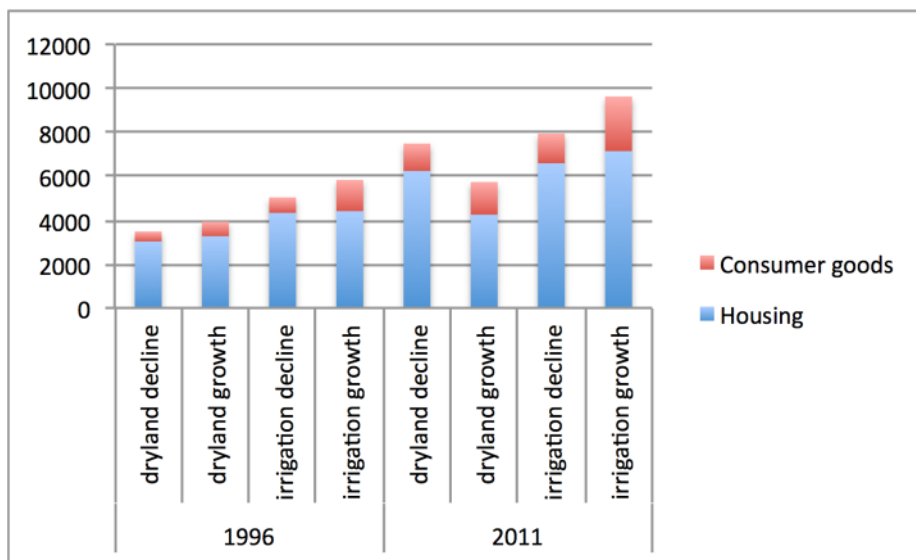
The success in reducing the prevalence of *vinchucas* in communities with substantial housing improvements led to the gradual extension of these programmes. Due to its high visibility, and the corresponding expansion of public services it tended to bring, housing improvements became a high priority for many communities. La Abra, Escana, Tuero Chico and to a lesser extent Wasa Ñucchu (all *irrigation* pathway communities) all benefited substantially, while San Juan de Orcas, La Cañada, Yurubamba, Sundur Wasi, San Juan and Cochapampa benefited to some ex-

tent from housing improvement programmes. The gap in coverage rates between the first group in the lower valleys and the remaining communities is probably due to the urgency in the first group to get 100% coverage in order to eradicate or considerably reduce *chagas*, while prevalence rates were lower in most of the communities in the second group.

Although improved housing clearly led to better living conditions while reducing *chagas* and other illnesses, it is difficult to assess its impact on community pathways. Six out of eight communities with relatively recent housing improvement programmes experienced strong to very strong declines in population and continued outmigration to major cities, nearby urban towns or abroad. Even for Tuero Chico and La Abra, which in addition to the most extensive housing improvement programmes, also achieved nearly full coverage rates for electricity and drinking water, outmigration rates remained high. These communities only had access to primary education and faced rapidly declining school populations, threatening a further reduction in *items* and even closure of the school. This puts the added value of housing improvements in a different light.

Housing improvements have implied the need for new structures or refurbishment of roofs and walls and the need to get rid of small-scale *establos* (barns with goats and sheep) surrounding the house. This process has been one of the drivers of settlement concentration and is especially apparent in the riverside and valley communities under the *irrigation* pathway. Nonetheless, some dryland communities also managed to attain a partial or substantial upgrading in the quality of their housing. This almost always occurred in newly established or extended core areas (e.g., in Yurubamba, San Juan de Orcas, Cochapampa and San Juan), augmenting their internal differentiation with the more remote *ranchos*. The *dryland growth* pathway communities, except for the ‘core settlement area’ of Yurubamba, hardly benefited. Figure 10.2 presents the changes in average value of housing and consumption goods among the research communities.

Figure 10.2
Average value of housing and consumption goods (Bs), 1996 and 2011



Source: PIED studies, own elaboration.

10.4 Settlement concentration and rural urbanization

The cumulative provision of public services (drinking water, roads, electricity, improved housing and sometimes latrines) often changed the settlement pattern of communities. When we consider the extremes in settlement concentration and access to public services, we find at one end Wasa Ñucchu, a small and very concentrated urbanized community, and at the other extreme, Tala-huanca and Ovejeras Alto, both large and very dispersed communities with little or no public services. Most communities were somewhere in the middle, but tending towards the more concentrated pattern. The extremes make clear that settlement concentration has important consequences for community life and community pathways. Wasa Ñucchu had virtually no land or space left for expansion, and families had started constructing second or even third floors (a rare phenomenon among the research communities). The community faced basic sanitation problems, increasing land scarcity and higher land values. New families had to live either far from the centre (on the dry and steep hillside) or move abroad (this was the preferred option). Livestock was kept at a distance or in corrals. Thanks to frequent interactions and regular transport, information spread rapidly and networks operated relatively smoothly, which explains the rapid expansion of the community's migration networks, for example, oriented towards Buenos Aires. At the other extreme, households in large and dispersed communities had to travel great distances to care for their livestock or crops and communicate with each other (although nowadays this is facilitated by mobile telephony, at least in some communities). They may have a small horticultural plot near their house, but children had to walk long distances to reach school.

The 'resettlement' process has thus had consequences for day-to-day community dynamics, including agricultural practices, the internal community organization and many other aspects of daily life. Starting with the creation of a communal space around the church, central square or sports field, settlement concentration facilitated meetings, festivities and other aspects of social life (e.g., mothers could leave their house while children played outdoors), the exchange of information (from community news to market or project-related information), and more immediate assistance in health emergencies. When new housing was mainly used for access to school, it led to early 'separation' of young children from one or both of their parents (also enabling children to study at night, often with electricity), as parents may continue to work far away in the field and often stayed in a second house close to agricultural plots or livestock. Settlement concentration and upgrading of houses and public services probably also facilitated daily housekeeping and saved time in fetching drinking water (and with improved kitchens possibly reduced the need for firewood collection). It led to increased frequency of transport, possibilities to sell products directly or via intermediaries, establishment of shops or 'transformation' activities (like grain mills) and facilitated 'double residence' (with easy return in weekends or during peak periods). Last but not least, external organizations were more inclined to implement services in 'nucleated' communities, due to opportunities for more uniform implementation and lower costs per unit, leading to self-reinforcing trends in the concentration of projects.

Settlement concentration also had a number of disadvantages, in particular in the productive sphere and in the larger and more scattered communities (most of them *dryland* pathway, but also the larger *irrigation decline* pathway communities). With agricultural plots located at a greater distance from homes, livestock management became more complicated and the self-reinforcing tendency of outward migration of younger adults led to declining labour availability. Second, the more remote houses seldom obtained access to any public services and were increasingly neglect-

ed or abandoned. Third, little serious effort was observed to maintain newly built infrastructure in core settlements, leading to questions of sustainability. Finally, household access to land in the core was not always uniformly distributed, leading to possible imbalances or disputes regarding access.

10.5 Interactions between internal and external agency

Although most communities experienced substantial improvements in the level of public services, the process of their implementation was far from straightforward in terms of their provision, operation and maintenance. In every area of service delivery, there were at least some communities that experienced multiple efforts to establish the same service over and over again, or to gradually extend, refurbish or rebuild public services. In the past, most collective amenities had been the result of community initiatives. The often substantial labour contributions were made at a considerable cost, either in terms of lower agricultural production or in missing out on labour opportunities elsewhere. After 1983, both state institutions and NGOs became involved in building up public services. Municipalities began to play a major role only in the years after 1996 and especially after 2000. After the Morales government took office in 2005, central government programmes gained importance in areas like housing, rural electrification and distribution of *conditional cash transfers*. Shifts in levels of involvement, operational modalities and complementarity between efforts contributed to pathway differentiation, not only in the building up of – and differential access to – public services, but also in community perceptions regarding local participation.

Collective action, coproduction and constraints

Collective action efforts around (public) service delivery have been considerable in this region of Bolivia, especially since the 1970s and 1980s. Communities participated in building schools, health centres, roads, sports fields, community centres, drinking water systems, and depending on the intervention modality, also in housing improvements and establishment of electricity connections. Appendix 10.1 presents a few sectoral examples of community involvement.

Total time invested in the building up of public infrastructure varied between at least 50 days for Talahuanca (with the lowest level of infrastructure) to more than 200 days/household in communities like Escana, Tuero Chico and San Juan de Orcas. In addition, communities spent anywhere from 2 to 10 days a year doing maintenance work, although the requirements were gradually shifting, as external organizations and especially the municipality were taking over part of these responsibilities, especially when services (like rural roads) covered several communities. Various examples were observed of the different possible construction modalities, for instance, in drinking water systems, resulting in substantial differences in required community participation. New building modalities often implied that an entire project remained under the responsibility of the contracting company and therefore required no community involvement at all (as was recently the case in several public works in San Juan de Orcas).

Internal differentiation in community involvement and participation

Communities differed not only in their levels of participation, but as we saw in the previous section, also in outcomes related to the build-up of public infrastructure and in internal access. For most public goods the entire community was involved and also expected to benefit. In road con-

struction, health, education and community centres, communities generally indeed participated together, although distribution of benefits differed depending on households' locations within the community and their numbers of children. Demands for drinking water, housing and electricity were generally also a collective priority. However, in each of these areas, benefits tended to differ substantially, both between communities and, again, between households within communities. Few communities had near complete coverage of these services.

As discussed in the previous chapter for education (though also for health) daily management and ownership was normally in the hands of external actors, like school directors and teachers (or for health, nurses or in a few cases a doctor). A more or less permanent parallel organization was typically established (a JAE or health committee or the mothers club was appointed as the intermediary on health issues within the community). In other areas of public service delivery, a temporary committee or authority was often charged with operations and maintenance. These committees were usually externally induced or supported, and frequently dissolved when the infrastructure was complete or when the external support was withdrawn. Membership may include the entire community, or only those households that participated in the construction, though sometimes a group of households may be allowed to enter at a later stage if they fulfilled at least pending contributions. In a few cases, such committees or organizations were established at a supra-communal level – for instance, for road construction or to build a secondary school, in such cases requiring stronger involvement of community leaders in overall coordination.

Collective action constraints

Problems of collective action are multiple and relate to a wide range of factors. Willingness to embark upon collective action may be limited due to interference with the agricultural calendar, labour constraints within individual households (due to lack of internal capacity, illness or other obligations), *free-rider* behaviour or large-scale absenteeism of community members for temporary migration. In some cases, prolonged labour contributions were compensated by external incentives. Road construction involved, in a number of cases, multiple development institutions, ranging from the regional government and national road agency to church-related institutions like Caritas and Ofinaal, which provided community members food supplies to compensate them for their labours. Collective action problems found in the research communities were evident in road construction as well as in drinking water supply and housing improvement projects.

A request to upgrade the road to La Abra was put forward by a private company in the valley, proposing that the community participate in the construction. Community members, indeed, contributed more than 70 days of labour per family, and with some use of a tractor and without major supervision, the road was finalized in a premature way, leaving some additional works uncompleted. This was due to lack of funding, according to the external institution involved, but road construction also interfered with the peanut harvest. Because the road had to ford through a major river, maintenance became a difficult and recurrent issue, especially in the rainy season.

In San Juan de Orcas, problems arose in the interactions between the community and the external agent. The implementing agency had planned for a road width of four metres. Yet, community members protested that this would not be wide enough to allow the passage of larger vehicles.⁷ Obviously, the operator wanted to finalize the road as quickly and inexpensively as possible, without major investments in widening the passage. For Quila Quila, road access was regularly interrupted by strong river currents. This was the principal reason for the community's

repeated demands for construction of a large – and certainly expensive – bridge. As a consequence of the internal conflict (described in chapter six) a group within the *ayllu* segment even ‘prohibited’ construction of a bridge as this, they said, would ‘expose’ the community to undesired external influences.⁸ With the strong *sindicato* lobby and support from the municipality, bridge construction finally began, but had not been finished in 2011, also due to discord between the municipality and the regional government.

For drinking water, problems of collective action have been of a slightly different nature. Water is a scarce resource in most communities, and existing wells had a tendency to dry up. This complicates the definition of an adequate location for water tanks, not only to guarantee a long-term supply, but also to generate enough water pressure to reach a large share of the population without too many technical difficulties. Practically all communities with gravity-based systems had experienced difficulties in reaching the more remote locations, especially houses uphill. Early on, community members sometimes had low expectations of the feasibility of drinking water projects. This increased their reluctance to contribute to construction efforts, leading to free-rider behaviour later. This was particularly evident in Escana (box 10.1). Although many different institutions were involved in drinking water provision in Escana, community members did most of the work, for example, preparing the ground for connections and installing either common water points or *piletas* in homes. The government and NGOs provided construction materials, such as cement and piping, and external agencies designed the main system, though the location of the water tank was determined in consultation with community leaders. Community members also determined their own contributions in labour and cash according to the project’s needs, later allocating responsibilities for maintenance.

In Pampa Lupiara, only a small area around the school had access to drinking water in homes, while at least four of the nine *ranchos* remained excluded, due to their remote location. This immediately created problems of participation and definition of access rights, as everybody felt the need to provide the school with drinking water, but only a few homes would obtain the additional benefit of drinking water on their premises. This dilemma resulted in continuous internal disputes regarding labour participation in maintenance and in multiple efforts to explore alternative water supply solutions. The most promising alternative involved a (disputed) water source on the boundary with a neighbouring community. Although a range of external institutions (including NGOs and the municipality) promised to address the water supply problem, the technical obstacles and the internal political difficulties remained in 2011. Both in Pampa Lupiara and in Wasa Ñucchu, pumps finally broke down, and only the latter community managed to remedy the problem after some time and effort. As households, in the meantime, had to revert to fetching drinking water from distant or contaminated sources, it remains surprising and also illustrative of the difficulty of collective action that it took years to resolve the problems and arrange for new equipment.

In most communities, drinking water systems had partial coverage. The reasons for not attaining full coverage were manifold: technical limitations to attend all areas of the community with the solution proposed, a lack of willingness to participate among sceptical community members, and households being unable to provide the requested labour contribution, or simply a lack of sufficient budget or equipment to install water points for everybody. This led to recurrent demands for extensions of the current system, or for separate solutions. In general, communities were open to even non-members participating in drinking water provision. Nonetheless, there

were exceptions, as became evident in La Abra, and in some cases it may be difficult to reach an agreement for including those without prior access.

Table 10.4 presents a short summary of external involvement in drinking water projects across the research communities. In all communities at least two different institutions were involved in drinking water projects, with on average 3.3 projects per community and time horizons ranging between 4 years for San Juan de Orcas and almost 40 years for Escana. Even after various cycles of implementation, only three communities reached near complete coverage. For all *dryland* pathway communities, coverage rates were much lower, due to scarcity of water sources and the technical difficulty of connecting all households. *Irrigation* pathway communities had far higher coverage on average, but also suffered from technical problems, including contamination of sources and recurrent destruction of infrastructure. There remained a group of households with no access or very limited access, due to their remote location, or – in a few cases – non-participation in project activities.

Table 10.4
External involvement and outcomes in drinking water projects

<i>Pathway</i>	<i>Community</i>	(3) <i>Drinking water (2011/ 1996)</i>	(4) <i>settlement concentr. (2011/ 1996)</i>	(5) <i>Nr. of inst./ nr. of pro- jects</i>	(6) <i>Coverage rate %</i>	(7) <i>Year of first/last project</i>
Dryland decline	Ovejerias Alto	0/0	0/0	2/2	0	1989/1995
	San Juan	6/3	6/3	2/4	>75	1983/2010
	Cochapampa	7/4	6/3	2/2	>75	1993/2002
	San Juan de Orcas	4/1	8/2	1/3	<50	2000/2004
Dryland growth	Talahuanca	2/5	2/1	2/3	<10	1996/2005
	P.Lupiara	3/2	4/3	3/5	<25	1996/2006
	Yurubamba	5/1	8/3	2/2	<60	1998/2010
Irrigation decline	Quila Quila	6/4	6/4	2/4	<50	1978/2006
	Sundur Wasi	6/2	6/3	2/2	75<	1995/2008
	Ovejerias Rio Chico	8/nd	8/8	nd	nd	1989/2005
	La Abra	8/6	10/3	2/2	+/-95	1990/2009
	Tuero Chico	8/9	9/6	3/4	+/-95	1984/2001
Irrigation growth	La Cañada	4/2	6/3	2/2	50	1992/2004
	Wasa Ñucchu	4/4	8/8	2/5	>75	1985/2011
	Escana	9/5	10/8	2/4	+/-95	1971/2009

Source: PIED studies, own elaboration. Note: Columns 3-4 indicate changes in water provision and settlement concentration (2011/1996); Column 5 is the nr. of institutions involved and projects implemented; Column 6 an assessment of current coverage rates (of population with access); and Column 7 is the year of implementation of the first and last project.

Box 10.1 Drinking water in Escana

In 1971 Ignacio Arancibia, a prominent community leader in Escana, started working with SNDC, one of the first development institutions operating in the region. Knowing the institution from within, he proposed that the community submit a request for drinking water supply. As this would be the first drinking water project in the entire province, many *comunarios* doubted the feasibility of the undertaking and were unwilling to assume commitments or risk. It took him time

and effort to convince the majority to subscribe to the proposed agreement and to devote time to the project. In the end, only 60 out of more than 100 families joined the effort. In the first phase they had to resolve an outstanding issue with the neighbouring community of Erapampa. The dispute was related to the location of the school and the church and the possibility of jointly undertaking the drinking water project. As it became clear that Escana would obtain the school, Erapampa claimed a lower contribution from its side for the drinking water project. SNDC finally agreed to offer the community pipelines, cement and some technical assistance for the project. Community members were asked to install the small pipelines close to their homes, and they dedicated substantial labour to this effort. Although most participants indeed gained access to drinking water points on their own patios, water pressure was limited, especially for the higher located houses. Some people working on the project were mocked by those who did not participate as being lazy and unwilling to fetch their drinking water on a daily basis. Some members who didn't participate started to use the water points, but remained unwilling to pay their share, even when they became convinced of the benefits of the project. Anecdotally, one *comunario* said that the police had been brought in to force those members to pay their full share. The system was improved and extended in 2003, 2004 and 2009, and overall has been operational for almost 40 years. The existence of effective control and policing mechanisms is limited, but there is strong pressure to prevent new free-rider behaviour.

Collective action problems in housing were often related to difficulties in attaining full coverage. Housing improvement programmes were generally aimed to reduce the prevalence of *chagas*. Among the predominant institutions working in the field were Cardinal Maurer, *Plan International* and Pro-Habitat. The white houses with red tiles built by Plan International along the four main exit roads from the city of Sucre appear particularly attractive to Western eyes in the green and lush valley of the Rio Chico.

When we started our survey in Wasa Ñucchu in 1995, there were at least five different types of houses. The old, large and crumbling buildings of the former hacienda on a hill in the middle of the agricultural fields; a small but very concentrated urban settlement on the hillside towards the river where 80% of the community lived; a group of houses in traditional style with a small *patio*, clay walls and thatched roofs surrounding the irrigation area with small livestock holdings close to the houses; and amongst those houses and cornering the urban settlement, 10-15 recently built *mini-bungalows* (two rooms, a kitchen and front patio) according to the Plan International design. Finally, there was an almost invisible group of scattered, simple clay houses on top of the hill, basically used for taking care of goats. According to the *comunarios*, participation in the Plan International housing programme was open only to parents with children participating in this organization's 'foster child' programme and with the space required for a new house. But even for the selected families, participation was limited, due to the standard design and construction by Plan or its implementing partners. The project also had some unforeseen consequences. First, one of the main objectives, eradicating *chagas*, could not be achieved at all, because many of the old houses with thatched roofs and surrounding small livestock remained in place. Second, the design of the bungalows did not really suit local practices. Third, the project selected a specific group of participants within the community, and made no allowance for its 'duplication' elsewhere in the village. Several households indicated that the new house was a welcome, but addi-

tional and externally provided, second house. Unsurprisingly, most families continued to use their former house as well, at least those whose first houses were uphill. Many households used the new space for storage; some were not used at all for living purposes.

The approach followed by Cardinal Maurer was completely different. This programme started around 1994 in the valley of Yamparáez, among others in Escana and neighbouring communities, and at a later stage was also initiated in San Juan. Cardinal Maurer discussed the housing improvement concept with communities, but requested a 100% commitment from all members to participate in the project. Housing improvement would not follow a standard design, rather the idea was to build upon the existing housing infrastructure and allow at least one, but in most cases two or three rooms, to be upgraded. The programme was fairly successful at the time, at least in reaching almost full coverage. All houses in the centre of the village were renovated with refurbished walls, tile roofs, new cement floors and new doors and windows. Some families even included a second floor, and most also erected rooms at the back of their *patio*. Escana and most of the neighbouring communities became attractive villages in living conditions and in terms of their external appearance. Participation was substantial, as every family had to work on their own house, receiving only technical assistance from an architect and building materials (cement and tiles) sufficient to cover a certain extension. Average costs in materials for improving the houses was around US \$100, less than 10% of the cost of the houses newly built by Plan International. The project was also successful in eradication of *chagas* and in improving overall health and living conditions. In addition to fulfilling these objectives, *comunarios* received practical training in brick-laying. This experience may have served them well for other purposes at home, but also during temporary migration in Sucre, Santa Cruz or Argentina. As the project followed the existing design of houses, it did not interfere much with daily routines, although families were requested to establish a clear separation between the house and small livestock (chickens, pigs and goats). Several migrants returned⁹ from Argentina to cooperate in the programme.

Looking back at the same community, 15 years later we can observe three trends. First, all housing improvement led to the *fossilization* of the existing settlement pattern. Only a few new houses were added after the improvement programmes. Second, the few houses that were added were generally realized in an entirely different fashion, following new urban designs inspired by buildings in Sucre or elsewhere. Third, a large majority of improved houses showed little or no maintenance, leading again to exposure of mud walls below the previously refurbished cement. Similar observations were made in most communities with housing improvements, indicating households' lack of interest, capacity or willingness to invest their own income in maintaining houses. In Escana this may have been a consequence of economic developments in the community. In the 10 years following the housing improvements, the development perspectives around the new dam and the completion of the new sprinkler irrigation system remained uncertain, and many households migrated. When the problems were finally resolved, migrants returned from Argentina as well as from Sucre, where many had established a second residence. New investments and new designs in housing were hardly found in any of the other research communities.

Shifting housing policies and practices and community participation

In housing, 13 projects had been planned in 8 communities, and 11 of these projects had been implemented.¹⁰ In three of the seven communities where housing improvements had actually been implemented, at least three different institutions were involved. In La Abra the project was a joint effort of the municipality, Plan International and Pro-Habitat. In Sundur Wasi, Pro-Habitat

in fact suggested that the community initiate housing improvement work, though no request for such a project had been made by the community.

The most extreme case of housing improvement efforts no doubt occurred in Tuero Chico. The community benefited from three different rounds of housing improvements, starting in 1983 with the support of Plan International, following more or less the same model as implemented in Wasa Nucchu (mini-bungalows). This was followed in 1990 by a new Cardinal Maurer intervention, along similar lines as implemented in Escana (improvement of the existing housing structure). Then, after the partial destruction of the community by heavy flooding in 2009, the community benefited from a third round of housing improvement (this time including latrines). Support came from the central government's *Evo Cumple* programme, after mediation by the municipality, and again following a predefined design and construction modality.

The experience in Tuero Chico reflects the larger changes in housing policies among both government institutions and NGOs. Pro-Habitat is an NGO that became active in Chuquisaca in about 2003, especially in Mojocoya and Zudáñez, with the ambitious target of supporting 'complete' housing improvements in the entire province. The NGO has worked in close coordination with the municipalities and central government programmes to deliver housing improvements to rural communities, including La Abra, La Cañada and Sundur Wasi. Initially, most of its efforts were similar to those of the Cardinal Maurer programme, directed only at the eradication of *chagas* through the rebuilding or improvement of two or three rooms, changes in roofs and separation of livestock from the house. These programmes were implemented for roughly Bs 4,500 (US \$650) per household. With recent changes in central government policy (*vivienda saludable* or 'healthy home') more funding became available for incorporating additional aspects of housing improvements, especially improved kitchens and refurbishment of the remaining rooms in the house. At the next stages, attention was given to the introduction of cement floors (*piso sano*), and to the link with the productive environment (*vivienda productiva* or productive home), as practically all families used at least two or three rooms for storage of agricultural produce or equipment. Typically, the NGO would be approached by a community with a request for housing improvements. However, as minimum requisites by the central government stipulated that at least 300 families had to be involved, both the community and NGO had to consolidate 'additional requests' from neighbouring communities. Communities typically conducted 90% of the work themselves, including labour and the preparation of basic materials like *adobe* blocks. They received training and support from a technician in bricklaying, and external partners provided cement and tiles. The most complete housing improvement programmes cost some Bs 30,000 (around US \$4,500) per house, with a central government contribution of 50%, another 20% provided by the municipality and NGO involved, and 30% paid for by the beneficiaries themselves. Implementation sometimes took more than a year, due to frequent interruptions for planting and harvesting or community festivities. The new houses were painted white inside and outside, as *vinchuca* prefer to nestle and hide in dark places. The buildings incorporated improvements in all of the spaces: there was a new and so-called *Lorena*¹¹ kitchen (which produces little or no indoors smoke and features a far more efficient use of firewood), but also dedicated rooms for weaving and other activities, latrines and installed connections for drinking water, showers and electricity – these latter to be prepared in case municipalities included these services in their upcoming annual operational plans.

Even with this new and more comprehensive approach, several problems remained. It was difficult to get the near full coverage needed for effective eradication of *chagas*. In principle, the NGO allowed families to realize improvements of their current homes without the requirement of resettlement of the community. In Sundur Wasi more remote households did not participate, however, as materials transport would be too much of a burden. Many residents, furthermore, lacked the formal identification (*carne*) that the government required for entering into the programme. The community organization in La Abra refused to allow participation by several non-community members living in the area (some of them had been excluded from the community due to previous free-rider behaviour). This implied that several houses close to the centre remained unimproved and continued to be possible sources of *chagas* infections. New housing ‘regulations’, such as minimum distances for keeping livestock and guidelines for the use of kitchens, latrines and different storage rooms, were certainly not always fulfilled, as many households allowed chickens to range on the *patio*, used practically all rooms for storage of agricultural products and used latrines for alternative purposes. Although the new approaches and improved housing construction quickly and radically changed the appearance of many locations, it remained far more complicated to guarantee ‘universal’ access and to change long-rooted *habits*.

Processes of rural urbanization

The gradual transformation of a completely dispersed community into a concentrated settlement is probably the most visible expression of community transformation and pathway differentiation over time. This process was often the result of cumulative changes in public services, but it also, in turn – as indicated in the previous section – had consequences for subsequent service delivery and for the way the community was organized, as well as for a range of its daily routines. Processes of settlement concentration and rural urbanization were observed in all of the study communities. The centre and, today, partially abandoned core settlement of Quila Quila was the result of the forced *reducciones* mandated by Viceroy Toledo in 1580. Communities like Tuero Chico, Wasa Ñucchu and Escana became concentrated settlements some three to four decades ago (see also Le Grand 1998). The process of settlement concentration took anywhere between a couple of years to several decades, but it in some cases also remained unfinished. Experiences in Tuero Chico, Yurubamba and more recently San Juan de Orcas illustrate some of the logics and complexities of the process.

For Tuero Chico, settlement concentration was rather abrupt, with a shift from small and scattered houses uphill to a completely new triangular settlement close to the irrigation fields and including the building of a new school and health centre. The 4th of October 1984, the date of its inauguration, remains an historical one for community members. In the two decades that followed, the community went through various stages of housing improvements and a rebuilding of the community centre due to heavy flooding. The change from the higher areas to the valley was not without risk, as it required substantial effort both of the community and of the external institutions involved.

In Yurubamba, the demand for settlement concentration also dates from the early 1980s. The community had long-term ambitions in terms of its positioning in the region and vis-à-vis the municipal town of Ravelo. After some political struggles it obtained the status of *central provincial*,¹² which was disputed with Ravelo. Community leaders thought that their political positioning and the process of settlement concentration might favour access to public services. With external support from an NGO, they went through a process of subdivision of land and distribution of

plots in the community centre, including the definition of a planning cycle in which interested community members had to build their houses. The plan had to be approved by the municipality. Some *comunarios* worried about their livestock and access to their agricultural fields, and especially about the possible costs involved. The plan was nevertheless implemented, and in 2011 the community centre was transformed in two blocks of housing (including roughly 10 households each, and thus only a small segment of the total population) surrounding the primary and secondary school, complemented by a new and upgraded health centre as well as the 'provincial' meeting centre. The houses in the centre became the only ones with access to electricity and drinking water, and in addition to several new shops, a small artisanal workshop was opened by an NGO. Although the centre had indeed become a more animated place, not everybody was equally content. Yurubamba was traditionally divided into two segments, of which one clearly had more representation in the core settlement. Access to plots and houses in the centre to a certain extent favoured the older community members (*originarios*). Young families had limited opportunity to acquire a plot or house in the centre. In combination with other 'pending issues', this apparent inequality, the increasing importance of the core settlement and the dispute about access were probably among the triggers leading to the splitting up of Yurubamba in early January 2013 into two new communities.

San Juan de Orcas experienced a similar process as Yurubamba, but – after initial delays – in a much shorter timeframe. Although in 1992-1993 the community completed a process of allocation of land in the centre between different sections of the *ayllu*, the community centre remained little more than an old church surrounded by 10 small houses scattered along the road. It took about another decade for a complete transformation to be achieved, apart from the building of a primary school in 1996 and the paving of a sports field in 2001. Nonetheless, in 2011 the church was surrounded by more than 100 new houses, a new health centre, a secondary school, a boarding facility and a multifunctional hall, all built with external support. Although the main roads were still unpaved, markings by *bordillos* (curbs) on both sides, established with the support of a temporary rural employment programme, created the impression of well constructed roads, which one day might become a reality. The core settlement had electricity, drinking water, two restaurants, several shops and a small accommodation for lodgings. The community had seen an almost tenfold increase in transport to Sucre. The upgrading of services even led to small 'battles' with a neighbouring *nucleo* community, which also managed to attract an *internado* (boarding centre). The location of San Juan de Orcas halfway along the improved road towards the municipal town of Poroma made it a fitting place to concentrate services, which probably facilitated its upgrading to *nucleo* status and secondary education. Community members still maintained their first homes close to their lands to facilitate access during harvest and planting season (from October to June); they occupied their second home mainly between July and September. During schooling periods, their children remained in the new house in the centre. The surrounding *ranchos* did not change at all.

To facilitate increased access to services, *ayllu* authorities decided in 2003 to request a separate status as *junta vecinal* (urban neighbourhood) for the core settlement area, positioning it as an independent actor, for instance, towards the municipality. The *junta vecinal*, indeed, established its own organization, composed of a president, vice president, secretaries and 'vocals'. The members of this organization, however, were the same 180 members of the seven *ayllus* comprising Marka San Juan de Orcas. Every affiliate received access to a plot measuring either 120 m² or 200 m², and in 2011 some 60% of the members had indeed realized their own housing construction –

again with substantial external support. The community did not, however, manage to obtain formal recognition for the *junta*, which complicated its primary objective and weakened its effectiveness. The main function of the *junta* today is to levy charges for the use of drinking water in the centre. Most of the elected authorities migrated frequently.

These experiences illustrate different trends in settlement concentration and urbanization, and diverging consequences for levels of service provision and the quality of living. The implications, nevertheless, go beyond even these wide-ranging aspects. The trend of extension of core settlements can be understood as replacing or adding to the existing habit of access to multiple ecological zones. It also establishes double access within a community and may operate as a 'springboard' for young community members to emigrate to urban areas and achieve higher levels of education elsewhere. This sometimes results in strange contradictions and dichotomies. Processes of 'rural urbanization' provide previously dormant communities some prospect of further growth towards becoming major rural towns. Yet some of these same settlements were being rapidly abandoned by younger families, leaving them like new ghost towns for the few remaining elderly, who for the most part prefer to live near their fields.

10.6 Summary findings: pathways and service delivery

How and why did pathway differentiation occur around public service delivery, and what were the implications for broader pathway development, in particular related to settlement concentration? The overall differentiation we observed in service delivery runs along the lines of the *dryland* versus the *irrigation* pathway communities, with virtually no differentiation found between the *growth* and *decline* pathways. While one dryland community had been totally abandoned, leading to the closure of the existing school, another two in which some population growth was still observed managed only limited 'progress' in building up public infrastructure. This was especially the case for the more dispersed communities. Most *dryland* pathway communities with a core settlement attained substantial coverage rates for housing, drinking water and electricity at least in the new settlement area, but this left practically all surrounding areas (and the original houses) without any visible improvements in access.

Irrigation pathway communities present either a semi-concentrated settlement pattern (for the larger communities with less intensive irrigation) with medium levels of public services, or a concentrated settlement pattern with relatively high levels of public services for the large majority of the population. The higher levels of settlement concentration, 'urbanization' and public services of this group has five major explanations. First, most of them already had reasonably good access in the early decades after the land reform. Second, the shift towards and the subsequent intensification of irrigation led people to move closer to their irrigated fields. Third, the higher 'productive potential' in the communities with irrigation made them an attractive subject for externally supported projects to increase production for the market and experiment with new crops and technologies. Fourth, the relatively small size (both in area and in population) and the concentration of housing facilitated access and implementation of public services. Finally, but certainly not the least important, most of the *irrigation* pathway communities suffered more from *chagas* disease than the dryland areas, while the initial success of housing improvement programmes accelerated further interventions. All of these factors were at the other end of the spectrum in most of the larger *dryland* communities, which largely explains the differentiation in timing and sequencing of a range of interventions and the resulting changes in settlement patterns.

For the *dryland* pathway, processes of settlement concentration were more gradual, as these communities had a range of hamlets, and households generally maintained a house close to the field. The concentration process in some cases brought new dynamics to community life, for example, with the establishment of shops, redefinition of ownership and land titling and increasingly active external actors in projects to expand the level of service provision. But settlement concentration also produced externalities and increased outward orientation, and it may have also led to new internal disputes. For larger communities with a core settlement, it may have resulted in greater inequality in access to services. Households with a plot in the centre gained access to improved housing, drinking water, sanitation and electricity, while those living 2-15 km away continued to face major difficulties or remained entirely without access. In some communities, this led to a second round of projects, but many remote houses and families nonetheless remained marginalized from service provision. The establishment of core settlements appears to have induced further migration, to destinations within the country and abroad. Communities with the highest levels of settlement concentration also had the higher rates of international migration, but the main driving factor was probably irrigation (and increased sales and thus savings to pay for the travel) rather than settlement concentration. Nonetheless, the experiences of 'moneymaking' migrants abroad certainly circulated more rapidly in these communities, perhaps reinforcing the extension of migrant networks. For the intermediate communities, the focus of migration remained more at the national level, but for these communities, patterns of settlement concentration were also more recent. For the larger *dryland* communities that managed to achieve a concentrated settlement, this strengthened their position as a *nucleo* serving their smaller and more dispersed neighbours and increased their political standing, as we observed in Yurubamba and San Juan de Orcas.

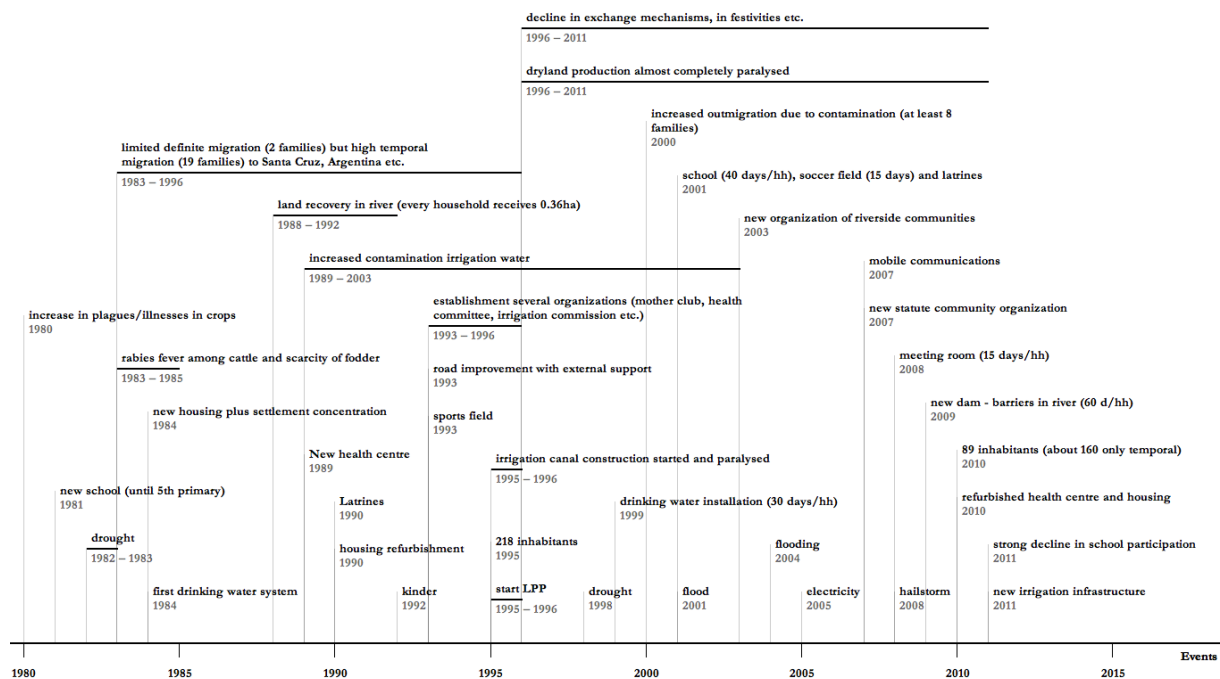
How did internal and external factors and agency influence and respond to these developments? This study examined changes in the provision of a range of public services. From initial road construction to drinking water, and from improved housing to electricity, a combination of several services together led to a partial or full transformation of communities. In practically all areas of public service delivery, communities experienced various 'rounds' of internal action and external intervention, translating into a gradual shift from initially substantial community labour involvement to the provision of complementary labour in cooperation and coproduction with external actors, and then to an almost completely externally implemented delivery of public services. Communities learn from previous experiences in a particular sector (Ostrom 2000), and they may as a consequence develop new perceptions regarding the balance between the internal commitments needed and external contributions expected. Although dynamics differed between the communities under study, we can distinguish roughly three to five 'rounds' of service delivery, though not necessarily in the same sequence or timespan everywhere. The example of Tuero Chico (figure 10.3) illustrates the multiple efforts made, amongst others, in housing improvement, health and water supply.

The first round took place in a number of communities in the early 1950s and 1960s, when communities basically had no access to services at all. Several communities started, at their own initiative, to build the first rudimentary classrooms, health centres and in a few cases to construct or improve very basic access roads. This round was largely without external intervention, except for the subsequent provision of teachers and occasional inclusion in the regional health network.

The second round included the first development efforts by organizations like SNDC and ACLO. As described in chapter four, SNDC was one of the first major development actors in

rural areas, and it also operated in northern Chuquisaca. SNDC adjusted its policies with regard to community involvement based on its first experiences, including efforts like drinking water supply in Escana (which illustrated the obstacles encountered in convincing *comunarios* to participate actively). While SNDC followed an ‘infrastructural development’ approach, ACLO was far more active in (radio-)communication, capacity building and literacy programmes.

Figure 10.3
Subsequent rounds of interventions in Tuero Chico, 1980-2011



Source: PIED studies, own elaboration.

A third, and in the Bolivian context quite important round, was related to the emergency relief after the drought of 1983. This round featured strong demand from communities for external support, but also reflected a nationally-defined (*Plan Sequia*) or agency-defined (ACLO) approach to emergency relief.

The fourth round, mainly taking place between 1983 and the end of the 1990s, was more complex in terms of the number of actors involved and the volume, scale and diversity of interventions. This round included both participatory and top-down initiatives to provide water supply, health care, improved housing and education. In housing, we examined, for instance, the different approaches used by Plan International and Cardinal Maurer, which translated into differences in selection criteria, in implementation modalities, in community involvement and also in long-term impacts. Top-down approaches, like that of *Plan International* in house building, were often intended to provide large-scale service delivery in a short period of time. According to

Pritchett and Woolcock (2004: 1), this ‘big development’ approach led to “importing standard responses to predetermined problems”.

The fifth round overlapped with the previous one, starting in the years following 1996, with stronger municipal involvement and leading to adjustments of approaches among most of the major NGOs, as well as the alignment of some government programmes. As municipalities became communities’ major interlocutors, implementation modalities again shifted dramatically, but in parallel there were also changes in community participation in elections, in access to municipal funding and in accountability mechanisms, for instance, through the establishment of *vigilance committees* at the municipal level (see, e.g., Nijenhuis 2002; Faguet 2005; IOB/Le Grand 2012). Although this round meant another quantitative shift in terms of public service provision, increasing again the number of projects, their actual distribution remained unequal among communities, leading to further differentiation. At the extremes, we observed communities splitting up in order to try to access a minimal level of basic services (e.g., in La Abra and Cochapampa), while others (like San Juan de Orcas and Yurubamba) managed to accumulate public services in their recently established core settlements.

Initial interventions in a certain sector (i.e., in rounds 1 through 4) often did not fully deliver. They were either partial in coverage (e.g., drinking water, electricity and housing), temporary (e.g., dirt roads) or still rudimentary (e.g., schooling), resulting in their quick breakdown or in the need for (multiple) complementary efforts. Subsequent interventions encountered an already adjusted community reality, in which some members had been more involved or able to deliver a larger share, while others were still pressing to obtain initial access (e.g., to drinking water or housing improvements).

Second-round interventions *in the same sector and community* generally involved entirely new external actors with different modalities, often redoing or ‘reinventing’ previous initiatives. The countless institutions involved in the possible and actual provision of drinking water in Pampa Lupiara shows that previous experiences are not automatically transmitted to the current project. The most permanent external institution – the municipality – also introduced a dramatic change in operational modalities, initiating large-scale contracting of public works to private companies, following the modality of *obra vendida*. Design became even more ‘top-down’ and community participation was to some extent discouraged. This trend had implications for the cost and sustainability of service delivery and distributional policies. New housing improvement modalities increased the cost of housing from around US \$100 to roughly \$3,000 (excluding community contributions). As communities faced increasing pressure on local labour availability and diminishing collective action capacity, this may have further discouraged effective participation in the design of projects and led to reduced ‘ownership’. For the *decline* pathway communities, infrastructure (e.g., housing, schooling and health centres) may end up being over-dimensioned, with the associated risk of imminent closure or lack of maintenance.

Delivery of public services in the study communities increased significantly over the past decades, in quantitative as well as in qualitative terms. Just as in education, the broader agenda of public service delivery led to both convergence and differentiation. Convergence was clearly observed in the fact that communities expressed similar demands, ranging from education to mobile communications infrastructure. The only element coming mainly from the supply side was sanitation and improved latrines. There was also increasing convergence in the sequencing of interventions. In the initial decades after the land reform, emphasis was on access to education, the build-

ing of a first school, obtaining or improving road access and subsequently provision of drinking water and health centres. Only at a later stage did housing improvement programmes and electricity gain importance.

A major factor influencing the initial differentiation and patterns of sequencing in service delivery was accessibility of communities and households, not only in having direct and more or less continuous access throughout the year, but also travel distances from Sucre and, within communities, the settlement pattern itself. More distant and isolated communities and more remote households were slow to 'catch up', if at all, not least due to the poor or lacking road access, major rivers and lack of bridges.

Another factor explaining differentiation between communities relates to the supply side and changes in intervention modalities among external actors. As mentioned, early access, or early collective action, influenced subsequent interventions. For interventions in the public sphere, various areas of intervention were closely related. While Pampa Lupiara received the largest number of projects in the period up to 1996, it was remarkably 'unsuccessful' in accessing services like drinking water, electricity and improved housing, both before and after 1996. Besides education and health, the emphasis of external support in this community was, principally, the productive sphere.

10.7 Conclusions

This chapter reviewed the distribution of collective action and coproduction in service delivery and the impact of these processes as well as the actual services provided on defining community pathways. Immediately after the land reform, communities had little or no access to public services, including even rudimentary access roads. Over the following decades, most of the building up of the first roads and classrooms was done at communities' own initiatives, after which external agencies made their entrance. 'Initial' differences in accessibility and external presence led to an imbalance mainly between the larger and more marginal *dryland* pathway communities and the smaller and more accessible *irrigation* communities, in both cases also leading to different degrees of settlement concentration.

From a path dependency perspective, external interventions or innovations can be considered a range of minor or major 'shocks' leading to the emergence of new trajectories or to deviations from existing pathways. We counted roughly 375 interventions in the public sphere in about five decades. These instigated a continuous but rather erratic process of introduction, upgrading and rehabilitation of services in multiple rounds. Some of these individual or accumulated interventions indeed led to major changes in access and market orientation (roads), others led to improved living conditions and or time savings (drinking water) or to changes in external appearance (improved housing). Nonetheless, the impacts were far from uniform. A comparison between, for example, San Juan de Orcas and other communities illustrates this. San Juan de Orcas (a *dryland decline* pathway community) only very recently experienced a rapid process of accumulation of services and settlement concentration, which not only raised its regional profile, but also increased transport frequency to a daily basis. Before, the rudimentary road hardly benefited the community, and most gains from trading were lost to intermediaries. Much of the benefit of the new public services, however, went only to those with homes in centre of the community, and they were not accompanied by improvements in the productive sphere. This is quite different from the overall balance found in the *irrigation* and *dryland growth* pathways. While the accumula-

tion of services certainly led to a major transformation of some communities, there were huge differences in success and failure rates and in overall impact on community life.

This chapter reviewed how *coproduction* in public service delivery (Ostrom 1996) took place, the shifts in balance between internal and external actors in different rounds and areas of service delivery, and whether the main principles for sustained collective action, as defined by Ostrom (2000), were sufficiently fulfilled to maintain high levels of community involvement in implementation of certain services. Over time and in different phases a gradual shift occurred between *path creation* through collective action by community members, to a taking over of the initiative – at least of implementation – by external development agencies.

Experiences in drinking water provision, road construction and housing show a range of constraints, related to differential access and free-rider behaviour and the ‘shared’ (in)capability of the community organization and external actors to resolve these issues in a consensual manner. While better attuned housing improvement modalities were more successful in stimulating collective action and achieving full coverage, other approaches and interaction processes, also in housing, but particularly those related to drinking water, were less successful in attaining equitable and sustainable solutions.

According to Walters *et al.* (1999) and others, following a path dependency perspective, agency and other forms of collective action depend on previous experiences. According to Ostrom (2000: 146), analysing from “an indirect evolutionary process, participants in a collective action problem would start with differential, intrinsic preferences over outcomes due to their predisposition towards norms such as reciprocity and trust. Participants would learn about the likely behavior of others and shift their behavior in light of the experience and the objective payoffs they have received.” Ostrom (*ibid.*) also indicates that higher levels of participation or frequency of participation may motivate better arrangements, which implies a building up of social capital (*knowledge to know how*).

Coproduction has, however, two sides, and while the community side may be a learning partner, external actors may shift their approaches or forms of cooperation, even with regard to the same infrastructure or public good. Where different external actors operate in the same area or sector, institutional complementarity and synchronization (or contradiction) between operating modalities and incentives become important. Will all deliver their fair share? How does the community perceive the implementation modalities and incentives provided? Poteete and Ostrom (2004) note that failure to cooperate (*chicken games*), may occur when there are multiple solutions but each of them has different distributional consequences, as happened, for instance, in drinking water provision in Pampa Lupiara. The ‘learning process’ experienced by the different external actors and interventions may also go through various rounds, but it is more prone to obey externally defined (donor-driven) objectives and incentives than to heed local participation and the quality of long-term development processes.

In this regard, Pritchett and Woolcock (2004) distinguish different and sequential failures in delivery mechanisms for drinking water supply. In the first place, decisions regarding design and location were taken from a very top-down ‘technocratic’ perspective, with limited space for participation and local knowledge. Second, the supposition of an existing need, assumed lack of interest and misunderstanding of real demands led to a lack of maintenance and suboptimal use. Third, the existing discretion among suppliers reduced transparency and accountability. Indeed,

problems in feedback mechanisms and involvement of community members in decision-making may be important explanatory factors in the implementation failures observed.

Pritchett and Woolcock (2004) define the widely diverging approaches as the 'variety of *new* solutions to common problems'. They highlight the broad menu of responses common to governments, NGOs and others in addressing development problems and in constantly redefining approaches with regard to participation. These authors mention specifically community-driven development, social funds, decentralization and empowerment – all of which were found in different forms and intensity in the research communities. Similarly, communities look at surrounding communities and learn or copy from each other. They *mimic* the demands of neighbours and increasingly also compete for access to resources, be they municipal, NGO or government. Municipal resource competition is rather routine in character, following distribution rounds organized in annual municipal summits and more or less clear 'rules of the game' (see chapter four). However, access to NGO and central government resources remains a lottery to some extent. The articulation of public services at different levels is indeed still highly problematic. Pritchett and Woolcock (*ibid.*) identify this as the *routine* of bringing in solutions whenever any problem is discovered. These external solutions have effectively become part of the problem of development interventions, as the answers and solutions provided do not really address underlying problems, but are merely an intensification, adjustment or reframing of previous policies (*ibid.*). This was clearly the case in the study communities in the areas of housing and drinking water provision.

As the findings of Ostrom (2000) suggest, communities learn in every round in the process and may gradually become more knowledgeable and motivated to participate. The survey communities, however, interacted with a continually shifting cast of external organizations, policies, modalities and incentives, some of which undermined instead of promoted full-scale community participation. Differential access within communities, especially between the better accessible core and the more remote areas, remained notoriously difficult to address and often even persisted into the second or third round of service provision, evidencing another difficulty in maintaining collective action according to the principles formulated by Ostrom.

Organizations like Pro-Habitat and Plan International implemented top-down policies for which they were paid or contracted. Achieving full coverage and improved housing in the entire province became a goal in itself, with something similar occurring for many other public services. While externally defined objectives and designs produced substantial changes in appearance and in overall living conditions in rural communities, their implications for daily habits and routines were less evident. Many households failed to follow the expected use, for example, of the new dormitory rooms or latrines, to keep their livestock at a distance or to carry out adequate maintenance. Nonetheless, their active participation in construction produced *externalities* in the form of acquired skills (useful for off-farm labour) and a shifting of consumption patterns (towards, e.g., refrigerators, televisions and DVDs).

Similar intensification efforts and occasional planning mismatches happened in education and other public services. Primary education was massively promoted, with schools being built everywhere. Secondary education was implemented without careful planning with regard to an adequate balancing between *nucleo* and sectional schools. The smaller valley communities with relatively good access and irrigation gained much faster access to most services than the more remote and scattered dryland communities. These examples confirm that the structuring of ex-

ternal supply largely followed an approach defined by *principal-agent* behaviour (Martens 2002), fulfilling internationally or donor-defined objectives, and a gap-filling approach with regard to rural development, instead of a tailoring and 'real-demand' driven approach. These mismatches also reflect a constant tension between 'locally responsive' and 'technocratically correct' approaches (Pritchett & Woolcock 2004). To a certain extent, they represent friction between *normalization* (of, e.g., housing design and health provision) and local and 'cultural embeddedness'¹³ (Dimaggio 1990; Dequech 2003), as exemplified by households preferring to retain their former dwellings.

Across the board, service delivery led to major transformations of communities. This affected both the *decline* pathway and the *growth* pathway, but surprisingly far more of the *irrigation* communities than the *dryland* ones, probably also due to the levels of settlement concentration and even the early distinction between communities affected or not by *chagas* disease. Service delivery changed the logics, modalities and frequency of, for example, transport, energy provision and communications, as well as the quality of housing, the time required for fetching drinking water, the multiple uses of water and the availability of shops. In addition, collectively they led to changes in community landscapes and settlement patterns, which also influenced habits and routines. While, in principal, public goods should benefit the entire community, in many cases their provision was partial and *de facto* increased internal differentiation between those living in the more accessible and more remote areas. Provision and distribution of public goods in many respects depended more on the existing concentration of interventions and accessibility of settlements than on existing 'gaps' or identified needs.

The parallel introduction of multiple committees (e.g., for drinking water and health) had limited impact on communities' overall institutional capacity, as in many cases their mandate, composition and operations were subordinated to the decision-making process and principles of rotation of positions in the community assembly. Although at the initial stages (during construction and directly after commencement of delivery of public services), community members were generally quite willing to assume responsibilities in water committees or as health volunteers, the additional burden and labour pressures and sometimes rather frequent rotation of duties meant that these organizations remained rather weak. While North (2010) highlights the limits of imposing ideas and norms on informal institutions, the limited effectiveness of externally supported 'new committees' reflects the difficulty of strengthening community dynamics through the introduction of 'parallel structures'.

After the start of the decentralization process (with the *Law on Popular Participation*) the existing imbalances in service provision were gradually corrected – far more than the persisting imbalances in productive infrastructure and services. Thus, decentralized government and increased community involvement led to a more equitable pattern of service distribution than under the previous state and NGO interventions. Communities were better informed and more involved in decision-making, and municipalities proved more accountable to their 'constituents'. Municipal decentralization changed the 'distribution of agency' (Garud *et al.* 2010) in two somewhat opposing ways. Practically all communities increased their external involvement, not only through voting, but also via participation in *cumbres* and *vigilance committees*. At the same time, however, the decentralization process undermined 'collective action' in implementation and maintenance of public services. In addition, municipalities reframed the conditions for NGO operations in public services, generally leading to improved coordination and synergy between undertakings. These

findings at the local and municipal level go beyond the country-level case studies on aid distribution presented, for instance, by Bebbington (2004) and Koch and Ruben (2008).

Delivery of public services expanded in multiple rounds. It started slowly, but gradually evolved more rapidly, with shifting institutional counterparts, changing incentives, top-down modalities and increasingly externally defined design. This transformed communities in multiple and differentiated ways, favouring those on the *irrigation* pathway more than those on the *dryland* pathway, but leading to a gradual convergence over time in public service availability, although still influenced by different patterns of settlement concentration. Ironically, the improvements in public services did not reduce outmigration. In fact, our findings suggest almost the opposite. The higher levels of service provision and settlement concentration correlate with higher rates of outmigration, and among the irrigation communities, even to (permanent) migration abroad. Higher educational attainment, better living conditions and greatly facilitated access to urban areas may work as the perfect *springboard* for the youth to go. The ‘narrative’ of ‘successful migrants’ and ‘a better life’ elsewhere may be an essential part of this self-reinforcing mechanism (Garud 2010).

The presence of *kissing bugs* or *chagas* disease certainly accentuated these differences in the initial decades. The gradual building up and extension of public services was at least to some extent undermined by internal and endogenous processes of declining populations and household sizes and continuous outmigration, which in many cases reduced willingness and capacity for collective action, with one result being lack of maintenance and ongoing deterioration of infrastructure. These findings contradict the idea and earlier findings of Ostrom (2000) regarding the possibility for a continuous increase in learning and more collaborative processes in the *coproduction* of rural development.

Notes

¹ An insect, which is the transmitter of *chagas* disease, and which in Bolivia is called *vinchuca*. Names vary across the continent, and include the ‘kissing bug’.

² ‘Coproduction’ includes different aspects. The OECD (2011: 17), in a study of rural service delivery includes “co-design, co-creation, co-delivery, comanagement, co-decision, co-evaluation”, reflecting different levels of participation and contributions.

³ This development can be characterized as an ironic twist of history after the efforts of Toledo (see chapter six) to force indigenous people into *reducciones*.

⁴ In four of the six communities with secondary education the population increased, while all except one of the primary education communities had a declining population.

⁵ See introduction chapter one.

⁶ Tuero Chico obtained its drinking water from springs originating in the hills, with water accumulated in a reservoir just above the school. According to Miller et al. (2004), this community strategy, using water from cleaner tributaries, probably reduced exposure to heavy metals, as concentrations were lower than WHO guidelines and considerably lower than those found in the Pilcomayo river.

⁷ This has been a recurrent issue in some communities, especially those depending on sales of large output volumes in Sucre. Smaller trucks might enter, and would probably charge the same fee as larger ones, but in larger trucks they would be able to take more of their produce.

⁸ El Diario, 26 March 2009 www.eldiario.net/noticias/2009/2009_03/nt090326/5_14nal.php.

⁹ We do not know whether this was due to internal sanctions (following the strict criteria of Cardinal Maurer), or simply because they did not want to miss the opportunity.

¹⁰ Housing improvements were scheduled and cancelled in Talahuanca in 2003 and 2007 and rescheduled again for 2013 by the municipality of Yamparaez.

¹¹ See examples from Mexico:

http://insooaxaca.com/images/Manual_para_impresion%20ESTUFAS%20L.pdf

¹² After the national and regional level the next level in the hierarchy of the national farmer union CSUTCB, followed by the *subcentralias* and the *sindicatos*.

¹³ “Embeddedness expresses the notion that social actors can be understood and interpreted only within relational, institutional and cultural contexts and cannot be seen as atomized decision-makers maximizing their own utilities” (Ghezzi & Mingione 2007). Cultural embeddedness refers to “the role of shared collective understandings in shaping economic strategies and goals” (DiMaggio 1990).



San Juan de Orcas, the same house in 1996 and 2011. Source: PIED-Andino, Miriam Vargas and author.



La Abra in 1996 and in 2011 after housing improvement and settlement concentration. Source: PIED-Andino, Antonio Aramayo and author.

Local dynamics: between path dependence and path creation

Effective development projects are based on a theory of change, which is a complete, coherent, and correct causal chain from inputs and activities to outcomes and impacts. The design of a development project therefore has to be able to answer why – why will the front-line workers put effort into translating inputs into activities and outputs that produce outcomes? [A]nd beneficiaries – why will they do what the project expects them to do? why will they use the provided outputs? adopt a new technology? or change their behavior? The better the model, the more likely the project will work (Pritchett et al. 2011).

11.1 Introduction

During the second phase of our fieldwork in 2011, I paid a visit to Llavisa, a rather remote community located at an altitude of above 4,000 m. Llavisa is the home village of llama pastoralists (*llameros*) and a community that survives principally from livestock and small-scale agricultural production. Most households have a stock of llamas, which they use for meat and milk, as well as to transport salt and dried potatoes to exchange for products like maize in the valley on trips that often take several weeks. I met again with Mrs Lopez, a woman of about 40 years of age. She still lived in the same place and exactly the same stone house as 15 years before. The only difference was that the thatched roof had partially collapsed. Just as then, she now had two young children around 4-6 years old, though this time both attended a small school built shortly after our 1996 fieldwork. One of her earlier sons had died and another had left the community. Her husband lived in Sucre most of the year, trying to make ends meet as a shoemaker. The community seemed unchanged, the only major – and directly visible – difference was the primary school. The community had no other services, though there were a few already broken water taps. Furthermore, a range of relatively large livestock abodes (*establos*) had been realized by an NGO. These had a rather exotic look among the small stone houses with thatched roofs, especially as some were already dilapidated. The woman who taught at the one-room school told me that the community had used our diagnostic study of 1996 to successfully lobby for the school after many years of disappointment. Though it is, of course, impossible to draw any definite conclusion based on such a brief visit, the possibility that our presence and research work more than 15 years earlier had been an instigator of one of the most important – but still relatively small – changes in the community can certainly not be ruled out.

These effects of unexpected interventions, as our research certainly was for Llavisa, illustrate the complexity of tracing pathways over a long period of time. Apparently small events or *butterfly effects* may trigger gradual processes of change or lead to major impacts in a relatively short timeframe. Our presence in the research communities certainly had an impact (De Morrée 1998b). But so too – and of course much more – did the land reform of 1952-1953, the drought of 1982-1983, hyperinflation in 1984-1985, the massive increase in external presence in the fol-

lowing decades, and the multiple changes in external opportunities due to the crisis in the mining sector, the rise and fall of coca production in Chapare and even the financial crisis affecting Spain and Argentina (as it led to a temporary or permanent return of migrants). Even remote historical events, like implementation of *reducciones* in Quila Quila and most of the larger rural towns, still define current settlement patterns and levels of market integration. Community histories did not start 15 years ago, as the presentation of data in this study may sometimes suggest. For some communities, key historical events and developments were relatively recent; for others, substantial changes occurred much earlier and led to complete transformations in terms of location, production system, demographic composition and access to public services. In some cases, path dependence was very strong and unaffected – or sometimes even *locked in* – by actions of external agents. In other communities, new pathways were created, with or without external support.

This study's initial analysis of pathways identified similar trends between groups of communities. Both among the *dryland* and among the *irrigation* pathway communities there were communities with rising and with declining trends in population size and other indicators. The extremes were reasonably pronounced. There was the collapse of Ovejerias (due to drought and abandonment of the small school). We observed the stabilization or even gradual increase in population due to the renewed 'attractiveness' of Escana and La Cañada, based on intensified irrigation. But in these communities and the others in-between there were many variations in terms of production potential and access and quality of public services. In practically all communities, people were leaving in search of better living conditions or to try to complement their income, but also to invest in a better education for their children. These trends are, nonetheless, only rough indications of the more complex underlying processes that have taken place in individual communities..

Without repeating all of the findings from previous chapters, this chapter summarizes how differentiation of pathways in relation to internal and external actors, land, agriculture, education and public services interacted, leading from cumulative – both contradictory and self-reinforcing – trends, to continuity in organizational structures and institutions or to ruptures and even conflict. Chapter three provided a classification of communities into four main pathways, and the subsequent chapters pursued a further subdivision. These sub-classifications reflect the complexity and mutual interference within pathways and between the multiple 'logics' (or 'con-fusion') behind certain developments, for instance, related to the differentiation between potato and more mixed production systems, between education and migration or even between irrigation and settlement concentration. The principle divisions, between a declining and growing population and between dryland and irrigation communities, allowed for a relatively simple visualization of the main trends in those communities but certainly also express correlations with underlying dynamics in production. Such correlation is evident not only between *irrigation* and *dryland* pathways but also within these two groups. The current chapter reviews the different elements of the main research questions and presents theoretical reflections on the implications of our findings for rural development pathways and the role of external interventions.

11.2 Diverging pathways: from ecological collapse to peri-urban neighbourhoods?

Outcomes of pathway differentiation

How can we characterize change processes in community pathways in Andean communities? A first main finding is that those communities that did significantly better in terms of production over the past 15 years were also the ones with either still growing or stabilizing populations. At the other end of the spectrum, we found strong decline in agricultural production in the *dryland decline* pathway and relatively low levels of production in the *irrigation decline* pathway. Production opportunities in these groups of communities did not really permit households to retain their increasingly highly educated and probably also more externally oriented youth, taking into account the still ongoing fragmentation of landholdings. A second finding, however, indicates that even communities with declining production per household maintained a relatively stable production level *per capita* compared to 15 years earlier. Nonetheless, households had become more dependent on market sales and therefore retained substantially less for their own consumption, which affected food security among poorer households. A third major finding is that while the *irrigation* pathway did significantly better than the *dryland* pathway in building up public services, the general improvements in public services hardly made a difference in retaining population. Indeed, higher levels of service provision and especially concentration of settlements probably facilitated outward migration among the youth. The only factor postponing the departure of young migrants appeared to be increased – and prolonged – access to secondary education. A fourth conclusion, related to the previous one, is that communities in the *growth irrigation* pathway became far more integrated into markets, and their resultant considerably higher levels of household income and more intensive labour agenda facilitated in some cases the return of migrants. Most of the *irrigation* pathway communities also manifested considerably higher rates of (permanent) international migration, which can be explained by higher incomes generated from irrigation, and the historic and self-reinforcing effect of migration networks abroad, in particular, visible in increasing departures to Argentina. Migration can certainly form an important alternative for young families and contribute to alleviate (land and other) pressures back home. The *dryland* pathway had a larger share of national migration, predominantly oriented towards destinations and activities better attuned to their own agricultural calendars, such as participation in the sugarcane harvest in Santa Cruz. In some cases, this led to self-reinforcing mechanisms, this time under more adverse conditions, as households earned very little, remained indebted to recruiters and had limited options for escaping from mechanisms of *enganche* (contracted labour migration). Finally, for all communities, land remained an important production factor, but size of landholdings became less important than access to (intensive) irrigation. Even with relatively large landholdings (about 10 ha/hh) some communities faced dramatic outmigration. In addition to these major findings, a range of other processes of convergence and differentiation were observed, both between and within some of the main pathways.

The dryland decline pathway

For the more marginal *dryland decline* pathway several factors came together. These communities managed to build up their public services, but were unable to maintain agricultural production levels, especially after 1996. Let us first consider ‘initial conditions’ and changes in ‘structural properties’. Since the early 1950s these communities experienced a gradually increasing popula-

tion, and relatively balanced, although risk-prone agricultural production. Some of these communities also faced high levels of land fragmentation and land abandonment and an interruption in access to different ecological zones. This pathway was most affected by the two major droughts but also by the overall process of climate change and increasing irregularities in rainfall. The decline in labour availability and organic fertilizer, and the almost complete absence of mechanization explain to a large extent why not all landholdings were being utilized. It is no surprise then that we found lower production levels, as even – or especially – during peak periods, households may encounter difficulty in contracting or exchanging additional labour among their few remaining neighbours.

Community responses, either with or without external support, did not produce major shifts in productive technologies or in the balance between agriculture and livestock. Risk-minimization strategies (accessing land in different agro-ecological zones, as well as the use of a range of exchange mechanisms) were gradually undermined, both by increasing national migration, as well as by the consequences of drought and subsequent natural disasters. Natural resource conditions (e.g., steep slopes and sensitive soils) and limited access to markets and external support disallowed major investments in mechanization.¹ The two communities that fared relatively better went through a complete transition, one from a location uphill to the valley, and the other by transforming the extended community into a concentrated settlement, strengthening its regional importance and increasing its commercial activity as well as making substantial improvements in public services and living conditions. External support had very little impact in the productive sphere, including in terms of attuning interventions to local practices and *embeddedness* at the local level. This was particularly evident in the failure of the multiple but disconnected and isolated interventions and the limited sustainability of producer associations. The gradual decay and increased erosion of collectively managed or owned marginal dryland areas seems to reflect the *tragedy of the commons*, as existing institutions appear to have been incapable of addressing these processes in an effective manner. To some extent, the increase of *conditional cash transfers* may have alleviated liquidity constraints of households, and therefore reduced the need for them to enter into mutual exchange mechanisms, but further research would be needed to conclude this with more certainty.

The principal organization involved has been the *sindicato*, which clearly suffered from a lack of influence in the productive sphere. The limitations of the *sindicato* cannot easily or uniformly be labelled in terms of *social capital*, as these communities were involved and effective in a range of collective action efforts, in particular, in the public sphere, but much less so in defining valid alternatives for future income generation. Back in 1996 all these communities, showed relatively stronger levels of internal cohesion and joint decision-making compared to 2011, reflecting at least minimum levels of *bonding* social capital. They were less effective in attracting external actors to support them according to their own agendas, which could be defined in terms of *linking* social capital. With the gradual increase in migration, even bonding social capital eroded, demonstrated by declining confidence in community leaders and reduced willingness to assume positions according to the established rotation. The rather marginal productive conditions and increasing land fragmentation in some communities limited alternatives for the younger households, which were obliged to seek a living through a parallel *migratory* pathway in peri-urban areas. This so-called '*exit option*' (Fujjie *et al.* 2005) did relieve the existing pressure (*place resource dependency*), but in the long run it also undermined collective capacity and minimum student numbers for sustaining a primary school, leading to a self-reinforcing negative spiral. In most cases it was dif-

difficult to pinpoint the exact phase transitions that occurred, but the droughts of 1982-1983 and 1997-1998, the interruption of dual access to lands in the highlands and in the valleys, the gradual increase in migration rates and the limited possibilities to intensify agricultural production certainly contributed in most cases to a trend towards *lock-in*.

Reviewing the individual cases, however, we can identify how some of these factors led to positive or negative feedback mechanisms. In the case of Ovejeras Alto, the combination of severe drought in 1982-1983, the gradual gaining of access to land in the valley, interrupted road access and the closure of the school in the highlands was the *tipping point* that prompted the complete abandonment of the community over a period of roughly 5-10 years. In Cochapampa, which was initially a 'high-potential area', we identified the interruption in exchange between the higher areas and the valley (possibly as a consequence of the land reform) and the gradual decay of the *manta* rotation system, combined with land fragmentation and a decline in livestock holdings as the principal stimuli for increased migration among the youth. These factors, combined with the splitting up of the community, affected school enrolment and the broader viability of public services, such as the recently finished health centre. The picture for San Juan is similar to that of Cochapampa, with deteriorating productive conditions, high outward migration and a rapid decline in school enrolment. In both of these communities, production cooperatives did not succeed in providing a viable alternative.

The most successful community among this group was San Juan de Orcas, which back in 1996 was still rather marginal. San Juan de Orcas also suffered from the drought and interruption of access to land in other ecological zones, but it benefited from substantially improved road access (with a new bridge). This and its location on the road to the municipal capital, opened the way to a rapid increase in transport facilities and more sustained external support, particularly in public service provision. Its 'redefinition' as a group of *ayllu* communities gave it a stronger external positioning, also vis-à-vis the municipality and neighbouring communities. It rapidly accumulated services, being transformed in a few years' time from a rather dispersed area into a more vibrant town, with a nucleated settlement, a secondary school, a hospital and a boarding facility. Even though productive conditions hardly improved, these new developments provided at least some families with alternative income sources (e.g., shops and trading).

In the first case (Ovejeras Alto) the combination of internal and external factors and agency led to the establishment of new communities outside the original community, while in San Juan de Orcas 'path creation' occurred within the existing community. The other two communities seem to be losing their remaining 'critical mass' and gradually unravelling, without any clear prospects for the future.

The irrigation decline pathway

The *irrigation decline* pathway is comparable in many aspects to the *dryland decline* pathway. These communities also suffered – although on a different scale – from land fragmentation and declining access to land under irrigation and for the riverside group from increased sensitivity to disasters like flooding and contamination. These factors partly explain the lower *per capita* production levels compared to the *irrigation growth* pathway communities. The smaller *decline pathway* communities with only primary education faced a declining school population, threatening in some cases the continuation of schools, while primary schools in the *growth* pathway were still relatively large or stable in population. In combination with the lack of secondary education opportunities or

boarding facilities in the neighbourhood, these trends together explain why many young households preferred to seek a living elsewhere, even though some of these communities had been very active in promoting and acquiring a wide range of improved public services. Although they had substantially better productive prospects, structural limits to accessing land under irrigation (as extending the irrigated area would require huge investments), at least among the riverside irrigation communities, left no serious alternative for young families. For the remaining households, income from sales of production was relatively high, allowing migration of young adults to international destinations such as Argentina and Spain.

Most young families indeed opted for migration as a way out. Some may eventually return to inherit their parents' land, guaranteeing at least some continuity in the overall productive system and in the minimal organizational setting of these communities. Several communities were affected by declining student numbers, nearing thresholds in some cases for keeping local primary schools up and running. These communities were relatively concentrated settlements with a high degree of internal exchange and strong international migration networks as a form of *bridging* social capital. They experienced stronger phase transitions than the marginal dryland communities, as most of them were the product of a complete transformation of dryland communities from the period before the land reform or in different stages thereafter, practically always leading to more concentrated settlement patterns. The two more marginal *irrigation decline* communities both suffered from disputes related to internal conflicts, which reduced internal interaction and capacity to effectively exploit the natural resource base. While the higher levels of organization in the *ayllu* community of Quila Quila were weakened (*upward reconstitutive causation*), some riverside communities managed to establish higher-level networks to effectively defend common interests.

Quila Quila, in particular, illustrates the possible negative repercussions of persisting conflict. Here such conflict effectively undermined the long-term processes of 'the reproduction of community' through social practices (Klemola 1997). While the conflict originally expressed itself around land-titling issues, it rapidly expanded into other areas, including education and access to services, road infrastructure, irrigation and municipal funding. Both internal leadership and external actors played a role in sharpening the conflict or in trying to mediate.

Cumulative effects and feedback mechanisms occurring between the different domains were particularly visible in the long range of transitions taking place in Tuero Chico (including gaining freedom from the hacienda, the splitting up of the community, moving to the valley, investing in irrigation, creation of a core settlement and expansion of migration networks abroad). All of these required adjustments in the community organization, varying from actions regarding the response to disasters and riverside contamination to rules for ensuring that parents kept their children in school and the adaptation of affiliation requirements. Tuero Chico was a particularly proactive community, even attaining three rounds of support for housing improvements. It nonetheless faced difficulties in maintaining adequate productive conditions and retaining community members.

When we consider only the last 15 years, among the communities in the region both Tuero Chico and La Abra saw the highest levels of improvement in public services and even managed to gain access to boarding facilities. Both, however, faced internal constraints in the productive environment, and La Abra also suffered from persisting internal power relations leading to effective *lock-in* in terms of access to land for poorer households, except through rather unequal exchange mechanisms. In both cases, limits in access to land, relatively small size (partly due to

splitting up) and declining school enrolment may undermine the 'viability' of the community for younger households.

In the case of Ovejerias Rio Chico, the new *virtual* organization (representing a community without an actual collective territory) represented a creative transformation but also a form of *radical spatial agency*, as a process evolving in a relatively short timeframe, in which the community established itself in an entirely different setting with a different logic and different objectives from those that were relevant in the past. The new organization facilitated the exchange of experiences regarding the new productive and institutional environment, but it helped little in 'regain-ing' support for their original community space, which still defined their collective identity.

The dryland growth pathway

The main difference between the *dryland growth* pathway and the *dryland decline* pathway was communities' ability to maintain agricultural production levels, but also their capacity to improve their political position (at least for the *pampa* communities) and to increase their influence in the municipality. These communities owe a large part of their relatively positive productive conditions to external support, which clearly favoured them due to *selective* intervention practices. They were able to resolve part of their labour constraint by technological change, increasing mechanization and establishing relatively well organized cooperative structures, which to some extent were able to break existing internal power relations. These communities also suffered less from the major droughts, and they were able to retain a larger share of their younger populations with secondary education. The more marginal growth community did relatively well even with limited access to public services.

Although the two *pampa* communities in the *dryland growth* pathway faced a small decline in production levels *per capita*, they did significantly better than the other potato-producing community in the *decline* pathway. These two communities, just like the *irrigation growth* pathway communities, experienced increased levels of external inputs, mechanization and sales, although with widely diverging outcomes among different income groups, leading also to changes in internal interactions and a shift in exchange mechanisms. For all of these communities, external interventions played a major role in the productive sphere.

Pampa Lupiara is an excellent example of how external interventions can be either supportive or completely inadequate in supporting 'transformational change'. Prolonged external assistance provided by a major NGO helped a relatively successful cooperative association to break existing power relations. Yet this was far from a linear process. It involved constant surmounting of new internal and external obstacles, a process of learning by doing, and gradual transfer of responsibilities. The association, nevertheless, faced major sustainability issues after withdrawal of external support. The community also benefited from a range of 'complementary interventions' in relation to the rapidly expanding educational facilities, which, together with its productive potential, enabled it to remain an attractive community for younger households. In addition, its strong and quite visible cultural identity (expressed in the daily wearing of traditional clothing and celebration of traditional festivities) may have contributed to relatively low migration rates. On the other hand, successive external interventions failed in effectively providing drinking water for the entire community, and contradictory incentives in credit provision and forestry led to unsustainable projects.

Surprisingly, the more marginal dryland community of Talahuanca also managed to retain production levels and even to keep up its livestock holdings. This success was due at least in part to external support in soil and water conservation and more recent efforts in construction of small-scale rainwater catchment areas. Notwithstanding its relatively marginal dryland productive conditions and limited access to services, Talahuanca maintained relatively strong internal cohesion, expressed amongst others in collective action efforts at both the community and the group level, as well as its proactive stance towards external institutions.

The irrigation growth pathway

Like the pampa communities in the *dryland growth* pathway, the *irrigation growth* pathway led to a gradual intensification of production and labour calendars, which was largely a consequence of external support, although selection of communities occurred by *chance* or favouring those with greater perceived potential. These communities had strong migration networks and were also able to capture higher-level organizational structures, such as *subcentralia* and even the function of municipal seat, evidencing their higher levels of *bridging* social capital, although internal cohesion and *bonding* social capital may have diminished. Diminished cohesion was due to a stronger emphasis on market exchange mechanisms, a reduction of reciprocity (Polanyi 1957) and the externally defined *normalization* (Boelens 2008) of productive processes and commercialization, which took place in parallel and involving almost exclusively members of associations or cooperatives. Nonetheless, the community organization ensured a certain balancing in resource access, even under intensive irrigation schemes (Agrawal & Gibson 1999). These communities, through focused crop production and more effective commercialization channels, had the capacity to generate sufficient income for double residence, to allow their children to study in urban areas and even to invest in gradual agricultural intensification and mechanization, while levels of internal differentiation increased. According to Polanyi (1957), these processes may be socially disruptive. Indeed, in this case they led to increased inequality and more market-oriented exchange relations.

The trajectories of Escana, La Cañada and Wasa Ñucchu, however, show considerable differences. Wasa Ñucchu has long had access to irrigation in a restricted area. It mainly differentiates itself from the riverside communities in the *decline* pathway by its collective establishment with two neighbouring communities of a cooperative association and its gradual transformation of the cooperative into a relatively successful, capitalized and well equipped enterprise that is a potential source of additional income for both younger and older households. Escana and La Cañada went through very different processes of intensification. In the first, this took the form of almost 20 years of struggle around a mega project, almost ending as another *white elephant*. Only the effort of a new generation of community leaders finally led to the ‘tipping point’ for effective implementation. In the second case, the productive conditions of the community were transformed through a wide range of experimental practices in cooperation between a range of external stakeholders and individual households. The community itself was transformed from a dispersed dryland area into a concentrated settlement and annex of the rapidly growing town of Redención Pampa, which it had helped to become the new municipal capital.

Commonalities and differences

Appendix 11.1 presents an overview of the main trends for the different pathways and individual communities. It clearly shows the major differences between, for instance, the *dryland decline* and

irrigation growth pathway, while the other two pathway groups represent a rather more mixed picture.

Overall, practically all communities experienced a decline in household size, continuous out-migration among their youth, gradual or more rapid fragmentation of landholdings and a decline in livestock and consequently in the availability of manure. The *dryland* pathway also faced a decline in agricultural production *per capita*. Nonetheless, as the analysis also shows, there were substantial differences between community trajectories, which, taking into account ‘initial conditions’, sometimes led to unexpected turns. While Cochapampa saw a disintegration of its exchange patterns, its institutional set-up of rotation and its productive capacity, Talahuanca managed to retain its productive capacity and population, partly due to more consistent external support in soil and water conservation. In these two communities (and in fact in many others), the productive side proved to be far more important than the availability of public services. A similar parallel can be drawn between La Abra and Wasa Ñucchu, both with similar ‘initial conditions’, but with the latter doing better in terms of additional income opportunities, both abroad and in cooperation with neighbouring communities (in the *ripio* cooperative). The former, even with its relatively high level of ‘public services’ faced clear access limits for younger households, due to the persisting unequal power relations within the community, but also due to declining school enrolment, partly as a consequence of the internal split that occurred a few years back.

Four of the six *growth* pathway communities had access to secondary schooling and gradually saw increased numbers of *bachilleres*, with many of these graduates leaving the community for migration abroad. While the very low rates of migration among the *dryland* group slightly increased, the initially much higher rates of migration among the communities with intensified irrigation clearly declined, although this occurred in parallel with an increasing practice of double residence (giving households access to peri-urban areas). In the productive sphere the differentiation in pathways was clearly linked to agricultural potential, with far more attention and investment going to communities with either irrigation potential or possibilities for intensification of potato production. Overall, both *pampa* communities as well as the communities with intensified irrigation showed the better prospects, at least for the wealthier households. The *pampa* communities initially had relatively low migration rates, and over time even cases of individual wealth accumulation. This fomented income inequality, but also possibilities for commercialization and for transformation of products in the community itself.

In parallel to the main classification, community *size* (population) and *status* were important in defining access to both primary and secondary education. In particular, access to secondary education led to an overall stronger increase in public service provision, including for instance, establishment of boarding facilities. Availability of secondary education in the vicinity allowed young people to remain in the community for a longer time. This partly explains why the larger (*nucleo*) communities in each of the different pathways did relatively better in retaining their youth, while – especially within the *decline* pathway – communities with only a primary school faced increasing rates of outmigration. It also explains the relatively higher levels of services around educational facilities (and in parallel to health). Of course, the distribution of secondary education and related services is not a *zero-sum* game, but in practice, smaller communities with a *sectional* school situated near a community with a *nucleo* would not be able to get much further in building up their public service levels. They risked losing pupils to other schools and the subsequent downgrading of their own service levels, or even of the number of teachers.

Larger communities thus benefited from their ‘critical mass’, but needed to retain a common agenda. The internal conflict in Quila Quila and the recent splitting up of Yurubamba show some of the difficulties in maintaining ‘critical mass’.

All communities were somewhat affected by the major droughts. Irrigation communities were less affected than dryland areas, but the former probably suffered more from recurrent natural disasters, such as *riadas* and contamination. All were influenced by changes in the external context, the presence of external actors, the increasing importance in the role of municipalities and the major changes taking place with the entry of the Morales government. While Ovejerías was the most obvious example of shockwise decline and complete transformation, Escana and La Cañada mainly experienced the opposite trend, but also with regular reversals. For Tuero Chico, we identified at least five major stages in its (still relatively short) development history since the land reform.

Patterns of evolutionary change

Pathway differentiation has been quite strong among the research communities. Pathways differed not only in terms of growth or decline, dryland production or irrigation, primary or secondary education, patterns of service delivery, and settlement concentration and migration, but also in terms of continuity and stability of their development pattern. Some communities experienced gradual changes, while others faced frequent shocks and pathway deviations in a relatively short period of time. Why did this occur, despite the many pressures to convergence (Ghezzi & Mingione 2007)? To what degree can we speak of *path dependence*, and which cases represent *path creation* (Garud *et al.* 2010)?

The current study focused in particular on the tension and interaction between structure and agency (Giddens 1984). Structural conditions relate to existing resources, institutions and properties (Archer 2010) of infrastructure, demographics, markets and even access to external resources and institutions. Structural properties shift over time, as exemplified by changes in the population pyramid, in the available educational infrastructure, in regional transport and in market infrastructure, but also by changes in the predominant external institutions and in existing local power relations. The main pathways identified show considerable differentiation in changes in their resource base. From the extremes of complete abandonment to substantial intensification, these processes were driven by major external shocks, like the drought of 1982-1983, but also by significant external support, as a consequence of both gradually shifting aid modalities and more structured approaches. *Chance* also played a part, for instance, in the case of Escana. As the next section will discuss, agency covered a wide variety of actors and actions over a long period of time. Pathways, from this perspective, are long-term trajectories of change, which may be intentional or driven by *chance* and accidents that trigger new pathways or deviations (Martin 2009). Pathways go through different stages or phases that may be triggered by random events, gradually gain momentum and lead to self-reinforcing processes, but they may also be destabilized. Pathways can lead either to path creation or to *lock-in* and to different externalities, economies of scale or agglomeration.

11.3 Changes in internal dynamics

What has been the role of community agency (household and collective action efforts) and institutions in driving these changes? This section first reviews some of the major changes that took place in internal organizational dynamics and different forms of agency. It then looks in more

detail at the evolution of pathways over a longer period of time, mainly in relation to interactions with external actors taking place over the different rounds.

Looking at the four main pathways in more detail, we find a near continuum between declining trends in production and population in the marginal dryland communities and those communities that – albeit with intense external support – were able to raise production and improve living conditions, and even to facilitate the return of migrants. Pathways, from this perspective, indeed move between the extremes of path dependence and situations of total *lock-in*, or to clear cases of path creation, for instance, in the transformation experienced by Ovejeras Alto towards the new settlements in the Rio Chico valley, or the dynamics around the new centre in San Juan de Orcas and intensification in the productive sphere in several *growth* pathway communities. These trends relate to differences in the balance between internal and external factors and actors. Internal factors are mainly those associated with population dynamics and slow processes of environmental change, like soil erosion. External factors are those related to climate change, changes in road access and other shifts in the external context, like increased urbanization, growing consumer markets and new migration opportunities. Internal actors and agency relate mainly to the community organization, the *sindicato* or *ayllu*, but also to the multiple subordinate organizations, such as parent-teacher associations, mothers clubs, the multiple committees, cooperatives and farmer associations. Organizations at the supra-communal level are also involved, like the *subcentralia*, the provincial federation, *vigilance committees* and regional farmer associations. Agency is also exercised in relation to processes of institutional change, including decision-making in the community assembly related to the agricultural calendar, livestock management, access to agricultural land and pastoral areas, water provision and the availability of other natural resources. External actors appeared and disappeared continuously over time, in presence as well as policies, objectives and operational modalities. These ranged from NGOs to central government programmes, municipalities, social funds, bilateral and multilateral programmes and, not least, religious or political organizations and (a few) private-sector actors. The distinction between internal and external institutions is, however, gradually fading. The *subcentralia* and regional and national farmer federation are to a large extent external organizations of which *sindicatos* are active members, influencing also their composition. The same applies to municipalities, which may be gradually ‘captured’ by the more articulate communities. These transformations are accompanied by changes at the community level and in interfaces and encounters with external actors.

Changes in community agency and pathway differentiation

First considering changes in organizational dynamics, notwithstanding the many changes, the *sindicato*, as the predominant community organization, remained remarkably constant in its appearance and internal organization. Since its establishment in the early 1950s, and certainly over the last 20 years, its longevity has reflected a large degree of path dependence. The *sindicato* could be considered a *carbon copy* model, “camouflaging a persistent lack of function” (Pritchett 2010). The process of institutional isomorphism (*ibid.*) itself resulted in an ineffective response to the challenges and constraints identified, for example, in the *decline* pathways. The original modelling of the *sindicato* was externally inspired, and external factors remain important in driving its current way of operating. The *sindicato* is the principal organization for establishing new rules and regulations in practically any domain of community life, but has also rapidly become the main ‘filter’ and point of interaction with the outside world and the main lobby mechanism for attracting new projects. This has not always been fully honoured by external parties, creating internal difficulties

(e.g., in selection of beneficiaries). Even communities with the more traditional *ayllu* organization adopted the *sindicato* structure (at least in parallel), often for external ‘lobby’ purposes, although we can question the levels of appropriation. The principle reason why the *sindicato* structure has remained so stable in terms of its formal structure (compared to committees, cooperatives and other ‘parallel’ structures) is that it *de facto* defines membership – with concurrent obligations and territorial access – and to a large extent also the room for manoeuvre for the few non-members. Non-members who do not follow *sindicato* decisions either become completely isolated or need to be relatively powerful.² However, as we will see below, *sindicatos* constantly changed in operational dynamics, reflected in variations in leadership, in rotation systems and in external articulation, as well as in the willingness of members to assume leadership positions and to embark on collective action initiatives.

When we look at the difference between *ayllu* and *sindicato* communities, all *growth* communities had a *sindicato* while both *ayllus* were on the *decline* pathway. The sample is obviously too small to draw any conclusions from the difference in classification and population trends. We might note, however, that both *ayllus* made extensive use of – and also suffered from – the different political connotation of their status. The *ayllu* authorities did not subscribe to the national farmer federation, the CSUTCB, but instead adhered to the parallel CONAMAQ. They experienced visible changes in their external representation and high levels of conflict. In both *ayllu* communities, the establishment of parallel *sindicato* organizations enabled larger groups to push for their own agenda (ending in unequal access to resources and in Quila Quila to prolonged internal conflict). Both also experienced a long history of external encroachment, and loss of land in other ecological zones, and continued to face difficulties in their status and political positioning in relation to municipalities and other government institutions.

In all communities, the culturally determined system of rotation of authorities and subordinate positions remained largely the same, as did the frequency of meetings and the way these were organized. The model of rotation is in principle quite ‘democratic’, giving everybody the possibility to fulfil certain roles and strengthening the process of collective decision-making. But it also has a downside, as it implies continuously changing leadership, sometimes inducing switching agendas or dynamics. Community leaders remain in charge only for a specific period, and they subsequently assume other roles. This mechanism was used to spread the ‘burden’ of work among community members, but also to ‘encapsulate’ certain power groups (e.g., the former *landlord*) and to exclude certain outsiders (*residents* and non-members). Rotation patterns nevertheless differed between communities. In *ayllu* communities the higher *cargos* used to be almost lifelong appointments, although this practice has eroded over time.

Due to the system of ‘gradual promotion’, in the past many of the highest traditional authorities (e.g., *alcalde* and *corregidor*) were assumed by elderly community members with ample experience. Today, however, due in part to the increasing cost of organizing festivities, willingness to take on such functions has increasingly diminished. Overall, communities tend to face difficulties in balancing the contributions of the less literate elderly (with more ‘authority’ and more knowledge of agricultural production, rituals and climate prediction) with those of the younger, better-educated community members, who also owing to intensive migration may have more experience in dealing with government institutions and external organizations. Unsurprisingly, for many community members, assuming *cargos* within the *sindicato* has become as much a burden as an opportunity. Community leaders were not generally compensated for their efforts. Leaders

with more intensive external agendas – for instance, in Pampa Lupiara – often had to hire labour to be able to collect at least a minimum harvest. From this perspective it is no surprise that especially the *dryland* pathway communities faced difficulties in the appointment of new community leaders (e.g., in San Juan and Cochapampa) or *alcaldes*. This has seriously undermined their operational capacity from time to time. The erosion of positions like the traditional community *authorities* involved in supervising and controlling aspects of production or rights of access complicated mediation in cases of free-rider behaviour or open conflicts, among practically all pathways.

Several communities now select their leaders on a purely rotational basis with little apparent concern for qualities (perhaps as a consequence of the perception of leadership positions as being both time-consuming and costly, with very limited compensation). This has not contributed to more effective and strategic decision-making. For those who want to access leadership roles, the motivation may be more than ever the prospect of a career, either within the national *sindicato* structure or in the municipality or another level of government. The possibilities for such careers are obviously better in the larger communities, which have more political weight to occupy functions in the *subcentralia*, *vigilance committee* or even municipality, which in turn may help their community to access additional funding. Some *growth* pathway communities (e.g., Pampa Lupiara, Yurubamba and Escana) indeed managed to obtain more ‘external functions’ and to attract relatively substantial external support. Another related change has been the increased facility to communicate with community members and leaders practically everywhere, with the negative side-effect being that community leaders were often absent for prolonged periods.

One aspect influencing the community organization, common to all pathways, has been the decline in household size, accentuated and accompanied by increased and sustained levels of both temporary and permanent migration to major cities in the region and abroad. As migration mainly occurs among young people and sometimes includes entire families, in many communities the elderly remained behind, sometimes caring for young children. The average age of the sample of households rose from 35 to 45 years in 15 years’ time. Combined with the decline in household size (from 6.2 to 4.8), this implied an overall reduction in labour availability for most households. In addition, the children still at home tended to remain in school longer, leaving less time for agricultural and livestock activities. The declining household size, rapid increase in migration and changes in the composition of the population has affected households, exchange mechanisms and the community organization in multiple ways, especially in the *decline* pathway. Over time, changes in labour availability within communities and in the household *life cycle* have further influenced households’ capacities and perhaps also their willingness to embark upon collective action efforts.

Increasing migration also had consequences for participation and representation in the community organization, as men more than women embarked on (recurrent) long-term migration, and even temporary migrants were less willing to assume community responsibilities. Increased migration led to a gradual decline in membership, or a large but almost permanent *absentee* membership, in particular among the *decline* pathway communities. In, for example, Cochapampa, Sundur Wasi, Tuero Chico and San Juan, a large group of members no longer lived in the community and neither did they actively participate in collective action efforts, leaving the burden to those (mainly elderly) remaining behind. Communities with high rates of migration had difficulty convening their members and faced an overall weakening of the community organization. Community assemblies had become *routine* and were for many nothing more than a reoccurring obligation.

For households without sufficient labour, land or other important resources (such as those of widows), these meetings were often simply a waste of time, as they were unable to fulfil any resulting community actions or obligations. Some *sindicatos* established a new category of affiliates, better known as *residents*, referring to families that actually lived elsewhere, only coming back to fulfil their social obligations and to carry out some productive activities in the community. Some families were affiliated with two communities, maintaining homes in the valley and on the hillside. These were generally required to fulfil community duties in both places.

Non-participation of migrants has been a larger problem. Migration is obviously not only the result of constraints back home, but also the outcome of emancipatory processes, for instance, related to higher educational achievement, and provide a window of opportunity for the youth. From a positive perspective, some of the more productive communities indeed increased their capacity to support their youth to reach more attractive destinations and to escape from situations of *enganche* and other forms of outright exploitation. A frequently encountered response mechanism in dealing with non-participation was to increase fines for non-assistance and to threaten the confiscation of land, especially from those who migrate and don't return to work their land or participate in community activities. Members who fail to cooperate could, in principle, lose their membership. In practice, this seldom occurs. Rules exist – for example, to protect the community from abandoned and therefore unproductive land in a situation of land scarcity – and the organization to implement them is there, but actual implementation has failed. According to Hodgson (2007) and Gomez (2008), these habits and routines show a large degree of *inertia* and *lock-in*. In this case even the lack of expected results did not change the practice of decision-making. This form of free riding is therefore hardly sanctioned by the relevant institutions. Basic concepts of solidarity and altruism come into play (Meinzen-Dick *et al.* 2004) and may further undermine levels of community cohesion. The position of certain leaders and (powerful) individuals may also influence or distort the decision-making process at the community level.

Changes in internal community arrangements, and especially in institutions related to agricultural production, have been most explicit in the *irrigation* pathway, especially among communities gaining or extending access to irrigation. In the *dryland* pathway, the main regulatory efforts have been oriented to taking care of the production cycle and determining the start of the agricultural calendar, also in relation to annual festivities, the return of migrants and the practising of certain rituals. A decline in population or increased absentee membership, often as a consequence of declining productivity, seems to be a major reason for the gradual erosion of certain institutions, such as the communal rotation of crops or maintaining community institutions for cattle grazing. New community rules and regulations are also related to the public sphere, in particular, focusing on community membership, fulfilment of community obligations, and payment of fines in cases of absenteeism. Four communities had even adopted fines for parents not sending their children to school in the community.

Changes in household-level practices

The organization of access to common pool resources is broadly similar among the communities, but practicalities differ in accordance with the availability of resources, ease of access and intensity of use. The delicate balance in the production system in both dryland and irrigation communities allows farmers only a small margin for experimentation. *Dryland* pathway communities risk losing a large part of their harvest to drought or other natural disasters. Production in the *decline irrigation* pathway is especially prone to natural disasters and to calamities such as flooding and

frost. All riverside irrigation communities were directly affected by *riadas*, which damaged existing infrastructure and even washed away substantial tracks of (irrigated) land. Changes in the external context and interventions (e.g., rainfall patterns, market prices and irrigation systems) led to minor or major changes in the agricultural calendar, and affected opportunities for producing certain crops, effectively widening the available options in the *irrigation* pathway and reducing both crop diversity and the number of varieties in the *dryland* pathway. Agricultural practices also depend on the availability and quality of seeds, equipment, labour and, sometimes, access to credit or fertilizer, as well as access to land. While the *dryland* pathway was more affected by major droughts, the *irrigation* pathway benefited from increased diversification, an increase in harvests and higher levels of commercialization. The agricultural calendar, in turn, defined the windows for migration, although in some cases migration opportunities may override the agenda for agricultural production.

Household agency and collective action thus took place in a complex environment, requiring consideration of different alternatives and constant choices – in which the tendency was to favour risk prevention over maximizing production. For some farmers, the margins of their operations were narrow, while others had more leeway to take risks and for accumulation. For households, being part of a broader social and informal network, at the extended family level, within the neighbourhood and even in relation to neighbouring communities or peri-urban areas, it remained important to have secure access to production factors during more difficult periods. Households had to decide how to allocate their available labour and other resources, in particular during peak periods of planting and harvesting. Many depended on other families, neighbours or *compadres* to access additional production factors, such as land, imports and equipment. This often resulted in complex schemes of access through a wide range of exchange mechanisms (e.g., *al partir*, *ayni* and *mink'a*). These mechanisms were not used to produce new and visible (public) infrastructure, but were instead related to the primary production process (i.e., involving the exchange of labour, oxen, land and inputs) and primarily focused on balancing access to production factors and reducing uncertainties and risks.

The persistence of exchange mechanisms may be influenced by internal 'equity' (access to resources), access to land in neighbouring communities, individual efforts (innovation and experimentation) as well as external interventions and changes in market access. An increase in commercialization and mechanization (and, especially, large-scale irrigation) certainly led to the monetization of barter and pricing of products according to market rates. At the same time, the rising price of daily labourers (*peones*), due to the availability of alternative labour opportunities in the mines and in urban areas and increased scarcity of local labour, may reinforce the erosion of traditional exchange mechanisms.

Informal exchange mechanisms are especially important for individual household production. Nonetheless, in communities like Talahuanca, Quila Quila and Escana substantial collective efforts had been made to rehabilitate terraces, to build a new church or *capilla*, to provide mutual support for housing improvement and to improve cemeteries. Some of these reciprocity mechanisms and practices were disappearing, and few new ones were identified. The overall tendency appeared to be a reduction in their frequency of use, possibly leading to increased 'mercantilization' and a gradual eroding of internal cohesion at the community level.

The agricultural cycle (combined with other cycles such as those of education and migration) defines labour needs and availability during the year, facilitating or constraining other forms of

collective action, for example, related to the building up or maintenance of public infrastructure and the willingness or ability to participate in community meetings. At the same time, changes due to collective action (or external interventions) influence the relations between different production factors and accessibility of public services. Changes in community practices and routines may narrow or broaden prospects and associated risks. Investments in drinking water may, for example, increase the available labour time at the household level, while increasing school enrolment may reduce labour availability.

Changes in other organizational structures

While the *sindicato* and *ayllu* structures remain the principal organizational expressions of community decision-making and of supporting or driving collective action, they do this partially by delegating responsibilities to subordinate organizations, like local committees, the JAE (parent-teacher association) and the mothers club. The community organization, however, has less influence on the different and parallel farmer associations, which often do not coincide with the community level, but are composed either of smaller producer groups or larger supra-communal associations.

Most collective action efforts were undertaken under the umbrella of the community organization, as either actions involving the whole community or as tasks delegated by the community organization to a smaller group of members. Many of the organizations and committees established at the community level were related to the broader mandate of the community organization. Their members were selected during community meetings, and in principle fulfilled temporary assignments. For interactions with external development organizations, creation of separate organizations or committees was often a prerequisite, supposedly to facilitate these agencies' continued interactions with the community. However, except for irrigation-related groups, the parent-teacher association (JAE) and some of the women's organizations, most such committees had a short lifespan, remaining operational only during the presence of a specific project or in relation to the building up of certain infrastructure. The JAE and women's organizations played an important role in daily community life, supporting the school, preparing breakfasts for students and serving as informal communication platforms on health, nutrition and other activities. However, the importance of these organizations in driving collective action beyond these areas was limited.

Economic associations generally had a longer lifespan and played a crucial role in the commercialization of certain products. Farmer associations were set up at producers' own initiative or with external support. This occurred in four of the six *growth* pathway communities (with three of them having several, mostly sales oriented, associations), and in seven out of the nine *decline* pathway communities, most with one association each. The differentiation observed here is more in the effectiveness of the farmer associations than in their numbers. For the *decline* pathway, three out of seven³ associations had either completely failed or were paralysed by conflict, two were more allied with a larger organization of communities in the valley⁴ oriented towards preventing or reducing risks of water contamination and flooding, one was a savings cooperative⁵ with limited influence in the productive sphere, while the irrigation association in La Abra had lost much of its room for manoeuvre due to the formalization of its *statutes* and the persisting dominance of one family. Three of these associations received some external support, but all of them for only a limited period of time.

In contrast, practically all of the associations encountered among the *growth* pathway communities made important contributions to further developing productive systems or in strengthening commercialization.⁶ At least six (of the approximately nine associations) had supra-community coverage levels, in three cases with the research community being the dominant player. Surprisingly, only one of these (that in Pampa Lupiara) had received prolonged external support, but this association lost much of its muscle after the gradual withdrawal of the external institution. The associations in Escana and Redención Pampa also received external support, but less in the organizational domain and more related to crop experimentation and support for commercialization. This is not to say that external support did not matter. The association in Escana, in fact, was constructed based on the experience of the communities in the valley in their almost 20 years of dealings with the Escana irrigation project.

The effectiveness of these associations depended on (minimum) levels of participation (sometimes based on ‘entry fees’), involving in many cases members of different communities, and they were reliant on the availability of local markets and levels of specialization. The fact that membership and operations were generally not synchronized with the community organization led to tensions, often related to unequal access to certain services. Friction was most evident in Pampa Lupiara and Wasa Ñucchu. In other cases, associations’ effectiveness was limited by the ability of even non-members to access practically the same benefits. This happened, for instance, with the *Cooperativa San Isidro* in Redención, where non-members could access the same services with only a minimal price difference (De Morrée 2002). Specialization (e.g., in oregano or dairy production, *ripio* extraction and the sale of *amaranto*) helped organizations to focus, but at the same time reduced their responsiveness to the diversification and risk-avoidance strategies of poorer households. This is one reason why segmented ‘chain-development’ approaches⁷ often have limited uptake in communities with more diversified production and face particular difficulties in reaching poorer households.

As acknowledged by Ostrom (2000), larger organizations – related to common pool resources – may include smaller organizations under their umbrella, each with their own set of rules. We found this pattern among the *ayllu* communities and, for instance, in relation to the watershed organizations in the Rio Chico valley. Nonetheless, the complexity of multiple layers in the research communities and certainly in much of the Andean valleys and Altiplano relates principally to the interlinkages, but also to the overlapping and possibly contradictory objectives between both hierarchical and parallel structures. The *sindicato* and *ayllu* structures, in principle, decided on the nomination and election of their own authorities and the establishment of parallel committees under their supervision, even when externally induced. The JAE and mothers clubs fit more or less into this same system. Irrigation associations and cooperatives were largely run in parallel, with often larger – supra-community – membership, and principally focused on the interests of their members, which generally included households with better access to resources.

11.4 Histories of external interventions: false starts, undue repetition and shifting identities

What has been the role of external actors, and to what extent have community actions been articulated or mediated by external interventions? Against the background of changes in context and increased globalization, communities have constantly had to reinvent themselves. Although it is clear that there have been changes in the institutions governing access to and management of

natural resources, it is less evident how and when communities have been able to adapt and adjust their own institutions to the wide range of external changes. Development histories of communities are largely the result of complex interactions between different forms of collective action at the community level, related to common pool resources and to public goods, and their respective (dis)articulation with external interventions. Differences in the sequencing of collective action responses (e.g. between the *decline* and *growth* pathway), may provide interesting lessons in the building up of (path dependent) institutions for collective action. As we will see in the next two sections, depending on their levels of synchronization, external interventions can motivate collective action, but also constrain internal efforts.

Changes in the external context

Community agency and pathways have been influenced by multiple changes in the external context, including the macroeconomic and development policies of multiple external actors, as well as a range of other factors. Important benchmarks for all communities were the land reform of 1952-1953 (followed by a long period of relative stagnation and military dictatorships), the drought of 1982-1983, the start of the democratic process in 1983 and hyperinflation in 1984-1985, followed by a decade of economic adjustment, the major reforms of the first Sanchez de Lozada government, a conflictive period almost without economic growth in the early 2000s, and finally the entry of the Morales government in 2005. This again brought on a wave of new policy measures, more funding for rural areas and municipalities, and a new constitution in 2009. But changes in community dynamics were also brought on by improvements in the main road infrastructure (pavement of the 'highway' connecting northern Potosí, with Sucre, Cochabamba and the valleys of Monteagudo), increased accessibility and growth of urban markets (like that in Sucre) and shifting labour opportunities elsewhere (gradually increasing opportunities in Santa Cruz, but with strong fluctuations in the coca-production areas of Chapare, the mines in Potosí and employment abroad related, for example, to the economic downturn in Argentina and Spain).

Another important chain of events in Chuquisaca was the political struggles and debate regarding the new constitution and the battle between the MAS party and different opposition groupings regarding the *prefecture* and subsequent autonomous government. For some communities, the relevant history goes back in time much further, and memories of encroachment and land confiscation remain important drivers of community perceptions and sometimes community action.

The distinction between policies, programmes and practices, used by Pritchett and Woolcock (2004), is useful for characterizing changes in the external environment. Starting with the land reform in 1952-1953, and the initial reform of education in 1955, it took several decades before the next major reforms were initiated by the Sanchez de Lozada government. These reforms included the *Law on Popular Participation* and the *educational reform programme* in 1994 and the *Land Law* of 1996. We also identified the prolonged 'validity' of the water law of 1906. Considering the limited (policy and reform) progress made between the early 1950s and the mid-1990s, the past two decades show an acceleration in policy innovation and reform efforts, including a range of poverty reduction strategy papers (PRSPs). The early PRSPs were driven by the Bretton Woods institutions. Later came the Bolivian poverty reduction strategy (the *Estrategia Boliviana de Reducción de la Pobreza* or EBRP), 'Dialogue 2000' and finally the National Development Plan (*Plan Nacional de Desarrollo* or PND) and the *Evo Bolivia Avanza 2010-2015 programme*, the last two both

elaborated by the Morales government. Major reform efforts included, in particular, the constitutional reform of 2009 and a wide range of new laws (relating again to education and land, but also to decentralization (*autonomía*), agricultural production (*Ley de Revolución Productiva*) and even a law underlining other elements of the MAS philosophy (*Ley de la Madre Tierra*).

In addition to these major changes, communities experienced a range of changes in direct external presence. The next section looks mainly at changes in the policy environment and direct external presence and their implications for community pathways.

The ‘take-off’ of development: a false start?

For most *sindicato* communities, their own ‘development agenda’ only started after the land reform of 1952-1953. The struggle for recognition of community boundaries, the definition of individual and collective land access and the guarantee of ‘legal’ titles to land were important initial drivers for *sindicato* communities. For *ayllu* communities, the land reform marked a new stage in their ongoing efforts to defend their community boundaries and access to land in the valleys, as well as to gain recognition or redefinition of their external ‘identity’. A second process, running almost in parallel, was the quest for better education, in particular, expressed in the building of the first schools and claiming of *items*. Partly as a consequence of the prolonged period of military dictatorship, the first three decades after the land reform showed only limited ‘progress’ in the building up of public and productive infrastructure. The land reform liberated farmers and their families, but provided little breathing space and certainly no substantial improvement in access to land. After fulfilment of initial demands for access to schooling, basic health care and road access, the logics of follow-up demands were in many cases driven by the available external supply, rather than by internally deliberated needs.

The translation of the abovementioned and rather wide range of new policies and legislation into operational programmes and practices certainly faced more obstacles than the elaboration of the policy papers. This is clearly illustrated by the multiple difficulties encountered in implementing the educational reform programme and the complexities of the land-titling process. The *Law on Popular Participation*, after a few initial hick-ups, had the most visible impact at the community level. It also had major implications for a range of other central government interventions and the operations of NGOs and *social funds*. For some communities (e.g., Quila Quila and Ovejeras) the *Land Law* had major implications; for others, new irrigation policies, the *educational reform program* or even the possibility to obtain ‘autonomy’ (Redención Pampa) provided the most important external reference points in community discussions. In the different sectors and thematic chapters, we saw that the levels and sequencing of interventions differed widely between communities.

In this evolving context of continuous policy reform, communities rapidly understood the influence of status (external positioning) and accessibility on their prospects of obtaining the attention and support of external organizations. They therefore sought recognition using various identities⁸ or as a ‘central’ community among a group of communities. They did so on their own, in joint efforts with neighbouring communities (e.g., in preparing for elections) and during roundtables for distribution of certain benefits or municipal funding. Communities often acted as a group (at the valley, *subcentralia*, provincial or *vigilance committee* levels), in general under the umbrella of the national farmer union (CSUTCB). This trend became even more visible after the rise to power of Evo Morales and the MAS party. MAS has actively interacted with or built upon

social movements as organic partners for its political constituency (e.g., by building new offices and meeting spaces for the federation at the municipal level). Communities, for their part, have lobbied for certain services (like road improvements) or competed amongst themselves to gain preferential access to services such as boarding facilities and secondary education, as well as to gain access to disputed sources of drinking or irrigation water.

As we saw in chapters five through ten, taken together, community access in terms of the quantity of ‘external interventions’ did not matter much over time.⁹ What mattered more were the quality and size of the investments, as well as their sequencing and mutual complementarity. In the productive sphere we examined the more sustained efforts of, for instance, ACLO in Pampa Lupiara and the soil and water conservation pilot in Talahuanca, versus the more *ad hoc* interventions in *decline* pathway communities like Cochapampa and San Juan. Chapter eight discussed the extremely unbalanced irrigation investments in Escana and the continuous investments in dams and irrigation works in Rio Chico versus the generally one-off investments in *irrigation decline* pathway communities.

In the public sphere, by far the largest number of interventions was directed at education, though also at a range of simple but complementary services, followed by health and drinking water. Major investments were also made in housing improvement programmes. Although the *irrigation decline* pathway experienced among the highest levels of access to services, the near absence of access to secondary education led to a continual outflow of younger families, confirming again the limited effect of improved public services in retaining population.

Just as important as the actual numbers were the process and sequencing of the building up of public and productive infrastructure. Chapters six through ten highlighted different ‘rounds’ of interactions regarding land, productive efforts, education and public services. Some of these (land) had a rather long-term cycle and affected all communities, others related to the accumulation of a range of small interventions in a relatively small number of communities (principally *dryland* pathway and potato communities). Similarly, we saw a spreading out of small-scale irrigation systems among those communities perceived as having more potential, with a few more intensive and sometimes *biased* and costly interventions in *irrigation growth* pathway communities. For education, we encountered one massive round of introducing primary education, although with widely diverging practices and sequencing, while for secondary education external interventions were more *selective* and focused on the larger and better accessible communities. For service delivery, we distinguished three to five rounds of provision, although not necessarily always in the same sequencing or timespan. We also noted that initial interventions in a certain sector often did not fully deliver, resulting in partial coverage or rudimentary solutions. Subsequent interventions then had to fill these gaps, while also taking into consideration the accumulation of previous interventions and experiences in public service delivery and differences in initial community participation. Following Prichett and Woolcock (2004), a faulty start and recurrent problems in feedback mechanisms explain many of the initial difficulties observed in implementation.

Community involvement and external presence

Most communities have been substantially involved in the building up of public infrastructure, either with or without external support. The emphasis has been on road building, classrooms, health centres, drinking water installations and housing improvements. In the productive sphere, emphasis has been on irrigation. We found differentiation in initial efforts, in pre-existing basic

infrastructure and networks (which facilitated subsequent interventions, *first mover advantage*), in different forms of stimulating external organizations to respond to community efforts (see next section), and also in levels of participation, related to both (socio-economic) status of individual households within the community as well as *free-rider* behaviour. Other elements differentiating communities were the overall levels of external support the community was able to manage or attract, position in relation to neighbouring communities, specific *status* they had been able to acquire (e.g., in relation to education, or as a *subcentralia*), and whether they were able to access the municipality or influence decision-making or get their leaders elected into higher-level farmer organizations. Communities that managed to attract a lot of external projects in the period preceding 1996, also did relatively well in the 15 years thereafter. This applied to the productive as well as the public services sphere.

Externally supported collective action efforts in the productive sphere were more pronounced in the few communities with better (perceived) potential and ease of access. The remaining interventions were more scattered, involving small groups within communities and, although contributing to changes in agricultural practices, without major impacts on pathway development. For the more accessible communities and those with more production potential (irrigation or large-scale potato production), the process of building up infrastructure generally proceeded faster than for the more isolated dryland communities. In practically all communities, the process of infrastructure building was accelerated after the first emergency interventions of 1983. Some communities became active in lobbying for support (e.g., Escana and Tuero Chico). Others had the 'luck' of obtaining early and sustained assistance from a major project or NGO (e.g., Pampa Lupiara and Yurubamba). As external interventions often focused on raising agriculture and livestock production and providing inputs and credits for a few crops this led to self-reinforcing trends for those communities with perceived better potential.

The distribution of public services was relatively balanced between *decline* and *growth* pathway communities, but certainly favoured irrigation communities more than dryland ones, also resulting in differentiated impacts in settlement concentration and community dynamics over time. Collective action efforts in the public sector, especially prior to 1996, were stimulated or supported by state institutions and NGOs. These focused mainly on public infrastructure, with various forms of participation, especially in the construction phase though with far less participation in design and maintenance. In a few cases, the existing infrastructure or lessons learnt from long-term but frustrated interactions may have reduced the local appetite for subsequent collective action (e.g., in drinking water provision in Pampa Lupiara) or the interest of external actors to continue operating in these communities.

After 1996 more communities submitted requests for higher-level education and assistance for teachers and increased their efforts to maintain minimum levels of school participation. Communities often rejected curriculum content and reform proposals. Some communities entered into competition with neighbouring communities, or even nearby towns to improve access levels. Communities without secondary education within their own borders had to balance involvement in educational agendas with keeping their children available for agricultural activities.

Finally, initial *agglomeration* of housing, especially in the riverside irrigation areas, led to more concentrated settlement patterns. This, combined with the battle against *chagas* disease and subsequent housing improvement programmes, was an important driver of the rapid accumulation of public services in these communities. The larger (principally) *dryland* pathway communities embarked on settlement concentration at a later stage, but often with ulterior objectives, related for

instance, to improving their positioning and status, which in a few cases even led to separate 'organizational' identities or the splitting up of communities.

Because initial interventions often had only partial coverage (serving a segment of the community) or were implemented quickly (e.g., in the context of drought relief) without much attention for design and location, these infrastructures have been frequently rebuilt or extended, often gradually eroding community ownership and participation. For instance, in some cases improved housing had been realized two or even three times, implying the upgrading, rebuilding and again rebuilding of basically the same infrastructure. Similarly repetitive efforts were observed in health, education, drinking water, irrigation and even reforestation. Subsequent interventions with changing modalities and differentiated (often still partial) results may certainly affect willingness to remain involved in collective action and maintenance. In some cases, public infrastructure became over-dimensioned, as communities were unable to keep up participation levels and interest in maintaining it. The timing of infrastructure projects in some cases interfered with the agricultural production cycle and complicated the recovering of at least a minimum harvest. Timing of initial interventions, furthermore, affected subsequent development interventions. For Escana, the cycle of 'building up' and establishing external relations (and migration networks) began shortly after the land reform. For communities such as San Juan de Orcas, major efforts were undertaken only recently to improve roads and establish an almost entirely new core settlement. Most communities were somewhere in between these two extremes.

Complementary or contradictory approaches?

Looking back, the around 600 different interventions documented in these 14 communities may seem a substantial number to outsiders. While this is so, as indicated, many interventions were relatively small in coverage, time and investment, and their presence and intensity fluctuated considerably over time. Only in a few cases can we speak of major investments or programmes that continued in the same community over a period of several years.¹⁰ What this number in fact underlines is the fragmented nature of development interventions. This raises questions of internal coherence, mutual interference, complementarity and contradictions between these different interventions. As indicated, at least within the domain of incentives, external actors often did not synchronize their efforts, instead implementing diverging or contradictory approaches in a narrowly defined area (e.g., reforestation).

The question of possible complementarity extends further than the issue of incentives and conditionalities. For a few larger programmes, 'complementarity' was 'built-in', as a way of distributing responsibilities and areas of intervention in the context of broader integrated rural development. This was true, for instance, of the northern Chuquisaca development programme, especially in the Rio Chico area, and the 'voluntary' coordination around irrigation in Redención Pampa. Nonetheless, the large majority of programmes and projects made little effort at coordination, either with government institutions or among themselves. This was particularly the case prior to 1996.

There were important changes in the composition of external interventions. While early on NGOs and national and regional government were more important, after 1996 municipalities clearly assumed a major role in the rural development agenda. Over time, involvement of multi-lateral and bilateral donors and international NGOs also shifted. The previous chapters reviewed external interventions from the perspective of the individual communities involved. The process

of interaction between community demands and external supply was often messy. Communities were involved, in a so-called ‘participatory manner’ in community diagnostics, in *rapid rural appraisals* and in elaboration of *community development plans*. In some cases, this was done using a stratified approach, differentiating between men and women and youths and elderly populations. But demand articulation was an open-ended process. It usually produced a prioritized ‘shopping list’, which may or may not be fulfilled by the external institution(s) involved, as these may handpick those priorities that were best aligned with their own agendas.

The importance of municipalities grew with their coordination of *municipal development plans (PDMs)* and the substantial increase in the amount of funding at their disposal. Many NGOs, and a range of government institutions, thus became more inclined to coordinate at least within the context of municipal planning. This led to a change in focus among NGOs. They shifted away from an emphasis on direct implementation and negotiations with individual communities to coordinate more intensively with the municipality on possible contributions to the PDMs or the subsequent *annual operational plans (POAs)*. NGOs often assumed the role of coordinating entity in implementation of certain elements of these plans, but in principle worked under the umbrella of the municipal government. In return, they often requested a counterpart contribution from the municipality for implementation of the various projects at the community level. Counterpart contributions also served NGOs in external negotiations with their own funders. This approach further allowed them to multiply the available funding, as well as to increase their impact in relation to government policies.

It is difficult to assess whether these changes translated into more coherence at the municipal and communal levels. At the municipal level – at least in theory – the different actors worked in alignment with a ‘collectively agreed’ PDM, but as evident from the analysis in chapter five, in subsequent years the original objectives of these plans came under pressure and priorities tended to change in light of political developments. Nonetheless, at least in the education sector greater complementarity became visible between state policies, municipal interventions and NGOs, as evident in developments in San Juan de Orcas and Pampa Lupiara. The complementarity between government educational policies related to curriculum developments and teacher training, municipal contributions in payment of salaries, organizing and supporting the provision of breakfasts and school transport, and additional services delivered by NGOs to improve the quality of education, and finally government’s targeted *conditional cash transfers* to keep children in school, were orchestrated to increase the effectiveness of education. Nonetheless, as we saw in chapter nine, communities still faced substantial difficulties and constraints in maximizing the benefits of education.

In other areas, particularly in the productive sphere, coordination remained difficult. The capacity of municipalities was fairly limited, circumstances varied between communities, and the organizational responses of communities also differed. Only in the municipality of Mojocoya did we find close relation between the municipal office, the regional farmer federation, the different *subcentralias*, several farmer associations and a number of NGOs in supporting development processes. This kind of cooperation was still practically absent in the other municipalities.

With the recent trend towards outsourcing, especially at the municipal level, community involvement in discussions regarding design and implementation of projects has become more restricted. Projects are approved, and communities’ involvement is mainly limited to delivering their counterpart contribution in labour. Project design largely remains a *black box*. In some cases, a

summary of technical design sheets may be submitted to the community, without further debate regarding the possible implications. Although some development organizations were careful to discuss project design with community counterparts, the overall trend seems to be towards more limited community involvement, instead of increasing ownership. Higher building standards and more uniform approaches in building primary and secondary schools may increase the quality of structures, but it also reduces the interest of community members in taking responsibility for maintenance. In at least three communities we observed recently installed solar panels on the roof of a school or communal building. None of those systems was in operation however. In Talahuanca, this investment was the most expensive project implemented by the municipality in a decade.

History shows a gradual intensification of interactions between communities and external institutions, in particular, municipalities. Pampa Lupiara had more than 50 individual projects in the period prior to 1996, and it received another 20 from 1996 to 2011. The community of San Juan counted 17 projects in the period prior to 1996, and another 21 over the next 15 years, of which the greatest share (16 projects) was realized with support from the municipality. To gain access to those 16 projects, the community submitted to the municipality at least 30 requests that were registered in the POAs. Nonetheless, about half was never realized. Community demands, which in the past were highlighted in *ad hoc* and individual workshops generally initiated by NGOs, have thus gradually been replaced by a more routine and medium-term development planning perspective led by local municipalities, principally organized through regional ‘*cumbres*’ (summits of communities in the respective municipality). The expectations of individual communities (of their right to access minimal levels of municipal funding) were not always fulfilled, however, and questions could be asked as to whether the so-called *shopping lists* are more structured and ‘demand driven’ than before, or whether they merely reflect the ‘political feasibility’ of receiving support rather than the actual means to deliver it.

Summarizing, external interventions contributed principally to the building up of public services. The far fewer contributions that affected productive infrastructure were mainly related to irrigation and to minor changes in productive practices, particularly in communities with perceived higher potential. External interventions also made some contributions in influencing community institutions in direct and indirect ways. Practically all communities experienced more ‘dynamic’ periods, visible amongst others in the accomplishment of collective public infrastructure projects, but also in the different ways of interacting with internal and external actors. Nonetheless, substantial differences were observed between pathways. First of all, the *growth* pathway attracted more external support for productive infrastructure and services than the *decline* pathway, except for the *riverside* irrigation communities, which also managed substantial support. On average, however, *decline* pathway communities attracted almost as much external support for public services as those on the *growth* pathway (although many of these services came at a later stage). Some *growth* pathway communities, like Pampa Lupiara and Talahuanca, indeed, did particularly poorly in attracting public services, although they managed to attract a range of productive projects (in particular Pampa Lupiara). The differentiation between these pathways may therefore be due less to the capacity of the community organization to attract external services, and instead reflect externally perceived differences in productive potential.

When we consider the overall effort of both external organizations and community members, the results are both positive, in bringing improvements in living conditions, as well as disappoint-

ing, principally in the productive sphere, due to the fact that many interventions were not very sustainable. There was a strong bias in terms of the sectoral distribution (productive versus social sectors) both between communities (in relation to ease of access and perceived productive potential or expected results) and within communities (*equity*). Some interventions were realized many times over. Others were difficult to maintain or failed to produce the expected ownership of communities themselves. The following section examines some of the factors that contributed to these disappointing results and the overall limited cost-effectiveness of external interventions.

11.5 Failed encounters and con-fusion

Ambivalence is probably the most adequate word to describe the predominant sentiment among *comunarios* regarding external organizations and interventions. For some, outsiders to the community were almost by definition suspicious, due to the negative overall perceptions of the role of the state and many related institutions (Goudsmit 2006), and possibly because of fears of land claims, confiscation, taxation or otherwise (Platt 1982). Communities, however, learnt to deal with external parties in one way or another and often actively sought increased cooperation. According to De Sardan (1988), *aid seeking* is one of the three main alternatives driving community agency. This is not an entirely accurate description, however. As we will see, communities not only look for aid, they also negotiate together opportunities for access. They resist certain types of aid, and they transform interventions according to their own plans and logics. Although on paper practically all aid is *demand-driven*, consultation processes and community participation and involvement often remain messy and vague (Pijnenburg 2004).

In most sectors, there were major discrepancies between national policies and legislation, subsequent programme formulation at the regional level and implementation practices at the community level. These were especially visible in policies related to land and education, which basically affected all communities, while service delivery interventions related to water, housing and electricity were distributed more haphazardly, depending on initial contacts, 'luck', lobbying and externally driven agendas. Development policies changed over time as a consequence of changing modalities of international development cooperation, with approaches shifting from *basic needs* to the Millennium Development Goals and from emphasis on the government to support for the private sector. Continuously shifting paradigms in, for instance, agriculture were manifest in different institutional settings and in changing interaction patterns with local communities. Similar changes can be observed for irrigation, watershed management, housing, education and public health care. Policy changes translated, to some extent, into new actors and operational approaches in the field, for instance, through the operation of *social funds*, the availability of funding for NGOs and the substantial increase in the importance of municipal decentralization.¹¹

Those new actors continuously (re)defined criteria for community selection, coverage, presence in the field, intervention modalities, incentives, beneficiary selection and allocation of funding. Selection of priority areas for government and NGO assistance was often influenced by distance and accessibility, ease of implementation and opportunities to build upon the work of others, alongside minimal working conditions (no 'impassable' river crossings), availability of basic lodging and either general poverty indicators or the possibility of formulating *SMART*¹² and visible results, typically required by donors focusing on *logical framework* approaches.¹³ Selection criteria also work the other way around. Communities that receive limited attention may be more anxious and suspicious of external institutions, and their apparent reluctance may become a

bottleneck that is increasingly difficult to overcome. The multiplicity of actors and *acronyms* results in multiple levels and practices of coordination, communication and information sharing, but also in as many mismatches, and overlapping or even contradictory approaches. It is no surprise that the dozens of institutions and the more than 600 interventions in the research communities, while contributing to improvements in the availability of public services and to some extent of productive infrastructure, did not always operate in a synchronized and complementary manner.

Returning to the statement of Pritchett *et al.* (2011) with which this chapter opened, systematic application of a *theory of change* appears to be the exception rather than the rule, even in terms of why an intervention would contribute to a specific result or with regard to possible motives for community participation. The statement, indeed, raises the question of whether a theory of change should relate to a certain region, an ecosystem, a predominant pathway or a specific community, whether it should start from the sector level or even interpret differences in household status, perception and participation. *Diagnostic* studies, at the municipal level (at least for seven of the municipalities involved) and at the community level are similar not only in structure,¹⁴ but also in their statistical summaries of a wide range of quantifiable data, *but they rarely reflect upon existing constraints and dynamics over time.*

Project objectives are similarly often externally defined, even more so when the organizations involved are specialized in a specific field or are largely dependent on external funding. Projects related to drinking water, housing improvement, health care and primary education are generally implemented without a separate justification, except for their general contribution towards the Millennium Development Goals, or for instance, making explicit their expected contribution to reducing the prevalence of *chagas*. Problems arise not from the lack of fulfilment of those objectives, but from a range of inconsistencies and cultural incompatibilities in implementation. Differentiated and often contradictory secondary objectives, including incentives for participation, modalities for priority setting or beneficiary selection, aspects of design and implementation and operation and maintenance, may lead to mismatches at the community and household levels. They may, for instance, produce different degrees of community participation and appropriation alongside a wide range of externalities in relation to livelihoods and the community organization, thus influencing the intervention's overall effectiveness and sustainability.

Interaction at the interface: community and beneficiary selection

Similarities in objectives and in *principle-agent* accountability mechanisms (Martens 2002) resulted in a strong emphasis on results, a bias towards communities with perceived better potential, and within those communities, on those households again with better access to resources. It also resulted in largely externally driven agendas, sometimes 'justified' by recurrent community demands. The short-term financing cycles, typically limited to just one year for NGOs, government programmes and municipalities, led to short-term interventions (or the breaking up of activities across multiple years, each with limited scope). Communities and beneficiaries were largely pre-selected, without meaningful follow-up or systematic analysis of local dynamics or contextual changes.

Some NGOs implemented a more systematic participatory approach, but more often than not, intervention modalities were to a large degree predefined. Communities could negotiate their participation and some minimal aspects of design and location and try to influence the timing of

the intervention. More often than not, activities were small, 'one-off' investments. Few cases were observed in which NGOs remained involved with the same communities over a number of years. The most visible examples were the presence of ACLO in Pampa Lupiara, IPTK in Yurubamba and Cochapampa, Plan International in Quila Quila and Proagro in Sundur Wasi and around Redención Pampa. The first and last of these were relatively well received and consistent over time; the others were more fragmented and interrupted. IPTK's relationship with several communities became particularly adversarial over time, and Plan International experienced some difficult encounters in Quila Quila. From a community perspective, the external presence and possible *supply* required complex negotiations regarding the character and conditions of the aid to be provided, considering the multiple internal constraints for participation.

Over time, community members became more conscious of the unpredictability, variability and discontinuity of the promises, proposals and modalities suggested by the multiple external actors and consequently adapted their responses. Apart from the classic *aid seeking* (De Sardan 1988), they sometimes sought to transform the available supply into their own 'effective demand' or presented the same request to multiple organizations. To improve their chances, communities played their own games or embarked on resistance or *con-fusion* strategies (Boelens 2008). Communities created new 'needs' for basic public services, by splitting up internally (almost all communities did so at some stage of their development, the most explicit example being La Cañada/San Julian and La Abra) or by joining with others (e.g., the new *ranchos* of Pampa Lupiara required access to drinking water). In addition there were multiple forms of strategic cooperation between user groups and groups of communities (e.g., as *subcentralia*), while some communities positioned themselves strategically by changing their appearance or external identities (e.g., Quila Quila, San Juan de Orcas and Yurubamba). A few communities were able to build upon or relate to private-sector initiatives, in particular, for an improved access road. These approaches were all part of the communities' regular toolkit.

But communities and community members also went beyond these efforts, to occupy offices, block roads and find employment in external organizations (in the *prefecture*, NGOs, municipalities and other state institutions). Occasionally, they even tried to 'capture' the municipality itself (e.g., in Quila Quila and Redención Pampa). Although these actions were often advanced by individual leaders, the preparatory process of internal decision-making and the occasional 'blockade' needed to exert pressure on external actors required substantial collective action. Some *growth* pathway communities, 'winners' in terms of numbers of projects, like Escana and Pampa Lupiara, benefited from a range of influential leaders and managed to apply a wide spectrum of *aid seeking* modalities. In contrast, several *decline* pathway communities, including Cochapampa, Quila Quila and Sundur Wasi, experienced more ups and downs in their dealings with and access to external actors. Persistent internal or external conflict and misunderstandings certainly discouraged a range of actors from continuing to invest in these communities. Once communities became more experienced in external negotiations, they started to formulate demands beyond simple requests for projects. This was particularly evident in communities with a stronger political position, those larger in size and those with access to valuable natural resources (e.g., San Juan de Orcas, Yurubamba, Escana, Pampa Lupiara and Quila Quila). The ones with less negotiating power used alternate pressure options, including for example, the occupation of offices (e.g., by La Cañada and Cochapampa). Perceptions of development among *comunarios* were certainly influenced by developments in neighbouring communities. A mimicking of project demands and the 'collec-

tive offerings' of external parties led to the proliferation of interventions in certain sectors, as evident in the case of housing improvement programmes.

Whose priorities?

Externally defined and specific project objectives often diverged substantially from the generally much broader perspectives of communities and households, and these differences often persisted. This relates for instance to the reasons why communities continued their long-standing claims for individual or collective land titles and to their strong demand for education but with a parallel resistance against bilingual or alternative teaching. Other examples include the experiences of top-down irrigation design and implementation vis-à-vis the bewildering diversity of day-to-day practices in water rights allocation, or the externally supported establishment of economic associations versus the multiple ways in which community members organized themselves through exchange mechanisms or *compadrazgo* relations. The possible disconnect may be limited or temporary, but in a few cases impacts on community routines and individual habits may have long-term consequences. Differentiated modalities and incentives for the maintenance and 'ownership' of forestry plantations led to undesired appropriation of benefits by only a few households, while diverging selection criteria and implementation modalities for improved housing led to bizarre discrepancies in access within communities.

Overall, these failed encounters and mismatches produced different levels of cultural and economic (dis-)embeddedness (Dimaggio 1990; Dequech 2003). Discrepancies arose between short-term and long-term goals and between household, group and collective community interests. Discrepancies also occurred in terms of organizational principles, for instance, in the definition of access rights, the link with correspondent rituals, and the perception of 'equity' and mutuality in contributions between internal and external actors. The two main land-titling modalities, based on an either individual or collective titling scenario, contributed to reduce the available options for communities and households and led to *con-fusing* and conflicting realities on the ground. Persistent differences between external modalities and incentives and existing reciprocity and exchange mechanisms led to misunderstandings and diminished interest in either of the two, while discrepancies with regard to the devolution of various forms of credit led to the subsequent refusal of external parties to start new credit facilities. De Morrée (2002) illustrated this for the provision of different forms of credit by IPTK and Proagro in several research communities. Discrepancies also occurred at the household level, regarding the shifting balance between food security (i.e., production for consumption or exchange) and the externally promoted orientation towards external markets. These discrepancies might not become immediately visible, but may nonetheless manifest themselves as a consequence of gradually shifting routines and practices or changes in habits and consumption patterns at the household level. Finally, differences in access to services occurred between those living in the centre or along the main road, with access to transport (some of them probably owning a shop, truck or tractor), and those living in more remote areas of the community. These discrepancies highlight internal differentiation and the fact that the community organization or existing institutions, even in an overall democratic and open structure, may not always produce an adequate internal balancing of interests.

Aid modalities, collective action and differential access

Development efforts led to shifts in both productive infrastructure and social services, with different effects on community institutions and on community organizations, and also vice versa,

with institutions influencing external demands. Every investment project, or provision of public services, required (new) agreements with and within the community about labour involvement, about design, about contributions in cash or *in-kind* and regarding access rights and modalities, maintenance and other responsibilities. The particular focus on the introduction of a few new crops (such as oregano or tomatoes) may have reinforced a segmented organizational approach and an externally supported farmer association, surpassing existing institutions (e.g., the *sindicato* and informal exchange mechanisms) and also leading to increased market dependence and reduced local exchange practices. In terms of social services, most households benefited from improved education and health facilities, but not all benefited equally from housing improvement programmes or drinking water and electricity provision. The speed of the process of change, especially related to service provision, combined with rapidly rising rural-urban migration rates, affected community institutions in different ways.

Collective action efforts are in general a balancing act between internal initiatives (building the community's own first school and health post, and – together with other communities – helping to open a first access road) and 'participation' in externally supported or induced interventions, leading to different forms and modalities of *coproduction* (Ostrom 2000). The time invested in these latter endeavours was often substantial.¹⁵ In some cases, 'participation' was compensated by external actors (with food supplies or even as paid labour). Other times, participation really was a way for community members to fulfil their (collectively agreed) obligations and to sustain subsequent user rights (e.g., to irrigation and drinking water infrastructure). In addition, communities often needed to manage operations and maintenance by establishing, also externally induced, organizations or committees. The setting up of such organizations was a way to delegate responsibilities on a rotating base, involving in principle the direct beneficiaries or even the entire community. Complications arose when coverage remained below 100%, or when some *comunarios* obtained better access to certain resources than others.

Collective action, in particular, in the productive sphere has been difficult to sustain (e.g., improved seeds and mechanization, collective rehabilitation of terraces, and soil and water conservation). Today, sustained collective action efforts will probably become the exception rather than the rule, due to greater migration, the gradually shifting and ageing population, and the increasing rates of school enrolment. This is due not only to limited labour availability and – especially in the *irrigation* pathway – a more intensive agricultural calendar, but also to uncertain benefits and the difficulty of cost-benefit calculations for certain interventions, in particular in *dryland* pathway communities. Substantial labour involvement in soil and water conservation may be worth the effort, but benefits are often visible only after a number of years, while the investments often require adjustments in long-term practices (Kessler 2006).

Incentives for leaders to become involved in the community organization probably also shifted over time, especially with the renewed possibilities after 1994 to enter local government and after 2005 even to become involved in a wider range of government employment opportunities. As community membership requires rotating fulfilment of organizational positions, leadership capacity depends on members' previous experiences, as well as on effective collective decision-making involving some of their predecessors. Some community leaders became specialized in gaining access to external support and in organizing collective action. In other cases, manipulations by a small group of community members with more access to benefit from a project led to distortions in both design and subsequent operation. Finally, young people's ambitions to attend secondary and higher education, to seek urban employment and to improve living conditions

overall clearly reduced their interest in community dynamics, while doubts among community members regarding effective implementation may well lead to increased *free-rider* behaviour.

Communities were initially very willing to engage in collective action efforts to establish or improve systems, usually resulting initially in relatively smooth operations. A range of later external interventions focused on increasing production through irrigation by improving existing systems or by setting up entirely new systems. The quick and often top-down implementation of interventions, combined with the inherent complexity of water rights allocation processes and the difficulty of predicting effective water availability, nevertheless resulted in conflicts regarding the assignment of water shifts, especially in communities with gravity-based systems. For those with other types of systems, definition of membership and unequal labour participation were sources of conflict. Individual management of small-scale irrigation systems may in the short run be effective in raising production levels, but it also led to unmanageable free-rider behaviour, both at the household and at the community level (e.g., in La Cañada, but also in Rio Chico).

Such experiences made it more difficult to request participation and intensive involvement in subsequent interventions, or in operation and maintenance. Collective action, therefore, was often driven by external incentives,¹⁶ to compensate farmers for working on projects that in the end should benefit themselves. This paradox may be one reason why different (or differentiated) incentives or 'compensation mechanisms' became common practice and a possible cause of internal conflict and unequal access. The paradox is caused by external actors pushing for fast implementation and by community members fearing unequal access or free-rider behaviour. Partly in response, new modalities were developed by external organizations, such as '*obra vendida*', which practically preclude community members from participation, reducing not only the motivation for collective action, but also complicating in some cases the subsequent definition of access rights.

A project for 'free', with full external implementation may be optimal from a short-term community perspective, but it is certainly less so in terms of the subsequent appropriation and willingness to remain actively engaged in maintenance and operation. Why should I participate, if others are to benefit more than me? This question arises regardless of whether the project relates to irrigation, schooling, credit or benefits obtained from 'foster parents'. If some don't contribute, why should I? Communities often perceive projects and even credit schemes as donations without the requirement for their own contributions or devolution. For *comunarios*, participation in construction or in decision-making gives them a right to subsequent access. Participation implies that the externally provided public or productive infrastructure is not regarded as a gift, but as one of many exchange mechanisms, in which both parties have to deliver their share. These projects may thus be beneficial to individual members and households, but they come attached with a range of obligations and possible collateral effects. While negotiations regarding the internal division of labour or in-kind contributions are realized within the community organization, the way external actors present their project¹⁷ influences subsequent stages of implementation. For more complex projects, such as the construction of a drinking water system in a dispersed and hillside community, community participation and subsequent benefits are typically only partial.

Over the past decades, the emphasis of community *agendas* has shifted, becoming gradually more preoccupied with the provision of public goods, and less with the internal organization of production. To some extent parallel organizations, like irrigation committees and economic asso-

ciations related to commercialization, have taken over aspects of the productive sphere, in a few cases leading to internal disputes, as economic associations often cover different communities and sometimes interfere with the interests of *sindicato* leadership. The predominant focus of such organizations on a few crops, however, only benefits and is tailored towards segments of the communities involved. The more successful associations were practically all found in *growth pathway* communities, indicating that these organizations may indeed make a difference, but under specific conditions, relating amongst others to conditions conducive to higher levels of cash crop production, mechanization and market integration.

External organizations followed their own objectives and targets. Driven by a *principal-agent* perspective and their own budget constraints, they demonstrated minimal capacity to attune their efforts to the longer-term development patterns and agendas of rural communities (or perhaps they lacked interest in doing so). According to Martens (2002: 14), “a striking characteristic of foreign aid is that the people for whose benefit aid agencies work are not the same as those from whom their revenues are obtained; they actually live in different countries and [have] different political constituencies”. Feedback loops between beneficiaries and ‘taxpayers’ hardly exist or function in a way conducive to fine-tuning interventions to local needs, to reward adequate performance or to spur effective implementation.¹⁸

Between 1988 and 1993, a range of NGOs (including IPTK and Proagro) under the umbrella of the AIPE network worked together in implementation of PROCOM, a programme with the explicit objective of containing migration in rural communities in the Andean valleys, principally as a response to the economic adjustment programme of the early 1980s and the existing fragmentation of interventions. However, due to persistent failure in attaining this ‘grand’ objective this approach was largely put aside.

Today the philosophy of many programmes is to resolve one or two particular problems identified in a community. These problems may relate to immediate needs, the MDGs or to constraints identified by either the community or the external institution. Once the problem is resolved, the community is thought to have taken one more step towards a ‘developed’ future. The possible or even apparent contradictions between different programmes, between programmes and livelihoods and between approaches implemented through different institutions, seldom, however, appear on the radar screen.

Among the research communities only a few had a relatively stable population and some return migration. For Escana this required more than 20 years of difficult negotiations and implementation of a sophisticated irrigation system with average costs per hectare far above acceptable and sustainable investment levels. In La Cañada and Redención Pampa, investments in irrigation were implemented at a lower cost, more cost-effectively and probably also more sustainably. The question remains as to whether these modalities can be replicated on a larger scale considering the specific circumstances of the region. One implicit expectation of many rural development policies is that higher levels of service delivery and income will improve the ‘viability’ of rural communities. Among the research communities, the substantial increase in service provision did not, however, correlate clearly with either the *decline* or *growth* pathway, at least in motivating people to remain more involved with the community. An important related question is whether development interventions should indeed try to contain outmigration, and consequently invest relatively heavily in the productive sphere. Considering the difficult circumstances, limits in available land and the continuing trends towards land fragmentation, migration remains a logical alterna-

tive for young people, who may need and want to find labour opportunities outside of agriculture. Nonetheless, experiences like the soil and water conservation programme in Talahuanca and more extensive experiences with rainwater catchment programmes in the region (Verweij 2003) indicate that under certain conditions outmigration rates can be influenced.

Community institutions, as we saw in the previous section, gradually change or may shift as a consequence of, for example, external pressure, demographic shifts, climate change, evolution of access rights and increased migration. Some sectors are better able than others to deal with the differentiated impacts of external interventions within a community, but these also depend on the interaction with external actors. A range of unbalanced interventions reinforces the existing expectations among poorer households that they may be unable to benefit as much as the richer households, resulting in different levels of involvement. Richer households may even 'pay off' their share by hiring external labour. Nonetheless, the 'imposed' modalities for participation in collective housing improvements and the minimum access levels granted to irrigated land in Escana show that community organizations may be able to rebalance benefits among community members.

11.6 Conclusions

Why and how did pathway differentiation and convergence take place, and under what circumstances do we find path dependence or path creation? The analysis in this chapter included a detailed description of the four main pathways and some trends and feedback mechanisms encountered at the level of individual communities. While initial conditions were both similar and quite different between groups and communities, similar communities diverged and different communities came together, demonstrating patterns of transformation that go beyond existing 'structuralist' theoretical approaches. Cochapampa started with similar conditions to Pampa Lupiara (*growth* pathway), but ended in the *decline* pathway group, while Talahuanca followed a path in the other direction. Wasa Ñucchu exhibited conditions similar to those in La Abra and Tuero Chico, but did better in retaining its population. Both Ovejerias Alto and La Cañada transformed from *dryland* into (intensive) *irrigation* pathway communities, while Escana became rather like a production centre and even a place of second residence for Sucre inhabitants. San Juan de Orcas and Yurubamba took advantage of their improved political standing, due to location, to settlement concentration and to increased political weight, while La Abra and Quila Quila suffered from internal conflict and subdivisions. Similar examples of surprising turns abound among communities in the region. This is not to say that anything goes, but that a deterministic analysis of community pathways is far from reality.

This point becomes even more evident when we extend our perspective beyond the main 15 years covered in this analysis. Over a period of three to six decades – or even a century or more – communities experienced multiple 'ups and downs', in terms of population, external shocks and external opportunities and migration patterns. Against this background of pathway differentiation or convergence or – in some cases – even full transformation, we might ask what main differences and commonalities structured the conditions and the internal and external agency driving these developments?

Taking a longer term perspective, the collective timeline of the communities involved includes the land reform of 1952-1953, a period of prolonged military dictatorships, a major drought 1982-1983, political adjustment, a range of reform processes, including the educational reform

programme, the LPP and the *Land Law*, the political unrest in the early years of the new millennium, and finally the rise to power of the MAS party in 2005, followed by new legislation, a new constitution, even more funding for decentralization and novel ways of interacting with rural communities. In addition, all of the communities under study experienced to some extent the consequences of infrastructure development, the rapid growth of the city of Sucre, the improvement of the main highway or *diagonal Jaime Mendoza* and increasingly erratic rainfall patterns.

This collective timeline explains some of the predominant trends in communities, but it does not explain the huge differences in developments and prospects found in the communities under study. Demographic trends varied widely, although household size everywhere declined and the households that remained were considerably older than they were 15 years ago, which, combined with a reduction in livestock holdings, increased pressure on the available labour. Migration patterns also diverged, with a division still remaining between the more internationally oriented *irrigation* pathway communities and the predominantly nationally and seasonally oriented migration patterns among the *dryland* pathway communities. Double residence (in peri-urban areas) has grown in importance, while access to different ecological zones declined in importance almost everywhere, also as a consequence of the land reform. The quality of land and access to land and other natural resources (e.g., *ripio*, minerals and forestry) played a role in pathway differentiation, but the trends are less obvious than one might expect. Communities with larger landholdings suffered as much from land fragmentation, degradation and land abandonment as those with smaller holdings. The main dividing criterion is clearly access to more permanent and reliable sources of irrigation. The declining household size and increased school enrolment led to a reduction of livestock holdings (as nobody was left to care for the animals) and a consequent decline in availability of manure, also increasing households' dependence on purchased fertilizer. At the same time, recurrent drought and irregular rainfall patterns further narrowed the margins in which agricultural production could gainfully take place, particularly in the dryland areas, while in communities with intensified irrigation in some cases even a third harvest could be obtained. Although collective arrangements and exchange mechanisms were still important in defining additional access to land and other resources, these came under increasing pressure, both in marginal dryland circumstances (where land was being left abandoned, but could not always be taken up by others) and in communities with increasing intensification, where market integration has gradually substituted for traditional exchange mechanisms.

In parallel, practically all communities experienced improvements in public services over time, although again outcomes differed substantially between communities. This, too, was a process of ups and downs, of initially quicker growth for early movers, of accumulation of services around education, of accelerated growth in new settlements and of mimicking or competition between communities. In all cases, availability of public services – primary or secondary education, health care, drinking water, transport facilities and housing improvements – had an impact on community practices and routines, often in multiple ways. Attaining higher levels of education was clearly a shared ambition, but communities competed to some extent to gain access to secondary schools and even to retain access to local primary schools. From this perspective, although access to secondary education rather accentuated existing differences in pathways, declining enrolment rates may lead to a 'negative' tipping point in communities' abilities to retain younger households. The imminent threat of school closure as a consequence of demographic decline (partly accelerated by the splitting up of communities and the foundation of 'competing' schools nearby), may lead to a vicious circle or a complete 'collapse', as happened in Ovejeras Alto. Similarly, the valley

communities, which suffered most from *chagas* disease, were among the first to benefit from housing improvements and related services, and – partly related to their already relatively concentrated production, they were also the first to move into more concentrated settlements. For these same communities, higher sales income from agricultural production under irrigation and the gradual extension of ‘migrant networks’ abroad led to rapidly expanding migration opportunities.

Other factors influencing community pathways emanated from the changing external context. There was, of course, the increasing importance of the market and the city of Sucre and the improved road access for most communities. Yet, for each community the combination of external factors proves to be highly differentiated and fluctuating, as principle market destinations may change over a couple of years, due to shorter travel times and improved transport facilities, enabling, for instance, delivery of fragile products like tomatoes and flowers.

These examples highlight the differentiation in trends, which can be characterized as emergent (market integration), erratic (rainfall patterns), self-reinforcing (external presence and settlement concentration) or factors that together led to negative spirals (external shocks, land degradation, demographic decline and school closure). In some cases, ‘splitting up’ led to short-term benefits in increased access to services. But in general it seems to have reduced critical mass, evident in a diminished capacity to exercise influence in the *subcentralia* and municipality and even to retain minimal levels of public services.

In all of these ‘feedback’ mechanisms, both internal and external actors and their different forms of agency play an important role. Internal actors like *sindicatos*, *ayllus*, farmer associations and a wide range of external actors contributed to both path creation and path dependence. In some cases, new leadership (in the case of Escana, in fact, involving a new generation) and strong associations managed to overcome existing constraints or power relations and create new pathways. This did not happen in isolation, but required, apart from relatively favourable conditions, either substantial pressure on external organizations or prolonged external assistance. Conversely, dominant players in, for instance, La Abra and Quila Quila made it difficult to change the *status quo* or to get beyond the existing tensions. Shifting trends in productive potential, land fragmentation and migration opportunities changed dynamics in practically all communities. For the *decline* pathway a combination of push and pull factors led to a gradual or complete abandonment of communities, while most *growth* pathway communities managed to retain or attract back some of their young population. Those who left in the latter group did so more often with the prospect of earning substantial income abroad and returning with the possibility of acquiring land or investing in minimal irrigation infrastructure.

As argued in the various previous chapters, considering the long-term history of oppression (ex-haciendas) and encroachment (*ayllus*), it is no surprise that indigenous communities long remained suspicious of almost any external action in their community. They used to be treated as slaves. They lost their land and worked for almost nothing. Even in recent years they continued to deal with an external world of ‘benefactors’ and traders in relationships based on unequal footing. At the same time, by now they have been demanding external support for decades.

Starting with the clamour for schools, road access and drinking water and extending to improved housing and electricity, communities have demanded all of the services and benefits that an urban household would expect, including support for productive infrastructure. The previous chapters showed that delivery of services and productive infrastructure has been far from straightforward. Initially most of the drive and involvement came from the communities them-

selves, building schools, improving basic roads and constructing simple health centres. Gradually external support increased and *coproduction* (Ostrom 1996) became the norm rather than the exception. While NGOs were more focused on capacity building and productive processes, central government programmes were largely absent in the early years, with the exception of a few (donor-supported) programmes related to agricultural innovation and extension.

Multiple rounds of intervention followed. We identified a second, third and even fourth or fifth round in many communities, with continuous changes in actors and sectors. Over time, community action and participation declined. This was explained by the gradual building up of public services, which reduced need, but also by external actors' changing and sometimes contradictory intervention modalities and incentives. There were numerous *biases* in terms of distribution and allocation, with interventions placing stronger emphasis on public services rather than on production, on communities with more (perceived) potential and on households with more capabilities and access to resources. These were three of the main biases or distortions in aid allocation. In addition, there were *discontinuities* (of institutions, objectives and modalities) over time and changes in perceptions of external interventions. While the demands made by communities appear to align easily with a 'modernization' perspective, from the perspective of community members, there remained multiple contradictions: new housing designs and locations often implied changing the place of domicile or habits and agricultural *routines* (e.g., keeping small livestock away from the house); intensified irrigation and settlement concentration drastically changed existing living conditions and agricultural routines; interventions often interfered with the agricultural calendar; and the predominant focus on production and market integration undermined, probably unwittingly, multiple reciprocal exchange mechanisms and the remaining rituals. For an individual external actor the changes perceived might be minimal, but over decades communities experienced major changes in almost every aspect of community life and their immediate environment.

How then did these multiple and successive rounds of interaction and development interventions together impact rural communities, and what were the cumulative effects on community pathways? Considering a wide range of development indicators, communities in northern Chuquisaca had certainly improved in comparison with the situation three decades ago. Practically all of the study communities experienced 'progress' in terms of school enrolment, health indicators, quality of housing, access to drinking water and provision of a range of other public services, such as electricity, mobile communications and road transport. However, few communities managed to retain agricultural production levels (*irrigation decline*) or substantially increase production (*irrigation growth* pathway). In addition, the majority of the communities showed an increase of available resources at the household level, though these advances were unequally distributed both between and within communities, and found especially among those in the *irrigation growth* pathway and in the wealthier households.

In comparison to 1995, access to electricity, education and sanitary services had improved dramatically in 2011, especially in communities with easy access. The quality of these services still varied, due to differences in building standards and a general lack of maintenance, and many investments (as in drinking water systems, latrines, improved housing and communal buildings) suffered varying degrees of deterioration. While new designs for schools and drinking water systems exhibited higher quality of construction, in other cases infrastructure had been rapidly cast aside (e.g., cattle dips), was deteriorating (e.g., greenhouses) or was hardly used (e.g., latrines and show-

ers). Access to drinking water gradually improved, and many communities had access to better and more permanently staffed health services. Most *nucleos* had a permanent medical presence and, in some cases, even ambulances. In communities with better or improved access¹⁹ a further trend towards settlement concentration or *nucleamiento* was visible. This trend facilitated the implementation of public infrastructure and provided rural communities with a new urban core, generally around the school, health post, church and other community buildings. Some families had access to a second house in the new core, basically for their children to be close to school, or to establish a small shop. Quality of housing was generally better, and many more houses in the core were connected to electricity and water. At the same time, the second ‘residence’ (uphill) remained closer to the *chacras* (agricultural fields), but remained in rather precarious conditions. As most public services were implemented in the core settlement, a gap arose between those with access to the core and those without. Although the second group might be smaller, they are likely to become less willing to take part in collective action and maintenance efforts. Development interventions have certainly contributed to this state of affairs.

Starting in 1994, the Law on Popular Participation led to increased involvement of rural communities in formulating the local development agenda. This was accomplished through elections, with initial participation in *vigilance committees*, which, at least in this region, were subsequently transferred to the *subcentralias* and finally by representation at municipal summits. This process reflects to some extent an ‘appropriation’ or even replacement of external institutions with community ones, as occurred with the vigilance committees, or communities’ ‘capturing’ of municipalities or even the regional government. The government’s initial step in 1994 of extending the municipal territory beyond the town areas (with their largely mestizo populations) to the indigenous populations in the rural areas surrounding these towns effectively led to a far greater political influence of increasingly articulate community-based organizations (IOB/Le Grand 2012).

At the same time, and largely in parallel, the role of many NGOs changed from a more politically oriented actor towards a partner in ‘coproduction’ with municipalities. The trend of closer cooperation was generally applauded by the co-financing organizations supporting these NGOs, leading at least from this perspective to a gradual alignment between local development agendas and objectives defined in the context of ‘principal-agent’ relations with donors. However, the tying of municipal expenditures as ‘counterpart contributions’ to NGO objectives also influenced the logic of the funding allocations realized at municipal summits.

Across the board, without doing justice to the extremes, the accumulation of external interventions indeed led to a ‘modernization’ of living circumstances, a gradual and sometimes faster process of settlement concentration, increased availability of public services and improvements in housing. It also supported households – especially women – in their daily tasks of cooking, fetching water, washing and communicating with family members. Children spent less time in agricultural activities and in caring for livestock and attended school longer. Improvements were also made in the transformation and storage of agricultural products and in access to mobile communications. While agricultural production stagnated in dryland areas, in communities with irrigation the number of harvests per year increased, also leading to increased diversification and more possibilities for commercializing some of the output. In line with Polanyi (1957), overall this led to increased dependence on markets and reduced prevalence of reciprocal exchange mechanisms. In all pathways both men and women continued to migrate, especially those in mid-

dle age groups, leaving the elderly behind and reducing communities' overall capacity to embark on major collective action efforts. Only in a few – principally *growth* pathway – communities did we encounter increased mechanization and improved transportation facilities, but these facilities increased existing inequalities between groups of families. In the social sectors, most households benefited from improved water and sanitation and health facilities, but not all benefited equally from improved housing and secondary education.

'Development' – along the 'con-fusing' lines of parallel and multiple trajectories – has been far from a linear, gradually rising trend towards progress. About half of the communities were losing population, about a third showed stagnating or even declining agricultural production levels, and practically all had continuous or increasing rates of outmigration. Communities shrank both in total population as well as in average household size, with elderly families and some young children remaining behind. They experienced a persistent decline in labour potential and limited technological change, while becoming increasingly dependent on external markets. At both ends of the continuum, external interventions did not really contribute to make changes in productive systems more sustainable. Considering the multiple and complex evolutionary processes at work, this might seem an almost impossible task. Nonetheless, the relevance or irrelevance of development interventions and their sustainability and added value over time was very much defined by these same processes. Although the communities gradually became more involved in local or municipal and regional policies, the cumbersome and risk-prone development process likely undermined their willingness for further collective action.

For productive interventions, smaller groups (of richer or better situated farmers) may 'capture' the agenda or dominate interactions with external actors and appropriate most of the benefits. Considering the 60-year history of the *sindacato* structure and the longevity of its main mechanisms for decision-making and the continuous rotation of authorities, it is difficult to expect a rapid adaptation of these same institutions to quickly changing circumstances, especially as most households faced similar constraints in terms of labour availability and alternative external opportunities. In view of the relatively high internal and external transaction and coordination costs, many households would probably be happy to organize things in a different way (regarding, e.g., the cumbersome and tedious meetings and almost obligatory rotation in authority positions), but *path dependence* and a lack of clear alternatives complicate the search for alternatives. External solutions have often favoured a limited group for a short span of time, while parallel associations have not proven very sustainable either, except under specific circumstances. The associations and cooperatives in the *growth* pathway had a much larger impact and were more sustainable than those in the *decline* pathway communities. This was due at least in part to the more favourable external context, but also to the more sustained external support.

On the public side, developments have been far more positive. Living conditions in rural areas improved almost across the board. One of the more problematic elements has been to *fine-tune* services and needs to widely differentiated local circumstances and to rapid shifts in demographics. A major bottleneck for younger households remains the limited or even threatened access to both primary and secondary schools. Shrinking communities face oversized investments and the combining of different grades in single classrooms. These have been important drivers for young households to embark on entirely different pathways. In addition, oversized and unbalanced investments imply inefficiencies in resource allocation, and may cause considerable friction between communities or within municipalities. Even substantial improvements in living condi-

tions and in public services did not really impact migration patterns. But higher production levels certainly did, even inducing some households to return to their community, or helping communities to retain part of their population, even in circumstances of still rather limited service delivery.

In all cases, a mix of household and community agency and external action played an important role, but so too did the existing constraints and opportunities at the community level. The community organizations in Tuero Chico and in San Juan de Orcas, representing both of the *decline* pathways, were probably just as active as those in Escana, La Cañada and Pampa Lupiara, though in the latter cases representing the *growth* pathway. Both Tuero Chico and San Juan de Orcas managed to attract substantial support for the building up of public services. Nonetheless, prospects for the next generation were limited for both, in the first case due to limitations in land access, productive constraints, and limited access to (primary) education, and in the second case due to more general constraints in agricultural potential.

Overall, increased interaction between communities and external development agencies did not lead to increased involvement, participation and community control regarding the development of their resources and overall development pattern. Initially, the Law on Popular Participation certainly increased the space for manoeuvre and communities' abilities to influence local politics and policies. Communities were able to articulate their requests to higher levels and to replace externally defined 'vigilance committee' structures with the more 'organic' *sindicato* or *sub-centralia* level of representation. Nowadays it appears, however, that a process of 'deconsolidation' is taking place. According to Salman (2006: 216), using the concept in the context of the building of democratic routines in Bolivia, this can occur when mutual and positive feedback mechanisms "between effective societal control, capable participation, and a genuine societal mandate on the one hand, and the state's [or, other external] responsiveness to it, its implementation capacity, and its maintenance of trustworthy institutions on the other hand, is reversed. The spiral then becomes a downward one." Concealed political dealings may eventually lead to further rejection of the existing democratic polity (*ibid.*). The prolonged presence and continuity of the MAS government is not yet reflected in more consistent policies and institutional presence in the field, except for a range of conditional cash transfers. While municipalities remain far more 'accessible' to rural communities than in the past, and provide a regular venue to present community demands, the overall 'development agenda' probably remains as fragmented as before, as reflected in the continuous (dis)appearances of old and new acronyms, whether of NGOs, donors or (semi-autonomous) government programmes.

Notes

¹ Except for the occasional use of a hired tractor in Cochapampa and San Juan.

² In an interesting case in the Rio Chico area, an uncooperative 'landlord' originating from Sucre experienced tremendous difficulty in accessing labour among community members to manage his landholdings and protect his land.

³ Cochapampa, San Juan, Quila Quila

⁴ Tuero Chico and Ovejeras Rio Chico

⁵ Sundur Wasi

⁶ These associations managed, respectively, to ‘transform themselves in shareholders’ (Wasa Ñucchu); to break larger landowners’ existing power in commercialization (Pampa Lupiara); to present an effective front against the ‘Escana project’, finalize implementation of the irrigation infrastructure, organize adequate internal distribution of benefits and cooperate with a sales cooperative (Escana); and to enormously facilitate sales of outputs and access to inputs (in La Cañada/Redención Pampa).

⁷ Chain development, or *enfoque de cadenas*, has been quite popular in Bolivia, among both government and donors, including the Netherlands embassy.

⁸ Quila Quila (see also chapter two), has over time been identified as *comunidad* Quila Quila, as a group of *ayllus*, but also as *sindicato*, *subcentralia*, canton, *marka*, *distrito indigena*, *sub-alcaldia*, *nucleo*, watershed area, and as part of the *Qhara Qhara Suyu de Marka Quila Quila*.

⁹ Among the growth communities Pampa Lupiara and Escana had the largest numbers of projects, respectively, 87 and 73, compared to only 13 for the ‘collapse’ community of Ovejerias Alto, 18 for La Abra and 13 for La Cañada. The low number for La Cañada reflects the fact that most interventions were directed at the town of Redención Pampa, which also benefited the community.

¹⁰ The largest interventions were those of bilateral and multilateral programmes, such as UNCDF and IFAD, alongside several interventions of larger NGOs such as Plan International and ACLO. Many NGOs followed a policy of spreading expenditures across a wide range of communities. As indicated in chapter five, municipalities also tended to divide the available resources among numerous communities, or even to split projects over years in order to attend as many ‘clients’ as possible.

¹¹ See Van Niekerk (1994) and Rodriguez-Carmona (2008) for critical reviews of development cooperation in Bolivia in, respectively, 1994 and 2008.

¹² SMART is an acronym used to indicate that an project goal should be specific, measurable, available/achievable in a cost-effective way, relevant for the programme, and available in a timely manner.

¹³ The logical framework approach was developed in 1969 for the US Agency for International Development. It has since been extensively used by major donors, including the World Bank, by bilateral donors like DfID, GTZ and SIDA, and subsequently by a wide range of NGOs.

¹⁴ In a few cases external (NGO) support allowed for a more systematic analysis of community survey data in a more comprehensive Municipal Diagnostic Study (e.g., PDM Ravelo 2006-2010). Inevitably, however, the existing differentiation in community realities is practically lost in the summary tables.

¹⁵ For instance, 70 days or more per family was required to establish road access in San Juan de Orcas and 250 days were required to build a dam for participating families in La Cañada. See also chapter ten related to service delivery.

¹⁶ Consistent use of adequate incentives may lead to sustained efforts at the community level, but there were few examples of relatively sustained and successful interventions. See, e.g., the case of soil and water conservation in Talahuanca or Posthumus (2005) for a more elaborate discussion regarding the use of incentives for the adoption of terraces in the Andes.

¹⁷ Except for the initial presentation and negotiation and the occasional ‘*folleto*’ explaining minor details, projects often lack a clear communication strategy regarding the objectives.

¹⁸ In the exceptional case that a direct link is established (e.g., between foster parents and the rural communities or households they are supporting, this frequently led to misunderstandings and jealousy, for instance in Quila Quila.

¹⁹ Including Escana, Yurubamba, La Cañada/Redención Pampa, San Juan de Orcas, San Juan, Tuero Chico.



Llavisa, the same house in 1996 and in 2011. Source: PIED-Andino, Edgar Guerrero and author.



Pampa Lupiara, a household in 2011. Source: PIED.

12

Final reflections: sustainable pathways or troubled development?

Wanderer, there is no road, you make the road by walking

(Antonio Machado, translated by author).

12.1 Diverging pathways and pathway transformation

This book is the result of my involvement in multiple research efforts and joint reflections on community development in the Andean region. This is a region struck by poverty, but also by a bewildering diversity of landscapes and generally well intended ‘development’ initiatives from as many corners and actors as one could imagine. Communities here have incorporated many of the external propositions, but also learned about their weaknesses and side effects. The case studies of community pathways presented here illustrate the frequent discrepancies between daily life and the multiple externally defined solutions, or between ‘policy dreams and reality’ (Boelens 2008: 481). The real agenda of community pathways is related to the long-term battles and day-to-day struggles of the people living in these places, and much more will need to be done to provide communities with the space, autonomy and instruments to address the multiple constraints in an effective manner.

The history of Tuero Chico narrated in chapter three exemplifies many of these immediate and long-term struggles. The community was established and divided itself almost immediately after the land reform, though for many subsequent years it faced the continued presence of the former landlord. Most of its people gradually moved away from the marginal highlands to the more fertile valley. By 1984, it had been transformed from an extended community with widely scattered dwellings into a small and concentrated settlement. Tuero Chico started out as a dryland community, but ended up with quite intensive irrigation. Recently it experienced a complete upgrade of its public services, and most households had even benefited from completely renovated housing. Nonetheless, the primary school faced imminent closure and the harvest was affected by contamination from the Pilcomayo river. Unsurprisingly, many of its community members had moved to peri-urban areas of Sucre or even to the outskirts of Buenos Aires.

Tuero Chico is no exception in its multiple transformations. Community pathways in the Andean valleys exhibit surprising diversity. Some have gone from periods of intensification, demographic growth and declining migration to gradual stagnation and lock-in or even total collapse. Pathways were far from static or the ‘equilibrium conditions’ proposed by David (2001). Even over a period as short as five to ten years some communities presented substantial changes in production focus, in appearance and in demographics. In several cases, radical spatial or productive transformations took place. Viewed over decades (or even centuries), rural communities have probably now arrived at a new and fundamental transition or *crossroad*. While in the past communities were encroached

upon by colonial and postcolonial powers, and households did everything in their power to retain their land and escape from *servidumbre*, today, the younger generation sees its future mainly outside of the community, which may jeopardize the long-term survival of the communities themselves.

Whatever the timespan, diverging trends in pathways underline the importance of community dynamics, without any ‘remnant’ of backwardness or stagnation. The previous chapter reviewed the main findings of this volume regarding pathway differentiation and developments encountered among the survey communities. This final chapter reflects on the meta-theoretical framework regarding change processes appropriate for the analysis of rural community development pathways.

This differentiation over time and the complex micro-meso-macro level interactions are not sufficiently explained by ‘grand theories’ or traditional structuralist approaches, whether neo-Marxist, dependency or neoliberal paradigms. Similarly, a segmented focus on economic, political, anthropological or geographical perspectives or a predominant emphasis on resources, soil deterioration or irrigation, or on education, population dynamics and migration will also fail to capture the full picture. Even though a range of studies deals with the ‘viability’ or ‘resilience’ of Andean communities, only a few present a more holistic, comparative and longitudinal perspective encompassing a larger set of communities.

In a similar vein, few ‘evaluation’ or ‘impact studies’ take the community perspective as a starting point, instead assessing the outcome and impact of interventions in relation to (externally) defined project objectives. As highlighted in this study, the analysis of rural development pathways may benefit from an evolutionary approach according to a path dependency perspective, involving a *bricolage* of elements from different disciplines.

Following the main lines of the theoretical framework regarding evolutionary change from a path dependency perspective, this chapter starts with an assessment of ‘initial conditions’ and the importance of contingent events or shocks. It then discusses the interaction process between structure and agency, focusing in particular on the role of formal and informal institutions and interactions with external actors. It enters into more detail regarding the specific ‘stages’ or ‘rounds of the game’ that can be identified in the case of rural development trajectories, and analyses the different characteristics and outcomes, focusing in particular on the balance between path creation and path dependence. The conclusion offers some reflections on aid delivery practices in rural areas.

12.2 A multiplicity of ‘initial conditions’ and contingent events

Pathway transformations have taken place in different spaces and over multiple time scales. The current study considered, in particular, the past 15 years, but as illustrated above for the case of Tuero Chico, events that took place 30 to 60 years ago or even further back still influence developments and community perceptions today. Vergne and Durand (2010, 2011) identify weak initial conditions, ‘contingent’ or chance events, self-reinforcing mechanisms and lock-in as determining the path dependent character of developments. As indicated by Garud (2010), however, initial conditions are not ‘predefined’, but a reflection of collective memories and time horizons in relation to different events and may gradually change in ‘unfolding journeys’. For the analysis of both community institutions and the role of external actors (chapters four and five), as well as for the different domains (chapters six through ten), it became clear that it is practically impossible to draw clear common timelines for all communities and for the different domains.

While *ayllu* histories reflect ‘retrospective memories’ (*ibid.*), dating back for centuries, in most of the *sindicatos*, the elder *comunarios* still reflect back upon the hacienda period. The land reform of 1952-1953, nonetheless, implied a major change for the latter group, as it allowed them to define themselves gradually as new and independent communities, assuming their own ‘development’ agenda, for instance, in the building of schools. Similarly, education histories did not start in 1975 or 1996, but express proactive community involvement since the early 1940s or 1950s, and for land, the prevailing memories or historical legacies date even further back. The ‘take-off’ of development interventions dates only from after the drought of 1982-1983. In line with Archer (2010), it is important to also consider the ‘initial structural distribution’ of certain structural properties, related for instance to demographic composition and resulting patterns of change. As our analysis of population and enrolment trends highlighted (see chapters three and nine), demographic transitions differed widely between communities, leading to different impacts on community dynamics for the *decline* and *growth* pathways.

The idea of ‘initial conditions’ implicitly assumes the analysis of the same group of communities in a similar timeframe. The transformations identified here, in terms of territory, identity and membership, however, reflect the difficulty of capturing ‘historical developments’ within a continuous and comparative lens. With the passing of generations, old memories may fade and communities and households may redefine themselves in terms of collective or even individual identities. The splitting of several communities and the collapse of Ovejerias Alto and its reestablishment as part of eight new communities in the ‘virtual’ community of Ovejerias Rio Chico illustrate this in a dramatic way, suggesting that contingent events can even redefine ‘initial conditions’ from a community perspective. The outward orientation of younger households also leads to a gradual adaptation to ‘urban consumer patterns’, expressed most visibly in the strong decline in the wearing of traditional garments.

Chapter seven framed the ‘initial conditions’ in the frequently used dichotomy between *less favoured areas* and *high-potential areas* (Ruben & Pender 2004; Ruben *et al.* 2006). Viewed from this perspective, weak ‘initial conditions’ only to some extent explain the current struggles of the *decline* pathway communities. Paradoxically, some of them (Ovejerias, Cochapampa and Tuero Chico) faced relatively good (productive) conditions in 1996 and a decline over time, while other more marginal communities (e.g., Talahuanca and San Juan de Orcas) did better, both in productive terms and in retaining their population. The distinction may thus facilitate an understanding of key constraints and opportunities, but also obscure key differences. The distinction could underestimate factors that may eventually contribute to more sustainable development, while leading to a deterministic view and self-fulfilling prophecies.¹

Chance or generally unforeseen events or developments (e.g., extreme drought, hyperinflation, contaminated rivers, major investments, financial crisis in Spain or Argentine, interrupted access and growing conflicts) may give a new turn to community pathways. While contingent events may be important, they do not necessarily determine pathways. Such ‘minor historical events’ indeed played a role everywhere, but in many cases they merely led to temporary upheaval, or a gradual reinforcement of already existing trends. As suggested by David (2001: 13), “It is quite misleading to take it to suggest that some original economic irrationality, or implementation error (accident) must be implicated whenever we find that positive network externalities have given rise to a sequence that turned out to be other than a globally optimal path.” This is in part because communities are relatively well prepared for the occurrence of ‘unexpected events’. The production system is

largely oriented to spreading risks, either by producing in multiple ecological zones and small plots, or through multiple exchange mechanisms and with forms of reciprocal help. This is a shared and institutional response to lessons learnt over many decades. Nonetheless, the ‘adaptive capacity’ of communities and households, especially in the *dryland decline* pathway, is increasingly coming under stress.

In addition to unforeseen developments, we also identified more gradual changes or intermittent shocks as a consequence of climate change, or minor or major changes occurring as a consequence of external interventions. While some of these were planned and foreseen, others came randomly or even as a complete surprise, translating into ‘butterfly effects’ or ‘black swans’. Even for similar interventions (e.g., roads, schools, drinking water, irrigation and credit provision) the impact may vary from practically nil to temporary upheaval or a radical change in the course of development over time. As indicated by Martin and Sunley (2006: 35), “initial events trigger subsequent development not by reproducing a given pattern, but by setting in motion a chain of linked reactions and events”.

This study revealed a range of ‘events’ or ‘processes’ that may influence community pathways. Vergne and Durand (2010), for instance, classify lock-in as the absence of exogenous shocks to a system. Following Garud *et al.* (2010), this research’s analysis of the widely diverging pathways suggests, however, a different emphasis and particularly underlines the importance of agency.

12.3 Processes of institutional change and the ‘reproduction’ or decay of communities

Comunarios in Tuero Chico first abandoned the more marginal dryland area uphill. They built a new small-scale irrigation system with external support, but still faced recurrent natural disasters and further adaptations of the irrigation system. In response to contamination of water sources, they joined a new association of riverside communities looking for alternate solutions and external support.

The wide range of responses of communities in such a risk-prone environment illustrates the evolution of pathways as a result of the constant interaction and tension between *structure* and *agency*. After all, communities must adapt to changes in the internal and external context, while at the same time, influencing their environment in multiple ways. These community structures relate, for instance, to existing (natural) resources, to land access (in different agro-ecological zones), to demographic composition, to levels of literacy and changing settlement patterns, but also to differences in status, identity, size, institutions and even in geographical location. Even for these ‘*structural properties*’ (Archer 2010) community histories show slower or faster levels of change and differentiation between pathways, affecting local dynamics and leading to differential community responses. This is illustrated by changes in territorial composition (due to splitting or joining or to changes in access to the valley), or the external representation (*sindicato* or *ayllu*) of community institutions.

The principal community institutions, even when to some extent externally ‘imposed’, have been remarkably similar and constant – or path dependent – in terms of their organization and operational effectiveness. Path dependence, from this perspective, can also have a positive connotation, as it reflects the drive among communities for continuity and rootedness. The ‘imposition’ of the *sindicato* structure and its later and parallel introduction in the *ayllu* communities led to

gradual convergence or *isomorphic mimicry* of both the main authorities as well as of decision-making processes over time. This process also reflects the importance of political processes in the building up of new institutions (Chang 2002) or the adaptation of existing ones through the (re)structuring of rights and obligations.

Although community responses to some extent still reflect the desire ‘not to be governed’ (Scott 2009), communities have become utterly aware of the multiple external opportunities, whether related to migration, the possibilities for improving their status or the benefits of attracting external support. To underline these ambitions, they redefined their position or status in multiple ways, by (re)inventing institutional histories and identities (*ayllus*), or by reframing or redefining external representations and even community boundaries in order to increase possible benefits. Community members also obtained multiple memberships; they established ‘virtual’ communities (Ovejeras); and they inhabited multiple spaces and territories, which can be defined as translocal or even transnational spaces (Zoomers & Van Westen 2011).

The historical analysis of Quila Quila in chapter four highlighted the importance of collective decision-making mechanisms in the ‘reproduction of community’ (Klemola 1997). Several frictions, however, were noted. Following the three levels distinguished by North (2010), at the individual level, differences in perceptions and individual beliefs eroded willingness to remain part of the wider *ayllu* structure, at least among some. At the institutional level (i.e., that of the collective decision-making process), the parallel introduction of the *sindicato* and its growing ‘autonomy’ undermined the effectiveness of decision-making overall. At the broader society level, these frictions were augmented by various forms of articulation between the *ayllu* and *sindicato* organizations and related perceptions of the validity of collective or individual land-titling mechanisms. Similar trends – although less pronounced – were observed in the other *ayllu* communities. In the *sindicato* communities this trend principally relates to the parallel introduction of a wide range of other – often also externally defined – organizational forms. In line with Mahoney (2000), various factors can be identified to explain path dependence in relation to institutional change. In the case of Quila Quila, *power* and *legitimacy* considerations played an important role, while for many of the communities and for cases regarding the introduction of ‘parallel’ structures, *functionalist* and *utilitarian* explanations certainly played a role. It is nonetheless important to note that the internal and external perceptions of these ‘functions’ might differ. While external parties perceived these parallel structures in terms of their functionality, for the community organization legitimacy considerations probably prevailed, principally derived from their ‘organic’ linking with the community assembly (Mahoney 2000). New institutions build upon previous institutions designed or built upon local practices and local culture, reflecting again processes of path dependence (Nelson & Winter 2002; Helmsing & Fonseca 2011).

Most of the parallel committees were probably incorporated at the community level due to the perceived temporary benefits (i.e., tied to possible external support and as a way to structure community participation), rather than as representing the most adequate institutional solution. Similarly, even though the parent-teacher associations (JAEs) received a considerably broader mandate after 1994, community participation continued to focus on ‘control’ rather than on active involvement in the ‘governing’ of the school. These trends reflect the ‘weak functionalist perspective’ identified by Mahoney (2000). As indicated by Helmsing (2013), institutions are interrelated and institutions at one level influence those at other levels, and operational rules at one level may or may not be embedded in higher-level rules. Viewed from this perspective, only a few

of the associations, in particular, those in *growth* pathway communities, managed to establish their own sphere of influence, circumventing vested interests or breaking persisting power relations to act relatively independently from the community organization, even at a supra-communal level. In other cases their interference with the domain for ‘decision-making’ of the *sindicato* and *ayllu* led to recurrent tensions, which may explain their overall weakness and limited survival rate in most *decline* pathway communities. When interests between groups diverge (e.g., between the irrigation or farmer association and the *sindicato*), the hierarchy of rules may be contested (Chang 2002; Helmsing 2013) and eventually lead to internal schisms or conflicts between communities.

In addition to the importance and possible impact of new or parallel organizational structures on the regular decision-making process, communities experienced multiple institutional changes in the different domains. In some cases, these occurred relatively gradually, related for instance to shifting inheritance mechanisms, the decline in control of pastoral areas or abandoned lands, the continuous but also *ad hoc* adaptation of water rights due to changes in irrigation structures or the diminished access to land in the valleys as a consequence of the land reform. In other cases, the changes were quite abrupt, related for instance to the non-succession of traditional authorities (*alcaldes*), or even more dramatic, due to the internal splitting of communities, redefining membership, territory and access to services almost overnight. These more abrupt changes illustrate some of the possible *critical junctures* that might occur as a consequence of institutional change, in which “old routines lose their force and possibilities emerge for new paths, revolution and wholesale transformation” (Schneiberg 2007: 50). The distinction between explanations for those more gradual changes and for more abrupt patterns of change leads to a common impasse in explaining institutional change. From an evolutionary perspective, the emphasis is on institutional continuity and incremental change, while from a ‘crisis approach’ perspective, radical changes may occur as a result of ‘qualitative shifts in logics’ (*ibid.*). The example of the ‘radical transition’ of Ovejerias from the highlands to the valley, combined with the continuous functioning of the ‘virtual community organization’, illustrates how such abrupt and gradual change can also come together. As phrased by Schneiberg (2007: 51), “actors can borrow or transpose logics and forms from one system or field to another, fuelling transformation or new path creation through translation, hybridization and bricolage”. A third variant between the gradual and more abrupt patterns of change centres on the tensions that build when institutions do not match changing circumstances, and where events may lead to radical change or eruption (Roland 2004; Kingston & Caballero 2009; Helmsing 2013).

Finally, informal institutional arrangements often remain hidden under the horizon. Yet, these mechanisms are especially important in enabling poorer households to access scarce resources through built-up networks in situations of limited availability or temporary stress. The persistent inequality in social standing and in landholdings of *originarios* and *forasteros*, and even that between the former landlord and *sindicato* members, evidence, however, the importance of enduring power relations (Alonso 2005) and the risk of increased dependence on *compadrazgo* relations. As this study has shown, external interventions may undermine prevailing logics of ‘reciprocity’ (De Morré 2002). The so-called New Institutional Economics, including authors like Williamson (1981, 2000), largely ignores these informal arrangements, as they would change only over a very long-term horizon. This view is mistaken, as, at least in the Andean context, informal arrangements allowed households a great deal of flexibility under widely diverging and rapidly shifting circumstances. Unlike North (1991) and Williamson (2000), Roland (2004) emphasizes changes in informal – rather than formal – rules, as principle drivers of institutional change.

Under favourable external circumstances the coordinating – but sometimes minimalist – role of the community organization in the productive sphere may allow individual households to produce and guarantee their production and balance their resource needs through multiple exchange mechanisms within a range of internal and external community networks. However, adverse market conditions, climate change, soil degradation and external shocks have led, at least in marginal dryland areas, to gradually deteriorating conditions and production levels. The decline in household size, labour scarcity and a range of new external opportunities and demands increased the pressure on community households and on the frequently rotating leadership. This process has gone in parallel with a gradual erosion of capacities to deal with the internal productive environment and issues like land degradation and fragmentation. It also led to a gradual undermining of existing institutions related to the agricultural cycle, ritual practices and fulfilment of authority positions, leading in some communities to a vicious circle and *lock-in*. This pattern also evidences the weak version of the functionalist perspective regarding the community organization, particularly in relation to the productive domain.

While the internal room for manoeuvre declined, communities were nevertheless able to extend their level of external networking, collectively influencing municipal and regional policies and – especially under the MAS government – in synchrony with national policies. This extended articulation implied a change from the original ‘political lock-in’ (Grabher 1993) and ‘patronage’ under the *military-campesino pact* (see chapter four). As mentioned, this trend started in Bolivia with ‘downward causation’ (Hodgson 2007), but under the MAS government, communities have increasingly been able to articulate with or even capture state institutions, as a form of ‘upward causation’, gradually becoming able to influence the routines of decision-making and to propel their own people to important public functions. The separate organizational structure of the *vigilance committees* defined in the context of the *Law on Popular Participation*, was *de facto* taken over by the *subcentralias* in the region.

External actors thus played an important role in community dynamics. They did so by promoting and improving public services and – more selectively – by changing productive conditions, but also by influencing the internal ‘rules of the game’, ‘rationalizing’ community life through the formalization of borders and the introduction or adaptation of new organizational structures, like *sindicatos*, committees and associations. This also translated into the introduction of externally defined norms and statutes, bringing communities closer to markets and transforming them into registered and voting citizens of a state they had previously tried to escape (Scott 2009).

12.4 Unequal intervention patterns and encounters at the interface

While Llavisa¹ received hardly any support at all prior to 1996, it benefited in a curious and *butterfly effect* way from our own research². Pampa Lupiara received the largest number of the more than 600 external projects identified, and Escana was targeted with by far the most expensive intervention. As discussed in chapter five, the distribution over time, between the different actors, modalities and sectors and between and within communities was far from balanced.

Similar to the long-term histories of the major towns (*reducciones*) and local road development, the presence of external actors showed a high degree of path dependence, based largely on accessibility, institutional presence and existing networks. Changes in the external ‘institutional’ landscape at the macro, meso and micro levels also led to changing perceptions and ways of ar-

tication, for instance, in relation to NGOs, municipalities and social funds, but also including political parties. The current study reviewed the different dynamics and encounters between communities and external actors in a variety of domains. In each case, the histories, the rhythm, sequencing and modalities of interaction were different and led to different balances in the decision-making process and trade-offs between individuals, households, networks, community organizations and institutions or at the supra-community level.

National 'normalization' policies, whether related to land, education, irrigation or the requisites for recognition of the community organization, defined to a large extent the available options in land and educational reform and to a more limited extent the 'rules of the game' in irrigation. These policies effectively reduced the space for local agency and the 'degrees of freedom' of individual actors (Boelens 2008; Archer 2010; Coulthard 2012) and were therefore contested in many ways. While the absence of policies during the military period led to stagnation of some reform processes (e.g., education, land and decentralization), the new reform policies eventually enacted did little to change the constrained space for local dynamics and customary practices. Large gaps remained between national policies and legislation and actual reality and informal arrangements with respect to, for instance, water and land rights. *One-size-fits-all* policies, such as the early education legislation and the initially mutually exclusive options in land titling, produced a range of unexpected outcomes and institutional perversion (Chang 2007). However, national policies can also broaden the space for community agency and allow for more tailor-made development policies, as evident from the efforts realized in the area of decentralization.

As discussed in chapter five, municipalities became the principle reference for rural communities less than a decade after enactment of the *Law on Popular Participation*. Municipal decentralization provided a vehicle for aligning the widely diverging approaches of NGOs and other actors with collective 'planning exercises', such as the *municipal development plans* (Le Grand 2012). Decentralization policies after 1996 indeed broadened the *space* for community participation and articulation, effectively leading to more 'redistributive' policies in rural areas, in particular, in relation to public services, but they did not particularly contribute to a balanced internal distribution of services. Neither did decentralization resolve the inability of the central government to respond to local diversity, for instance, in the area of land titling, education and customary practices with regard to water rights. Decentralization did lead to more resource (and power) competition between communities, resulting in considerable fragmentation of available resources and to a clear bias towards public service provision. At the meso and micro levels, parallel development planning by multiple external actors led to both complementary and contradictory project approaches and in many cases to persistent discontinuities in interventions in the same field. In cases like seed provision, credit and forestry, this undermined effectiveness and long-term sustainability.

As noted by Bebbington (2004) and Koch (2008) such trends lead to shifting NGO (or state or municipal) geographies and intervention patterns. While Koch (*ibid.*) mainly refers to 'herd behaviour' among NGOs, Bebbington (2004) highlights the importance of knowledge and information exchange within networks. However, trends in interventions are only partially based on existing demand and supply; they in fact respond far more to expected 'returns to aid' or *principal-agent* considerations (Martens 2002). As discussed in chapter five, a strong results orientation and *transaction cost* considerations (North 1990) favoured the more accessible or high-potential area communities, most of them on the *growth* pathway or *irrigation decline* pathway. But service provision was gradually also extended to the more marginal *dryland decline* pathway. Differences in ap-

proaches, selection criteria and in operational routines (Boschma & Lambooy 1999), as well as in the use of incentives and conditionalities, translated into diverging distribution patterns and impact. Particularly remarkable was the constant shifting of approaches and the generally highly fragmented character of external interventions. Although the first element was to some extent corrected as a consequence of the municipal decentralization process, fragmentation in fact worsened compared with the period before.

Pathways and development outcomes were thus the result of recurrent interactions between internal and external actors, taking place in multiple rounds and over many decades. These interactions explain to a large extent differences in collective action and community pathways. The balance of taking the initiative, community participation and levels of collective action gradually shifted, as a consequence of endogenous trends and infrastructure already realized, and also due to changing intervention modalities and incentives. These changes in interactions were often the result of externally defined paradigms and policies, rather than articulate answers that built upon a (continually revised) local *theory of change* (Pritchett 2011).

Over time, both communities and external actors learnt from previous experiences and changed or adapted their approaches in the field. For both sides, learning processes had their own biases. Communities learnt with regard to the validity and effectiveness of projects implemented in relation to their own expectations and contributions. External actors learnt about project objectives and expected outcomes, as well as obstacles and barriers in communication, while principally focusing on the operationality of projects or infrastructure directly after implementation. External actors faced an additional difficulty in the learning process, as they were less knowledgeable about the local context of implementation. However, they were often the ones to define the levels of investment, technical support, permanence in the field, incentives provided and even timing of implementation. At the same time, these external actors needed to fulfil multiple objectives covering a wide array of communities and sectors.

In addition, the focus and attention of both internal and external actors was continuously shifting, partly as a consequence of local developments and gradual changes in 'structural conditions' (e.g., demographics, climate change and land fragmentation) and partly as a consequence of new (and frequently rotating) leadership or changing community ambitions, but also due to changing economic and political conditions, new legislation and programmes or intervention practices in the multiple (sectoral) domains. As we have seen, the implications of changes in legislation regarding land or education had long gestation periods, while the Law on Popular Participation led to relatively rapid and drastic changes in the local institutional setting, and new intervention practices (e.g., in housing) produced relatively fast changes in settlement patterns.

As mentioned before, productive potential can easily be underestimated, leading to an additional bias in public service delivery in the more marginal dryland communities. While public services may impact living conditions, they are generally not sufficient to retain younger households. According to Deeg (2006), interventions later in the process (whether related to education or to the productive sphere) may make it even more difficult to resolve ongoing constraints, such as land degradation and fragmentation, and latecomers may be unable to reach the same status and services as the *early movers*. Both community members and external actors may face higher opportunity costs, due either to reduced labour availability or to the availability of alternate opportunities elsewhere, or because of their lower potential to deliver in terms of outputs or 'results based management'.

What does this imply? From a simplified perspective, communities and *comunarios*, individually, in groups or collectively, endeavoured to deal with encroachment of their land, to gain access to education (to be able to move away), to re-establish 'double access' (in peri-urban areas), to transform identities (for multiple reasons) and to adapt to new environments or migrate abroad. They learnt how to capture external institutions, ranging from vigilance committees and municipalities to the presidency. They also had to redress many of the persisting risks and constraints regarding climatic hazards, resources, labour and internal inequalities. For their part, and equally simplified, external actors and interventions focused on *normalization* policies, on repeating 'best practices', on pre-selecting intervention areas and sectors, and choosing modalities and beneficiaries. They were more preoccupied with implementation and only to a limited extent with the operational 'effectiveness' and long-term impact of their contributions. In doing so, many sequential, selective, (un)coordinated and rather dissimilar encounters occurred between community agency and external actors. Overall, this translated into multiple but fragmented development efforts, often disconnected from local dynamics and shifting community perceptions.

12.5 Collective action dynamics?

From resistance against the hacienda to the building of the first schools and the rehabilitation of rural roads, and from the 20-year struggle to transform the Escana project into a somewhat functioning irrigation system to the transformation of San Juan de Orcas into a small 'urban settlement' and the pervasive conflict in Quila Quila, collective action has been an important driver of community pathways.

The previous sections discussed the broader patterns of institutional change and the interactions between the different internal and external actors involved. This section focuses in more detail on the collective action dynamics at the community level. Ostrom's (2000) systematic analysis of a wide range of cases indicates that collective action and monitoring problems in common pool resources are solved in a reinforcing manner if a certain range of conditions is fulfilled. The current study focused both on common pool resources and on the shifting interaction patterns and forms of coproduction over multiple rounds in public service delivery.

The main findings related to specific resources (e.g., water, land and minerals) in this study indeed appear to underline the main principles identified by Ostrom (2000) for sustained collective action in relation to common pool resources. In most communities, the use of collective pastoral resources and rituals and routines for dealing with the interaction between agricultural and livestock were collectively defined and enforced by the community. Collective action efforts (e.g., in building irrigation infrastructure or in demanding land titles and preventing external incursions) generally led to collective arrangements. The collective action agenda of communities, however, went beyond common pool resources.

This study has highlighted the variety of *feedback* mechanisms between different community domains or '*unfolding action nets*' (Archer 2010) in relation to land and other natural resources, irrigation, education and different public services. Collective action in relation to education may lead to slow or rapid improvements in educational services, but higher levels of education and intensified irrigation may in turn affect labour availability and even the time or space available for livestock in rural communities. Parallel (or supra-communal) organizational structures may stimulate new action, but also interfere or even compete with the community organization. Similar positive and negative feedback mechanisms were found in relation to housing and other public services,

in relation to settlement concentration, community status and size (including processes related to splitting up or joining together) and agricultural intensification or in relation to the link between irrigation and internationally oriented migration. Taken together, these changes dramatically affected the communities' outlooks, especially so for the younger generation. Most of the *growth* pathway communities did better in terms of retaining or increasing their critical mass, which generally translated into more active and effective external articulation, either through the *sindicato*, the *subcentralia* or in some cases through international migration networks. Community actors also applied a wide range of entirely different forms of collective action related to 'aid seeking' (De Sardan 1988) or to capture external institutions, which in turn may have influenced collective action prospects.

This study also identified multiple constraints for effective collective action at different levels. A first observation is the importance, but at the same time the sometimes restricted influence of the community organization. The community organization defined the general 'rules of the game', the dates of the agricultural calendar and the delegation of authority roles, but it did not have direct influence on the daily management of resources, which was left to individual households. Collective ownership, except for irrigation infrastructure and – in productive terms less important – pastoral areas, was the exception rather than the rule. The community organizations clearly faced problems in dealing with land degradation and fragmentation, increased outmigration and 'abandonment' of resources and in applying 'graduated sanctions' on those unwilling to contribute their share or engaging in *free-rider* behaviour (especially affecting irrigation or drinking water). Persisting power structures and the creation of parallel structures interfered with the *boundedness* of the group and were major obstacles to effective collective involvement.

To some extent, community resolutions regarding collective action and monitoring led to reinforcing processes (Agrawal & Gibson 1999), but in the long term, the capacity of the more marginal and declining *dryland* pathway communities to enforce unpopular measures was clearly strained. The current study's main findings, however, are not in line with a deterministic approach to population growth and 'resource degradation', as indicated in chapter seven. *Growth* pathway communities did on average much better than communities with declining populations. Although other factors (e.g., internal conflict and persisting power relations) may also have played a role, our review of the survey communities indicates that the increasing strain on labour and on *comunarios* to assume 'time-consuming' leadership roles under adverse environmental conditions (particularly in the marginal dryland communities) affected community cohesion. Gradually growing communities may find it easier to redistribute leadership roles, in particular, to younger households, as they may have more political weight and ability to access external support and also face less risk of losing access to minimal services (e.g., primary education and health).

Complementing the main 'principles', Ostrom (2000) also highlights findings from the empirical literature regarding several more exogenous and endogenous threats to 'sustained collective action'. These include demographic and market changes, central government 'normalization' policies imposing 'a single set of rules', technological changes, shifts in reliance on monetary transactions, 'transmission failures' between generations regarding the appropriate 'rules of the game', overstretched external dependence, and external actor denial or neglect of local institutions and knowledge, as well the availability of effective low-cost conflict resolution mechanisms.

This study only partly confirms those findings. A number of factors were identified as driving or constraining collective action efforts. The first one relates to the interaction between internal

and external actors. Discrepancies in perceptions, objectives, modalities and timing between external actors and communities and households, or between groups of households, led to frequent and failed encounters. In many cases this eroded local capacity and willingness for sustained collective action. Second, endogenous developments, such as shifting demographics, increased migration and gradually shifting routines and practices as a consequence of external shocks undermined capacity for effective coordination and continuous involvement in local development efforts. Third, externally defined policies and reforms, including efforts towards ‘normalization’ of the ‘rules of the game’ (Boelens 2008) – for instance, in relation to land, education and irrigation practices – and the principal focus on productive policies oriented towards increased market integration had a substantial impact on community responses and household behaviour, as did, in a rather different manner, municipal decentralization. Finally, the willingness and capacity for collective action changed over time due to reduced labour availability and new intervention modalities like *obra vendida*.

Operating modalities and incentives may stimulate or constrain collective action, and define and influence ownership, appropriation and embeddedness, therefore also influencing the distribution of benefits within and between communities. This is principally the consequence of *selective* or *biased* approaches, favouring ‘high potential’ rather than ‘less favoured’ communities (Ruben & Pender 2004), and preferring richer and more centrally located households over poorer, more remote ones or those with less ‘resource’ availability, including cases of obvious need such as widows. Selective focus was also the result of predominantly market-oriented objectives, often neglecting existing practices and alternative exchange mechanisms and the multiple risks that individual households may face. Interventions may, for instance, lead to greater dependence on external inputs and traders, on fluctuating market prices for cash crops or on mechanization (with the resultant destruction of fragile soils in some cases).

While this study underwrites the main principles and logics identified by De Sardan (1988) and Dorward *et al.* (2009), concepts such as ‘*aid seeking*’ and ‘*hanging in*’ are hardly relevant beyond a broad and abstract community level and may do no justice to underlying historical dynamics of collective action in a community. Accrued experiences, underlying incentives and mechanisms for defining interventions and participation in them are important elements in better understanding how particular interventions relate to broader development processes and the role and responsiveness of community institutions. In addition, trends can seldom be explained by explicit intentions of households or community groups. Like ‘*participation*’, ‘*collective action*’ is not the all-purpose answer for resolving local development constraints. Collective action is bound in time and space and may lose its dynamic potential once an investment is realized, or it may depend on changes in service availability or shifts in the internal context (e.g., changes in leadership and existing power relations) or external environment. Internal inequality and inadequate institutions may also reduce internal cohesion and increase levels of conflict.

12.6 The relevance of social capital

The more or less satisfactory end of the seemingly endless irrigation project in Escana would probably never have been reached without the final effort of a new generation of young and well educated leaders, ‘knowledgeable’ about negotiating with a major range of external stakeholders. Escana probably had the highest number of *bachilleres* and certainly had built up its own ‘social capital’.

Apart from the multiple difficulties in measuring the concept, the question can be raised as to whether *social capital* or other capitals (Bebbington 1999) and the related 'community cohesion' are useful indicators and predominant drivers of collective action. In many development policies social capital is indeed considered to be favourable to development efforts. Taking a similar perspective, based on a comparative village analysis in Guatemala, Durston (1998: 15) asks, "If social capital, despite the obstacles of initial distrust and competing internal factions, can be built in small communities, why don't we see more of it in peasant villages throughout Latin America?" Likewise, Putnam (1993: 184) argues that social capital "enhances the effectiveness of government action". However, the validity of this argument may also be countered by the strong social movements in Bolivia, which often opposed government policies.

Social capital is not a fixed asset. It is multidimensional and variable over time. Furthermore, factors such as knowledge, cohesion, trust and built-up capacity may have different repercussions for collective action dynamics. Increased educational attainment may imply higher levels of social capital, but the knowledge obtained may not be very useful within the community itself. While knowledge of agricultural practices has long been fundamental for the survival of communities, its added value or 'validity' is diminishing with changing circumstances (e.g., climate change, introduction of new crops and the departure of young households). In some cases it becomes practically 'irrelevant'. Likewise, the building or formation part of social networks, especially those related to migration to a particular destination, may be useful for a group of families and even the community as a whole, but the benefits may be more in the form of facilitating migration and the generation of revenues or remittances, than of providing knowledge directly relevant to increasing productivity at the community level. At the community or group level, the persistence of informal exchange mechanisms may be indicative of the levels of trust and reciprocity between community members, and suggest that the rules favouring the 'social group' may prevail over individual self-interest. Nonetheless, these might be undermined by greater integration into markets (Polanyi 1957).

As discussed in the previous chapters, *bridging* and *bonding* social capital (Woolcock 1998; Stone & Hughes 2002) may not necessarily reinforce each other. Obviously, we cannot exclude the possibility that knowledge and innovations generated or obtained abroad may be useful or applied at the community level, but this seems not to be common practice in the research communities. Social capital remained important in the management of common pool resources (e.g., knowledge regarding the spreading of risks, trust building through informal exchange practices and shared responsibility in assuming *cargos* within the community organization); and social capital played a clear role in driving specific agendas (e.g., gaining access to external resources). Nonetheless, its added value was in many cases 'circumstantial' and limited to the specific context and needs of individual communities. To illustrate this, the same younger and better educated leaders of Escana may indeed increase the community's capacity to articulate its demands to external actors and to widen community horizons (Mason 2009), but they may also be more absent from community activities and less knowledgeable about customary practices than traditional authorities. This may lead to changes in perceptions and priorities related to the local development agenda and friction in community decision-making.

Most marginal dryland communities were active in lobbying efforts, obtaining quite substantial benefits in public services, though few of these were for the productive sphere, reflecting also the existing biases of external actors, which focus largely on 'development potential' and results.

Some communities certainly had leaders with more experience and ability than others. They were often able to stimulate community action for an array of purposes, while internal conflict blocked effective cooperation in others. But even good leaders migrated or rotated frequently, although new and less experienced leaders were also sometimes able to achieve meaningful results, albeit with support from the broader community. More important, both ‘community cohesion’ and collective action fluctuated in all communities, in relation to migration patterns and the infrastructure already realized, but also in many cases dependent upon external intervention modalities and incentives.

Built-up social capital is certainly more than the cumulative membership of the *sindicato*, committees and associations, as measured by Grootaert and Narayan (2004) in the neighbouring department of Cochabamba. As we saw, membership of committees was often decided in the community assembly, following principles of rotation. The dynamics of committees therefore merely reflected initiatives taken by the entire community, rather than ‘networking’ of community members. According to Garud *et al.* (2010: 768), it is virtually impossible to understand “agency without considering actors’ aspirations for the future, sensemaking of the past, and conceptualizations of what is transpiring in the present”. This is particularly evident in the long-term histories and memories in Quila Quila, reflected in the ‘reproduction’ of community practices and the ‘reinvention’ of institutions, but also in the recently established ‘virtual community organization’ of Ovejeras Rio Chico. That last community expresses a sense of common identity and collective claims to previously owned land in the highlands, but was also useful for exchanges of experiences beyond community boundaries.

Although Durston (1998) is optimistic about the ‘constructability of social capital’, Putnam (1993: 184) expresses doubts about the speed and capacity for institution building, as “time is measured in decades”. In line with Putnam, the idea of easy ‘replicability’ of social capital under rather heterogeneous circumstances must certainly be considered invalid.

12.7 Patterns of evolutionary change and pathway formation

Starting with ‘multiple initial conditions’, community pathways are driven by a wide variety of smaller and larger contingent events, histories of evolutionary change, critical junctures in institutional change, rather diversified patterns of external interventions and a variety of trends in the building up or undermining of collective action. Although some collective trends can be identified (e.g., climate change, the predominant role of the *sindicato* and the gradual decline in household size), in order to make sense of the mutual interactions we need to return to specific pathways or even individual communities.

As discussed in chapter ten, La Cañada started after the land reform as a dryland rural community with a strong focus on potato production. Following a period of tensions, in 1996 the community split into two segments, leading to additional extension of services. Over the past two decades it became part of a more concentrated settlement and major town, which it also helped to transform into the municipal seat. With a diversity of external support, community members also managed to build up an rather wide array of smaller and larger irrigation infrastructure, to organize a number of associations (including those for the production of *oregano* and vegetables throughout the year), to triple incomes and to allow students to study in the city, but also leading to new internal conflicts.

This example from a *growth* pathway community underlines the importance of different internal

and external triggers and self-reinforcing mechanisms (e.g., economies of scale and agglomeration effects around irrigation), but also of institutional ruptures in driving community pathways. Vergne and Durand (2010: 743) point to “positive network externalities or increasing returns (e.g. to scale, to scope, to learning)” as important drivers of self-reinforcing processes. Self-reinforcing trends occurred both in positive and in negative spirals, for instance, related to settlement concentration and expanding migration networks abroad (and declining populations and increased labour shortages at home), but also in relation to existing intervention biases towards communities with greater perceived productive potential. As in the case of La Cañada, this was clearly visible among the *growth* pathway communities, and somewhat also among the *irrigation decline* pathway communities. Self-reinforcing trends in the public and productive spheres did not, however, always run in parallel. In some cases an accumulation of these trends was observed, while in other cases contradictory developments and combinations of *vicious* and *virtuous* circles were evident, for instance, in relation to settlement formation and housing improvements.¹⁷ Agency was the principal driver of these trends, expressed, for instance, in La Cañada by community members occupying public offices, in *aid seeking* and in the splitting up of the community. In other communities, agency was triggered by example (*mimicking*), external factors (*chagas* disease) or by initial events.¹³

Community pathways are also a reflection of immersion in globalization processes, whether related to market integration, rural-urban migration, climate change, political developments or the wide spectrum of external interventions. Regarding that last, chapter ten reviewed the main ‘rounds’ of external interventions in the provision of public services, and the gradually shifting balance between internal and external involvement in which community participation, in many cases, declined over time, diverging again from the principles defined by Ostrom (2000). Communities responded in many ways to these changes, depending also on their own position or status (e.g., as *nucleo*, *ayllu*) and possibilities, for instance, as *early mover*. They did so in structured and ‘articulated’ ways, by requesting aid, capturing political power (as a *window of opportunity*), redefining identities and resisting external encroachment, policies and *normalization*, but also in more informal ways, by changing routines and habits, and by innovating or adapting. These multiple logics and the diverging patterns of community involvement trigger questions regarding the validity of universal approaches, in terms of both analytical frameworks for collective action and related development cooperation efforts. The principles underlying ‘effective collective action’, moreover, fail to incorporate the complexities of existing power relations and shifting identities and of contingent events affecting day-to-day interaction processes.

Some pathways are predominantly marked by lock-in or by path dependence; others are clearly influenced by a range of dynamic actors and lead to path creation. The current study observed a gradual transformation of several rather dispersed communities into nucleated settlements, in some cases with considerable intensification of agricultural production (under irrigation) while in other cases leading to a gradual marginalization of surrounding dryland areas. In some of the communities studied, surprising transitions occurred. Different forms of agency, collective action and *coproduction* with external actors were important drivers for path creation.

Lock-in was certainly evident among a large group of *decline* pathway communities, but nonetheless in rather specific settings. Among the marginal dryland communities, *lock-in* basically related to the productive process, the limited capacity of the community organization to intervene effectively, and the overall decline in capacity and increasing constraints faced by individual households in accessing labour and other resources through informal networks and exchange

mechanisms. *Lock-in* at the community level translated into the collective departure of younger households, leading to path dependence for those remaining behind, but also to some extent to *path creation* in establishment of gradually expanding settlements in peri-urban areas in Sucre or even abroad (Argentina). This again points to the importance of individual and collective agency.

The concept of *spatial evolution* originates in economic geography and relates to new technology diffusion (Boschma & Lambooy 1999). It was observed both within and between communities, but was less prevalent than one would expect considering the wide range of interventions. Despite the many external efforts – and the occasional successes – visible technological change remained very much confined to the inadequate use of chemical fertilizer and a few technological changes (e.g., the use of tractors or irrigation) in the *growth* pathway communities with appropriate productive conditions. Effective technological change seems to relate fundamentally to embeddedness – in relation to labour, risk sensitivity, market integration and long-term investments, but perhaps even more to existing practices and routines. If anything, major technological change or *spatial leapfrogging* was attained only in the *irrigation growth* pathway, and even there it was based on prolonged and concerted action and substantial community involvement (La Cañada) or overdimensioned investments (Escana). The building up of *agglomeration economies* (around supra-communal farmer associations) took considerable effort, especially in the institutional sphere, and was probably effective only under specific conditions (e.g., where there was no competition with the *sindicato* and where the integrated character of rural production systems could be taken into account). Rather than to define the right (adapted) package, it is important to understand what may work under what circumstances, including especially the local ‘knowledge environment’, coming close to what Nelson (2001) classifies as ‘social technology’. This is certainly an area for further research in relation to the understanding of rural pathways.

Although none of the communities was close to any kind of equilibrium (David 2001), the overall findings indicate the *boundedness* of many change processes around agricultural production, in particular in the *dryland* pathway. Individual cases studied (e.g., Ovejerias and La Cañada) do highlight the still existing potential to escape from *lock-in* or to realize full transformations in a relatively short timeframe, albeit with considerable external support. Practically all communities experienced one or several critical junctures (e.g., related to the splitting up of communities or decisions of groups to migrate permanently). The smaller communities, especially those on the *decline* pathway, suffered most from a lack of critical mass (leading to, e.g., reduced political weight during municipal elections or *cumbres*) and from negative tipping points (e.g., in relation to school enrolment).

Finally, and this relates again to contingency, it is important not to underestimate the possibility of *chance* or the occurrence of *black swans* (Taleb 2010) in defining community pathways. A apt example is the sudden ‘promise’ and the related externalities of a proposed multi-million dollar investment in Yurubamba intended to resolve drinking water provision problems for the city of Sucre. In a similar way, while the formal private sector hardly played a role in any of the communities, it did build and for quite some time maintain an access road to Talahuanca and Ovejerias, largely to satisfy its own very specific needs (for maintenance of gas pipelines) and completely unrelated to community resources and pressure.

This reflection on the patterns of evolutionary change in a wide range of communities also underlines the limitations in framing local community pathways in similar and clearly distinguishable stages, which is a common approach within the path dependency framework. This is not to

say that patterns of change are completely unpredictable or that anything goes. As evidenced by this study, it is possible to identify shifts in external presence, different rounds of education provision or public services delivery, multiple transitions in irrigation, as well as trends from dispersed towards concentrated settlements. It is also feasible to identify the importance of *critical mass* or *tipping points* in different domains. In a cumulative fashion, many similarities can indeed be found, but professing the identification of more or less 'fixed' patterns or stages of evolutionary change would do injustice to the diversity and complexity encountered among the research communities.

12.8 Unequal outcomes, community transitions and long-term impacts

Acknowledging both the commonalities and diversity of pathway patterns brings us back to the question of why external support had such a differentiated impact, even in communities with more or less similar 'initial conditions'. Although external interventions were broadly supportive of the building up of public services and the raising of production levels, particularly in the *growth* pathway, a range of factors undermined their effectiveness and impact. Recurrent problems were encountered in 'development efforts', in terms of coverage and effectiveness, as well as in relation to infrastructure operation and maintenance. These problems and the resulting variation in internal access led to a range of follow-up interventions. Following Pritchett (2011), responses were focused either on *intensification*, *amputation* and/or *policy reform*. Yet, quality, sustainability and provision levels did not always improve in subsequent interventions, as new efforts were often based on problematic diagnostics or 'standardized' solutions. As noted in chapter nine, the long-term emphasis on a top-down and standardized curriculum, limited teacher training and lack of understanding regarding parents' resistance to bilingual education exemplify such mismatches between diagnostics or solutions and realities on the ground. External interventions may lead to a selective transmission of organizational routines (Boschma & Frenken 2011) and have only limited impact on existing institutions, practices and approaches. Mistaken understandings of communities (Agrawal & Gibson 1999), the sometimes complete absence of – adequate – *theories of change* (Pritchett 2011) and the unilateral focus on externally defined objectives (including, e.g., the Millennium Development Goals), have obscured understanding of community dynamics and differentiated internal demands, needs and capabilities. Even so, collective and individual household behaviour or responses to external interventions may undermine the effectiveness of more grounded and long-term interventions.

With regard to public goods and services, the community organizations worked in principal for the benefit of all households, but distributions of benefits were differentiated and often unequal, reflecting differences between pure and impure public goods, related to their degree of excludability or rivalry. This is the case for road access and education, and especially so for housing, drinking water and electricity. This differentiation is often compensated or even augmented over time by external actors, as discussed in the various chapters. At the individual level, external interventions may have been successful, leading to positive indicators and some excellent results and 'good practices'. But uncoordinated action with regard to 'gap-filling' in relation to Millennium Development Goals merely led to a further shortening of the life cycle of public investments, and a frequent over-dimensioning of these, failing to take into account ongoing dynamics. Beyond the existing land pressures, 'unstoppable' rural-urban migration was also the outcome of increased educational levels and 'emancipation processes'. It might, indeed, in many cases provide

the only viable alternative for young households and even 'alleviate' pressure back home.

In the productive sphere, for most communities in the *growth* pathway, and particularly for the richer income strata, more sustained interventions and a strong focus on market integration led to patterns of accumulation and induced younger households to stay or even to return to the community. Among the *dryland decline* pathway communities, external interventions in the productive sphere were either more limited in scale or had only limited impact due to a range of other factors. One of the main reasons was the limited embeddedness of these interventions. Rather than building up capacity for sustained collective action (Ostrom 2000), multiple but dissonant encounters, short-term intervention practices and lack of follow-up led to gradually diminished interest. New policies and intervention practices differed little from previous failures. Recurrent 'problems with the solution', to use Pritchett's (2004) term, were commonly observed in the research communities. National policies led to constant efforts for the *normalization* of local practices and 'rules of the game' (Boelens 2008), while local intervention modalities and incentives led to biased selection of households and 'partial' solutions. Policies and practices seldom corresponded with strategies of risk avoidance and existing equity principles, and they were almost completely lacking in provision of adequate information and accountability. Following Polanyi (1957), it is in this regard useful to highlight the different types of exchange relations at the community level and in relation to the external context. Although interventions focusing on market integration certainly favoured internal dynamics, they also led to increased internal differentiation and external dependence, a gradual diminishment of informal exchange practices and a loss of cohesion of the community organization.

Even though the external presence was impressive in quantitative terms, few communities benefited from more substantial and consistent interventions. Many interventions were biased, unbalanced, uncoordinated and repetitive, and did not deliver cost-effectiveness, embeddedness and sustainability, nor did they promote local ownership and motivate further 'collective action'. This contributed to their limited effectiveness in terms of influence and impact in a generally difficult and risk-prone environment. Many short-term and 'standardized' interventions failed to respond to the gradually shifting but less obvious variations in practices and community routines, such as those related to the agricultural calendar and to a wide range of exchange mechanisms. They may, in some cases, have increased external dependencies, whether related to inputs, markets or maintenance. Recent intervention modalities like *obra vendida*, applied particularly by municipalities, effectively undermined communities' willingness to participate in collective action.

External interventions contributed to major changes in public service provision and living conditions. But taken together, the whole is less than the sum of its parts. Multiple rounds of collective action and external interventions unfortunately did not lead to systematic and continuous learning and more collaborative processes in the coproduction of increasingly sustainable rural development. Especially in the productive sphere, the balance was far from satisfactory. In the public services sphere, the improvements – after multiple rounds – did become more balanced, but after almost 30 years of 'regular' development cooperation efforts and 15 years of decentralization, provision was still observed as varied between communities and – probably more significant – between households, as reflected in the still relatively low coverage rates and taking into account the cumulative efforts undertaken.

It should be mentioned that in some cases internal inequality, for instance, related to land ownership between *originarios* and more recently incorporated households, has long term – path

dependent – roots, and is therefore difficult for external actors to address. Many interventions, in particular in the productive sphere, effectively contributed to *internal differentiation*, between richer and poorer households, between men and women, younger and elder, and between those living more centrally and those in more remote locations. In addition, the creation of parallel organizations or user groups hardly contributed to more active involvement or more balanced representation. The current *conditional cash transfers* are to some extent a mechanism of top-down redistribution, which may facilitate improvements in the position of the elderly and poorer households, while municipal decentralization may contribute to ‘redistributive’ policies, but few other – locally implemented programmes have been able to address such internal inequalities.

Even in adverse circumstances, suffering the prolonged consequences of multiple external shocks, including major droughts, climate change and gradually deteriorating living circumstances, communities exhibited ‘resilience’ in terms of their survival as an independent entity, even when splitting up, relocating to new territories and assuming new external identities. The survival and resilience, or the ‘reproduction of community’ (Klemola 1997) has, however, come at considerable costs, especially for those remaining behind, even with more or less helpful external support. Although living conditions improved (expressed in HDI indicators), the internal capacity for collective action and to adjust the ‘rules of the game’ appear to be further eroding, while productive and broader food security conditions improved in only a few communities. Resilience as a means to reduce vulnerability and capacity to adapt has been fairly limited. Effective adaptation as the result of complex processes and multiple trade-offs between a wide range of stakeholders (Coulthard 2012) could be identified in only a few cases.

Proactive involvement of households and individuals depends on existing habits and routines and perceived benefits, but also on the strength of the community organization to define the internal ‘rules of the game’ and to sanction non-cooperating members. The building up of public services might make life better for the remaining elderly, but it did not make communities sufficiently attractive to retain young families without access to productive land. The *speed* of the process of change, related to service provision and also to rural-urban migration and destination patterns, is affecting community organizations in a more subtle way. Ambitions to attend secondary and higher education, to find urban employment and to improve living conditions overall are gradually eroding the same institutions that were intended to improve community life and those that have been artificially constructed or strengthened by the capacity-building efforts of development institutions. This is a consequence of demographic shifts (e.g., the ageing of communities), outmigration and double residence, changing settlement patterns, modifications in a range of community *routines* (including the decline in informal exchange practices) and increasing differentiation between households. It reflects to some extent the difficult balance between collective welfare and individual choices, or between *place prosperity* and *people prosperity* (Agnew 1984). While the elderly may benefit in the short run from improved living circumstances, the viability of new and improved public services may be limited.

Only three of the fourteen communities managed to realize considerable changes in productivity and to retain or even attract younger households. In one of these, the community did so almost without external support, while in one of the other two cases an external intervention played a role but is recognized as being over-dimensional and unbalanced from almost any perspective, leaving only one experience with limited prospect for ‘replication’. In virtually all of the other communities, the elderly remained behind with considerably lower levels of agricultural

production. New government *safety nets* (conditional cash transfers) and improved quality of living have probably made their 'old age' much better than that of many of their parents, but they certainly do not guarantee these communities' long-term survival. This is not necessarily always a problem, as communities may transform and gain a new life elsewhere. But neither national nor international cooperation policies seems to pay much attention to the balance and sustainability of investments between rural and urban areas and between the public and productive sphere. Under current circumstances, agricultural production in marginal dryland conditions can hardly compete with other potential sources of income, especially for younger households. This implies that existing institutions with a long history of negotiation experience are becoming less relevant for the younger generation, which may complicate 'community-based' approaches with a focus on 'sustainable development'.

12.9 Sustainable pathways or troubled development?

The introduction to this chapter mentioned some of the major transformations that communities experienced. Today many of the communities studied face new critical junctures or crossroads. While productive prospects have improved for a few, all face increased outward orientation in practically all aspects of community life, undermining or at least changing the 'sustainability' of many current pathways. While traditional institutions have diminished in importance, the principal organizations and decision-making processes today are more in sync with local and national policies than ever before, and the future of children is largely pictured outside of community borders. This process is much like destruction of original paths followed by incremental processes of creating new pathways (Garud & Karnøe 2001). For rural communities, however, their own habitat may be undermined. Although knowledge and capacity related to the risk-prone productive environment is still available with the elderly and some younger households, the quest for *solutions* remains largely externally oriented, partly as a consequence of growing constraints related to internal labour and other required inputs, but also as a result of growing aid dependence, notwithstanding its fragmented and discontinuous character.

Without a more holistic approach, external interventions may thus become part of the problem rather than part of the solution (Pritchett 2004), deepening vicious circles rather than leading to 'stepping up' (Dorward 2009). Similarly, experiences in housing and drinking water provision exhibit the considerable hurdles encountered in dealing with a wide range of existing constraints, especially related to coverage rates, differential access, *free-rider* behaviour and maintenance. They also underline the limited capacity of the community organization and external actors to resolve such issues in a consensual manner, with only a few approaches having led to more sustainable and equitable outcomes. Nonetheless, effectively synchronized external interventions implemented largely under the leadership of local communities may lead to virtuous and gradually self-reinforcing trends. Examples observed in the communities under study were the effective complementarity of several support programmes for education and the more continued and sustained investment in building a farmer association around Pampa Lupiara, although even the latter faced considerable difficulties after the withdrawal of external support.

Most rural development approaches focus, sometimes unintentionally, on modernization, market integration and 'rural urbanization'. The building up of public services and the desirability of 'improved' housing, access to drinking water and a range of other social services led to rapid settlement concentration, with different variations found between the larger dryland and smaller

and medium-sized irrigation communities. Although this can clearly be viewed as ‘path creation’, the question is whether community members merely adhere to this agenda because the public services on offer improve living conditions, help their offspring access education and facilitate their departure, or because they really favour ‘modern’ living, mimicking developments elsewhere, even when this may affect existing agricultural and other practices.

Pritchett’s (2004) emphasis on the need for adequate theories of change has one important limitation. It will be impossible to elaborate as many *theories of change* as the multiple pathways communities are engaged in. Community development remains a messy process, linked to broader political economy processes, and full of contingent, locally and culturally defined dynamics. Development actors and aid interventions can only to some extent predict or build upon these existing ‘pathways of change’. Beyond the existing asymmetries in terms of power, discrepancies and confusion remain with regard to the multiple conceptions of local development.

The development community will thus need to become better in dealing with complexity (Teisman 2008), to acknowledge unpredictability and to work in the widest combination of network alliances in which it can attune, adapt and respond to the wide range of unique local development processes and demands. Development efforts directed at rural communities could stimulate modalities that allow for more tailor-made ‘solutions’ and contribute to policies and programmes favouring local distribution mechanisms, involving community members on their own account, allowing them to make their own explicit choices about development perspectives and possibly about funding allocations and modalities, rather than merely confronting them with continuous processes of external normalization or *ad hoc* aid measures from a range of uncoordinated and often a-historical aid suppliers. This is more than a distinction between *searchers* and *planners* (Easterly 2006), and it is different entirely from externally defined approaches such as the ‘Millennium Villages’ envisioned by Sachs (introduced in chapter one, section 1.3). Coincidentally, the Millennium Villages project⁴ is being implemented in 14 ‘villages’ throughout Africa, in just as many different agro-ecological contexts, but in even more diverse macroeconomic and political settings than our study communities. What the current study teaches is that more coordinated support is important, but professing an almost universal approach to resolve rural poverty is certainly following the wrong path.

At the start of his tenure, World Bank President Jim Kim demanded that the institution start working on a ‘science of delivery’ and become a ‘*solutions bank*’. But it will not be enough to analyse existing constraints and barriers towards attainment of Millennium Development Goals or the upscaling of ‘best practices’. Development *solutions* not only require the right policies and institutions, but also understanding of local histories, power relations, perceptions and perspectives. Following Pritchett and Woolcock (2004: 207), we must help create conditions “under which genuine experiments to discern the most appropriate local solutions to local problems can be nurtured and sustained, while also seeing them as a necessary part of a broader and more holistic country development strategy”. Municipal decentralization has already provided a new and important platform for community involvement, but much more needs to be done to improve the tailoring, quality and especially the embeddedness of external interventions, instead of reinventing the wheel or ‘innovating’ from the outside. Local dynamics and the complex confusion of multiple pathways require better answers than the still persisting aid confusion, in Bolivia and elsewhere too.

Notes

¹ There is, of course, no simple alternative. Classifications such as these should therefore necessarily reflect a longer term analysis, including less perceptible changes as a consequence of internal or external agency which may turn around the image of 'poverty traps'.

² The introduction of chapter eleven discussed the role of external interventions and our own presence in the research communities.

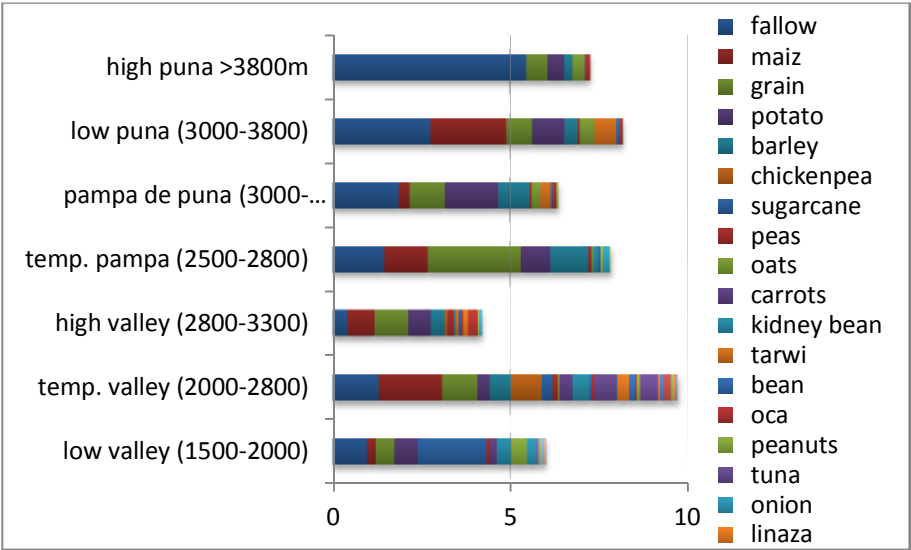
³ For instance, flooding in Tuero Chico or severe drought in Ovejerias.

⁴ See www.millenniumvillages.org and Sachs (2005).



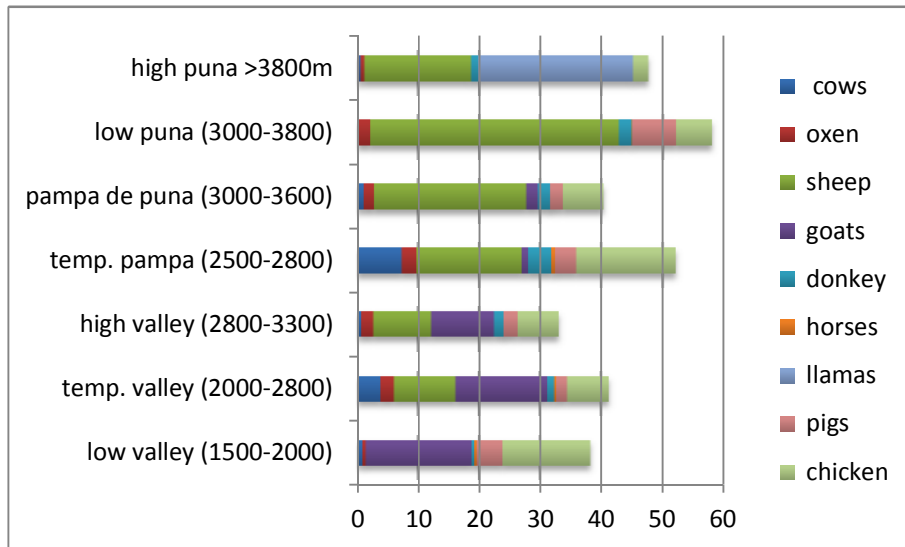
Appendices

Appendix 1.1
Average crop areas (ha) for different ecological zones, 1996



Source: PIED studies, own elaboration. Note: N=136 hh.

Appendix 1.2
Average livestock holdings for different ecological zones, 1996



Source: PIED studies, own elaboration. Note: N=136 hh.

Appendix 3.1
Main characteristics of communities, 1996

<i>Community</i>	<i>Ecological zone</i>	<i>Origin</i>	<i>Altitude</i>	<i>Rainfall (1996)</i>	<i>Distance to Sucre</i>	<i>Accessibility (1996)</i>
Ovejerias	template valley	ex-hacienda	2000	500	79	bad
Cochapampa	low puna	ex-hacienda	3800	800	105	bad
San Juan	high valley	ex-hacienda	2700	550	35	reasonable
San Juan de Orcas	high valley	<i>ayllu</i>	2900	750	65	bad
Pampa Lupiara	pampa-puna	ex-hacienda	3200	900	85	reasonable
Talahuanca	high valley	ex-hacienda	2800	600	45	reasonable
Yurubamba	pampa-puna	ex-hacienda	3300	1000	46	good
La Abra	low valley	ex-hacienda	1700	500	170	reasonable
Tuero Chico	template valley	ex-hacienda	2400	800	52	good
Quila Quila	template valley	<i>ayllu</i>	2800	706	29	variable
La Cañada	pampa/temp	ex-hacienda	2600	600	180	good
Sundur Huasi	template valley	ex-hacienda	2500	700	118	good
Escana	template valley	ex-hacienda	2500	700	45	good
Wasa Ñucchu	template valley	ex-hacienda	2400	800	25	good

...Continued

<i>Community</i>	<i>Population (1996)</i>	<i>Per. migration (1996)*</i>	<i>Building of first school</i>	<i>Start irrigation</i>	<i>Settlement pattern (1996)</i>
Ovejerias	600	36	1986	1995**	scattered
Cochapampa	283	9	1990	None	Scattered/small core
San Juan	720	37	1991	2010	scattered
San Juan de Orcas	636	12	1995	None	scattered
Pampa Lupiara	1185	0	1954	None	semi-dispersed
Talahuanca	250	9	1980	None	scattered
Yurubamba	445	12	1995	1994*	scattered
La Abra	583	27	1995	1990	semi-dispersed
Tuero Chico	218	15	1981	1995	concentrated
Quila Quila	599	3	1985	1988	core with ranchos
La Cañada	418	23	1973	1996	scattered
Sundur Huasi	522	16	1993	1991	semi-dispersed
Escana	600	44	1948/1975	1983	concentrated
Wasa Ñucchu	191	29	1983	1990	concentrated

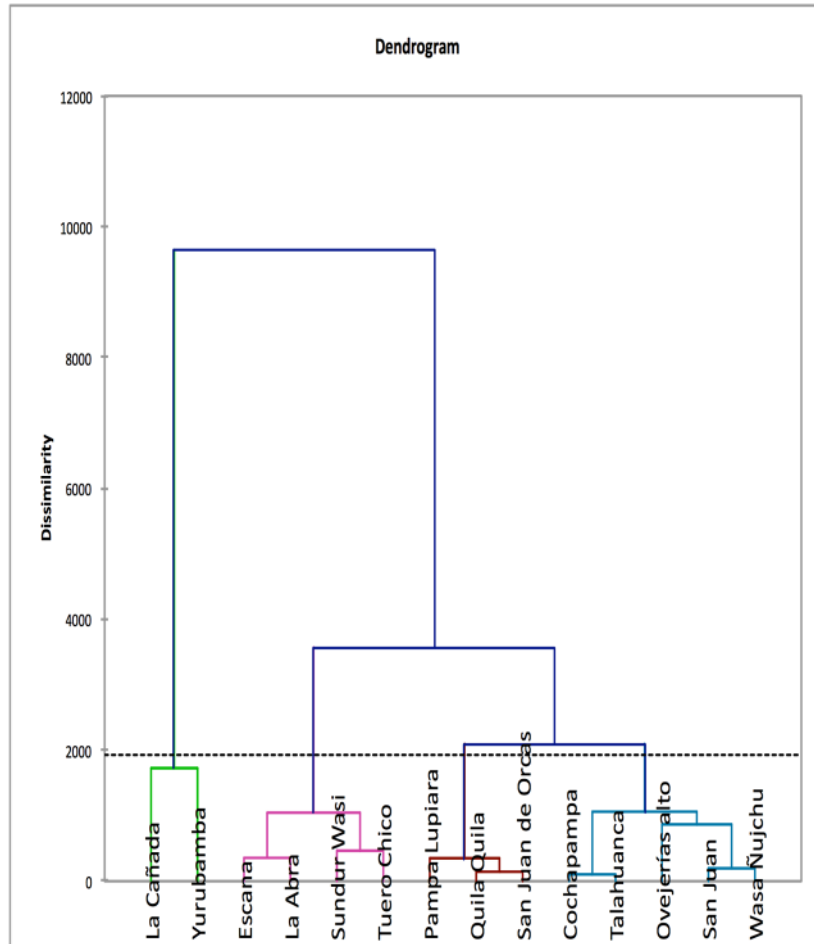
Note: *Since 1983, % of pop. ** Main irrigation efforts in the Rio Chico valley started after 1983, but many 'offspring' communities of Ovejerias gained access only in 1996 or after.

Appendix 3.2
Overview of the data used for a first approximation of possible clusters

<i>Variable</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Std. deviation</i>
Value dryland area (1996)*	0.0	20.8	7.5	5.7
Boarding facilities 2011 (score)	0.0	8.0	1.9	3.4
Educational level 2011	3.0	12.0	8.2	3.6
Change in levels of education 1996-2011	-1.0	7.0	1.9	2.6
access nearby markets 1996 (score)	1.0	6.0	3.5	1.7
permanent migration 1996 (2007)	0.0	44.0	19.4	13.5
permanent migration 2011 (2007)	7.3	37.7	20.8	10.2
International component in migration (score)	1.0	9.0	4.1	2.8
Change in temp migration 1996-2011	-0.7	2.0	0.3	1.0
Population 1996 (abs.)	191	1185	504	258
Population change (1996/2011) (1=100%)	-0.7	0.99	-0.1	0.5
Mechanization (trucks in community) 2011 (score)	0.0	5.0	2.1	1.8
Prod. Infrast. (irrigation, SWC) 2011 (score)	0.0	9.0	3.9	2.8
Prod. Infrastructure (silos, etc.) 2011 (score)	0.0	7.0	1.6	2.1
Value dryland area (2011)	0.0	33.3	7.3	8.3
Access to irrigated land 2011 (ha)	0.0	23.8	5.8	6.5
Change in value of irrigated land	-1.4	45.9	9.6	13.1
Change in total value hh recourses 1996-2011	-10.5	57.3	13.9	16.9
Total value household resources 2011	18,3	97	41	25
Levels of settlement concentr. 1996 (score)	1.0	8.0	3.1	2.4
Process of settlement concentr. (1996-2011) (score)	1.0	6.0	4.2	1.4
Level of public services in 2011 (score)	1.0	10.0	6.2	2.4

Note: *All values expressed in Bs 1,000. Score: 0-10

Appendix 3.3
Cluster analysis (agglomerative hierarchical clustering)



In a first step, cluster analysis was realized through both agglomerative hierarchical clustering as well as K-means clustering. The hierarchical clustering resulted in the figure above. The exercise resulted in four main groups and several subgroups. This result is to some extent similar to the grouping of communities in our classification in 1996. The classification clearly reflects a differentiation between the more marginal dryland communities (Ovejeras, Cochapampa and Talahuana), which were all also identified as those with an unfavourable external context in 1996. Then there are those with more intensive irrigation (Tuero Chico, La Cañada, Escana and La Abra), which were also grouped as such in 1996.

*Appendix 3.4
Pathway classification based upon K-means clustering*

Cochapampa Ovejerías alto	Escana La Abra La Cañada Yurubamba	Pampa Lupiara Quila Quila Tuero Chico	San Juan Talahuanca Wasa Ñucchu	San Juan de Orcas Sundur Wasi
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K-means clustering gives a slightly different result, grouping in the first class the same three communities, but with different classifications for other communities.

Both classifications give a first approximation, but are not entirely satisfactory, taking into consideration the differential processes taking place amongst those communities. Pampa Lupiara in many aspects closely resembles the dynamics in Yurubamba, and Wasa Ñucchu (as a small community with intensive irrigation) is much closer to Tuero Chico than to San Juan in many aspects.

In a second step, communities were grouped together based upon similarities regarding the overall levels of production and public service provision etc., as well as in relation to the levels of change.

Reviewing the different trends in the communities, pathways are essentially built upon a combination of trends, both in the productive sphere and in relation to public services. For each of these trends a distinction was made between lower and higher levels of production and more extensive or intensive production, levels of market integration, services in education and health and other public services and in relation to migration patterns.

In a third step, a main-event calendar was elaborated for all communities. As none of the communities perfectly fit with any in a different group, the final classification was also based upon a more detailed review of the specific development patterns of these individual communities over time. The resulting classification is presented in table 3.4.

Appendix 3.5
Detailed pathway classification, 1996-2011

<i>Production system/ principal migration pattern</i>	<i>Population decline (1996-2011)</i>		<i>Population growth (1996-2011)</i>	
	<i>Primary education</i>	<i>Secondary education</i>	<i>Primary education</i>	<i>Secondary education</i>
<i>90-100% dryland, mixed production/ national migration</i>	Ovejerias Alto 0 <i>San Juan 5*</i>	<i>San Juan de Orcas</i> 5	Talahuanca 1	
<i>90-100% dryland, potato production/ national migration</i>	Cochapampa 5			<i>Pampa Lupiara 3</i> <u><i>Yurubamba 5**</i></u>
<i>10-30% marginal irrigation/ national migration</i>	Sundur Wasi 4	<i>Quila Quila 4</i>		
<i>50-100% riverside irrigation / predominantly international mi- gration</i>	<i>Tuero Chico 9, La Abra 9, Ovejerias Rio 8</i>		<i>Wasa Ñucchu 7</i>	
<i>50-100% intensive irrigation / predominantly international mi- gration</i>			<u><i>La Cañada 5</i></u>	<u><i>Escana 9.</i></u>

Source: PIED studies, own elaboration.

Notes: Ovejerias is included twice (as Ovejerias Alto, in the highlands; and as Ovejerias Rio, in the valley), due to its complete transformation from a dryland community (in 1996), to the establishment of a (range) of riverside communities (data 2011). **Yurubamba also attained roughly 30% access to irrigation in 2011, but the change occurred in a relatively short time span, and did not (yet) imply major changes in crops or production system. For this reason it is grouped together with Pampa Lupiara, a similar *pampa* community.

Explanation:

- (0-10) = valuation (estimate) of levels of access to drinking water, electricity and/or improved housing in 2011 (see table 3.6);
- bold = specific origin or identity (*ayllu* or *comunidad originaria*);
- Underlined = highest levels of resource accumulation (1996-2011);
- *Italic* = semi-concentrated or concentrated settlements;
- * with some international migration.

The first element of the detailed pathway classification relates to development outcomes. Defining 'development' (indicators) is a rather intricate business, and often based upon ideological perceptions

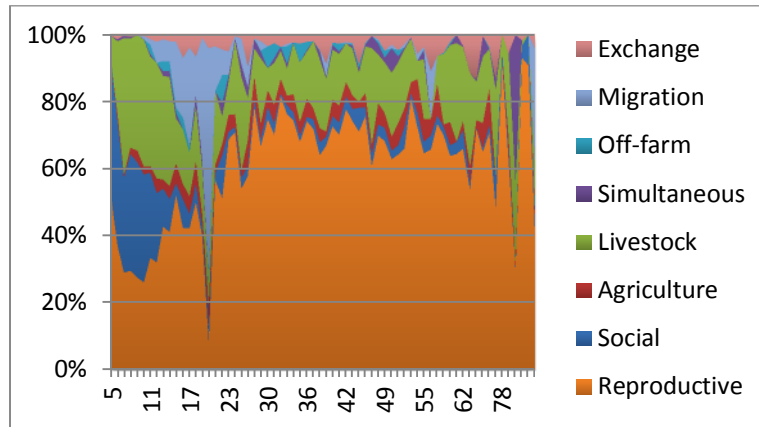
of desired development outcomes. The often-used MDG indicators relate to a difficult ‘constructed consensus’ in international development circles regarding the desirability of progress in terms of poverty reduction, child mortality and access to education and clean drinking water. Those data are generally measured at the household level, but do not necessarily take account of broader community developments or processes of internal differentiation. As this study focuses on community pathways, a broader perspective regarding the selection of indicators is needed, with more emphasis on community resources and patterns of service delivery. Households (together, or in different groups) remain, however, an important driver of developments at the community level, while individual actions, ‘shocks’ or external intervention modalities may all result in differentiated effects or benefits among households. To allow for comparisons, the indicators should to a certain extent be measurable or comparable. Outcome indicators are based both upon community appreciation and an external assessment of changes in provision of services, not only among the selected households, but also at the level of the community and taking into account both internal access and quality and continuity of services. The detailed pathway classification includes indicators related to demographic change (population, migration patterns and trends), the focus of agricultural production, educational levels, and changes in access to housing, electricity and drinking water at the household level.

The second element of the detailed pathway analysis refers to structural factors, including 1) resources (principally dryland area or land under irrigation), 2) built-up – public and productive – infrastructure (e.g., schools, roads, health centres, irrigation infrastructure, tractors and silos), and 3) existing institutions. I include a comparison of the available resources at the household level in 1996 and in 2011, and an assessment of the change in productive and public infrastructure and changes in the level of ‘settlement concentration’. With regard to existing institutions, I use the commonly applied distinction in origin between *sindicatos* and *ayllus*. Although the distinction (with often parallel operations and overlap in functions) is in practice not as clear as might appear, the internal and external perception of identity issues has consequences for many aspects of community development, including both the decision-making process and the tying together of different communities under one umbrella.

A third element refers to the process of change itself, which will mainly be discussed in the following chapters. As mentioned a pathway analysis fits into an overall theory regarding local evolutionary change. Within this framework feedback mechanisms play an important role. Pathway differentiation can take place both in a very short time-frame, as well as over decades. It is not necessarily a continuous or gradual process of change. Pathway developments can for instance be classified in terms of *path dependency* or *lock-in*, or in terms of *path creation*. The overall patterns of change will become visible in the final assessment of pathways in chapter eleven.

Appendix 3.6

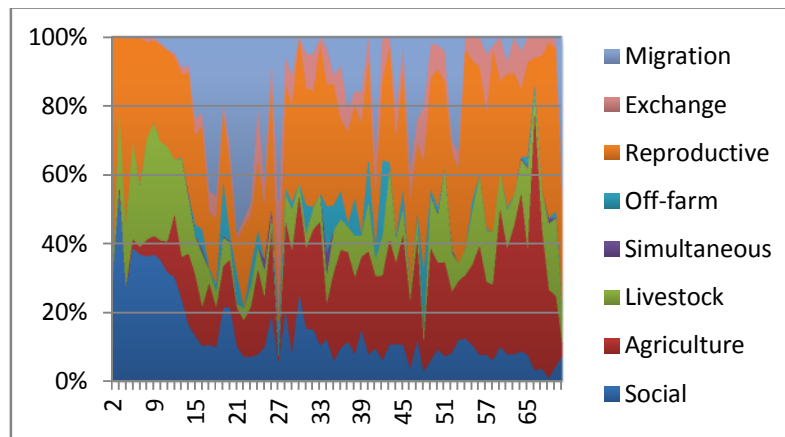
Time spent on different activities by women in relation to age, July 1995 through June 1996



Source: PIED studies, own elaboration. Note: Education is included under 'social' (N=136 households).

Appendix 3.7

Time spent on different activities by men in relation to age, July 1995 through June 1996



Source: PIED studies, own elaboration Note: Education is included under 'social' (N=136 households).

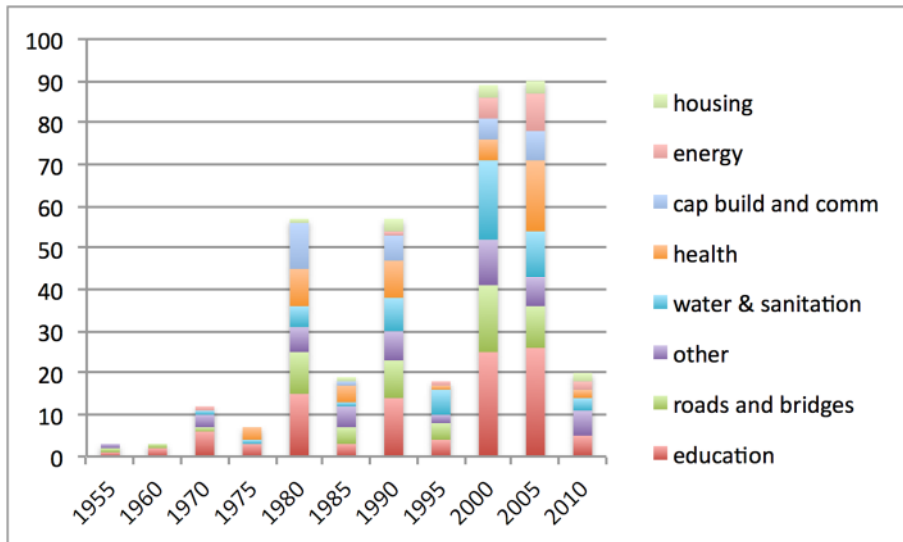
*Appendix 5.1**Netherlands support to national and local actors in the region*

Between 1996 and 2011, the Netherlands supported a range of programmes at the central government level (education, integrated water resource management), the local government level (SNV-PFI-Prefecture, *Fondo de Gobernabilidad*, GESPRO, FAM), oriented towards social movements/farmer associations (through SNV), decentralized semi-autonomous institutions (IBTA, SIBTA, INRA, Prosempa, Proinpa), multilateral programmes (FAO-Holanda, FAO-fertisuelos, UNICEF); consultancy firms (DHV-Zonisig, Kadaster, KIT-PIED-Andino), direct execution (Fondos), through international NGOs (SNV, CARE, PLAN International), national NGOs (FAUTAPO), and finally through direct technical assistance (PUM, AD programme, Kadaster, etc.) and Dutch co-financing agencies (principally Novib, Cordaid, Icco and Hivos) including NGO funding (IPTK, ACLO, ASUR, PROAGRO, PASOS, Fundación Tierra). A range of those national NGOs received in turn support through national networks like PRACA and PROCADÉ, which after the drought relief of 1983 focused on coordination and exchange of experiences.

The most visible activities relate to education, municipal support and local or international NGOs with presence in the region. In the education sector most of the emphasis has been on sector support, with complementary efforts in support from Plan International, FAUTAPO, UNICEF and the CEPOS.

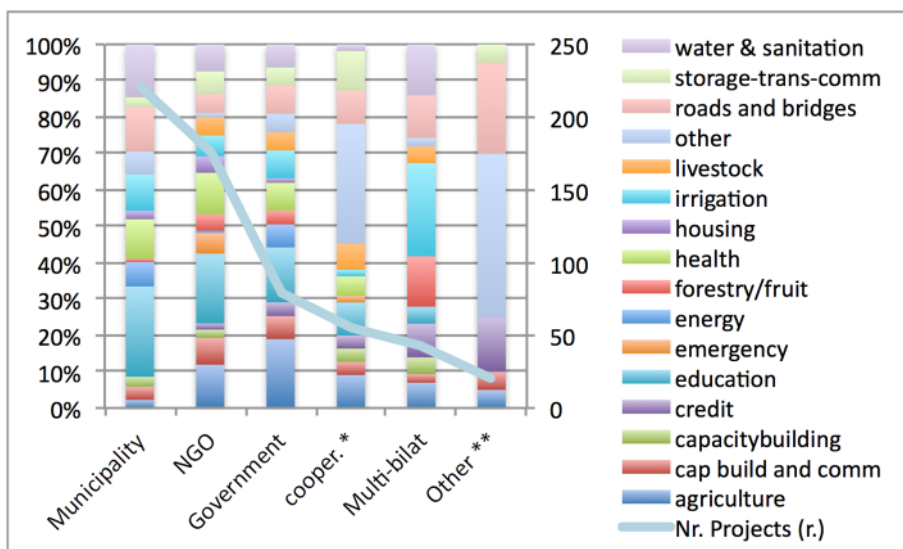
The presence of activities related to productive development (SIBTA/Fundación Valles), capacity building (SNV), drinking water and sanitation (UNICEF), and integrated water management (Rio Chico) has been more regionally focused. Other programmes had more limited visibility in the region and research communities, partly due to their regional concentration (FAUTAPO, INRA, PNC), a more scattered presence (SIBTA, Proinpa), or the more indirect way of operating (CNE, Defensoria, UNIR).

Appendix 5.2
Distribution of nr. of projects over time (14 communities), 1955-2011



Source: PIED studies and municipal data.

Appendix 5.3
Sectoral distribution and nr. of interventions per institutional category (14 communities), 1955-2011



Source: PIED studies. Note: * Includes community associations and cooperatives.

** Includes private sector and church-related organizations like *parroquias*.

*Appendix 5.4
Principal municipal indicators*

<i>Indicator</i>	<i>Mojocoya</i>	<i>Zudáñez</i>	<i>Poroma</i>	<i>Tarabuco</i>	<i>Yamparáez</i>	<i>Yotala</i>
Area (km ²)	1240	697	1385	1024	595	450
Population 1992 (census)	7890	7150	13659	19607	11656	9486
Population 2001 (census)	7926	7423	16101	19554	10013	9497
Population 2005 (estimate)	8371	7945	18141	20556	9906	10044
Population density	6.4	10.6	11.6	19	16.8	21.1
Nr. of cantons (municipal districts)	3	1	6	2	5	4
Nr. of communities	31	30	78	72	44	49
Nr. of main towns	2	1	1	1	1	1
Nr. of neighbourhood organizations	4	n.d.	1	5	4	4
Life expectancy at birth	60,8	57	46	54,6	61,5	61,6
HDI (2001)	497	472	389	407	481	534
Annual migration	-6,96			-15,14	-19,24	-7,12
Rural population (%)	100			87,5	100	100
NBI (%)	92,3	86.4	99.3	93,7	93,2	80,3
Extreme poverty (2001)	87.6	82.9	93.6	88.8	86.5	71.2
Infant mortality (per 1000) (2001)	77.7	84.1	109.8	103.5	74.3	74.5
Drinking water coverage	28.5	48	19.4	55.8	52.8	74.8

Source: INE, Yapu (2011) and own elaboration.

Appendix 5.5
Major projects implemented between 1996 and 2011

<i>Communities</i>	<i>Projects and interventions</i>	<i>Financing</i>
Quila Quila	Provision of school materials, improvement of health centre, improvement of drinking water system, construction of a wall around the cemetery, multifunctional room	Municipality
	Electrification of the core settlement	Regional government
Tuero Chico	school building, multifunctional room, health centre, river dams, electricity	Municipality
	Latrines, and housing improvement	Central government
Wasa Ñucchu	construction drinking water system, construction of a bridge for pedestrians	Municipality
	construction and improvement of the irrigation system	Central government
Escana	building of a dam, bridges, and playground for children	United Nations
	school building, multifunctional, and electricity provision	Plan International
	improvement drinking water system	Municipality
	extension of irrigation system (tubes)	Regional government
San Juan	maintenance school building and paving centre square. Workshop for weaving practices. Health centre construction, sports field, improved seed supply potato, building artificial lakes, drinking water system, solar photovoltaic system, road maintenance	Municipality
	electricity provision	Regional government
	waterhole perforation	Central government
Talahuanca	refurbishment of school, sports field, housing improvement, road maintenance, artificial lakes, training material for productive themes, solar panels for school	Municipality
	improved seed supplier for grains, metallic silos provision, grain mill	Regional government
Pampa Lupiara	electricity connection and extension, school building, health centre refurbishment, water tank, health centre, a supply of improved seeds	Municipality, Plan International
	mobile telephone connection (antenna)	ENTEL
La Abra	school building.	FPS, municipality.
	extension and improvement health centre, housing improvement	Plan Inter, municipality
	construction of small irrigation system	PRONAR
	rural electricity provision	Municipality, regional government
La Cañada	construction of a dam for irrigation	Municipality, central government, PROAGRO,
Sundur Wasi	housing improvement	Plan International, Pro-Habitat
	construction of small-scale irrigation system, supply of improved seeds (grain)	Municipality, PROAGRO
	electricity, grain mill and thresher, metallic silos for grain storage	Regional government
	construction bathrooms and showers for school	Central government

	<i>Continuation Appendix 5.5</i>	
<i>Communities</i>	<i>Projects and interventions</i>	<i>Financing</i>
San Juan de Orcas	construction classrooms, rooms for housing of director, food supply for school and boarding, extension health centre, drinking water system, topographic study	Municipality
	extension secondary school, borders of sidewalk, housing improvement	Central government, PROSCAN NORSUD
Yurubamba	construction secondary school, mini hospital, electricity provision, drinking water system	Municipality
	construction of wall around school building	Central government
Cochapampa	solar showers for school, water tank for irrigation, health centre, electricity	Municipality
	construction multigrade school, latrines and septic tank	Central government

Source: PIED-Andino, PIED-II, VIPFE.

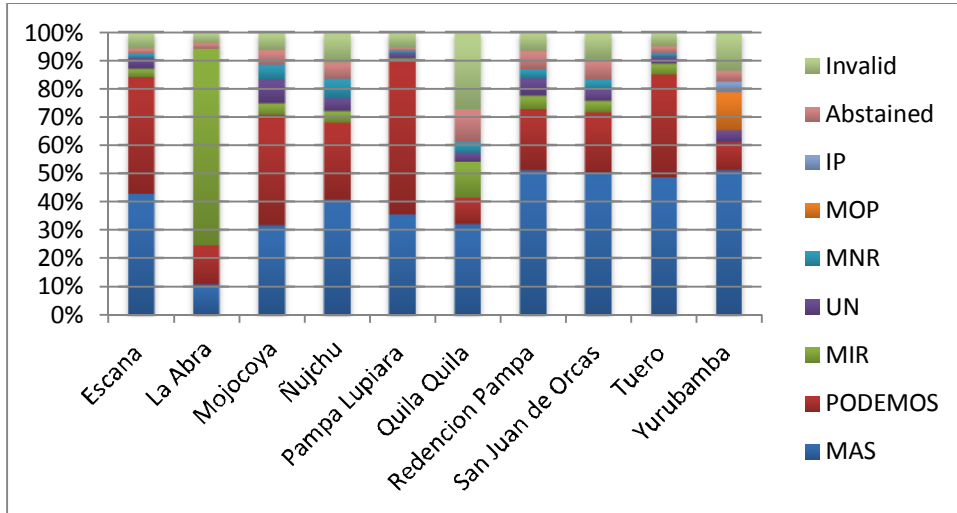
Appendix 5.6 *Community relations with municipality*

<i>Community</i>	<i>Relation with municipality</i>
Escana	Intensive relationship with the municipality. Coordination in <i>subcentralia</i> how to vote during elections, and how functions in the municipality will be divided. Escana has a high score based on a relatively high level of expenditures per capita, and the highest number of projects implemented. This can be explained due to relatively easy access, high productive potential, substantial level of previous investments by a multilateral programme in irrigation, and the strong incidence of community leaders in the municipality. The municipality prioritized irrigation interventions, which benefited Escana.
San Juan	San Juan obtained some benefits from the municipality, which is a bit surprising, because of the downward population trend and limited agricultural potential. The explanation may be in the fact that the community managed to get the community leader elected as mayor for 3 years in office. Over the whole period the community nevertheless suffered from a high rejection rate of proposals.
San Juan de Orcas	For San Juan de Orcas, the political positioning of the community vis-à-vis the municipality, as well as the accelerated process of establishing a core settlement, both had a strong impact. Although the community suffered from population decline, the availability of secondary schooling and a boarding centre led to a self-reinforcing process of building up a new core community, with improved access and transport facilities. Due to its central location, San Juan de Orcas is becoming a potential rival for the municipal town of Poroma.
Quila Quila	Difficult relationship with municipality, due to the internal conflict between <i>sindicato</i> and <i>ayllu</i> structure. Quila Quila had for a long time the ambition to become an independent indigenous district with direct access to municipal funding. The dominant group at the time refused municipal funding, in order to put pressure on their demands. The than minority, and currently probably majority of the core settlement of Tajchi however did not agree and submitted directly demands to the municipality.
Wasa Ñucchu	The municipality supported small projects related to access (bridge, road and drinking water). The community is very small, and due to lack of space also dependent on neighbouring communities for service provision.
Pampa Lupi-ara	Pampa Lupiara benefited substantially from external support before 1996. This might have been the main reason for its 'neglect' in recent years. It received a low share of small projects, mainly related to education and (failed) attempts to improve drinking water accessibility. It has recently been able to elect two council members, for two opposing parties, but the relations remain difficult.

La Cañada	Together with neighbouring communities La Cañada has been able to transfer the municipality to the town of Redención Pampa. La Cañada hugely benefits from public services in the town. In the productive sphere a small segment of the community benefits from a large irrigation investment programme, co-funded between the central government and the municipality, which however has led to internal conflicts regarding access. The community split into two parts in the late 1990s to facilitate additional access to services.
Talahuanca	Talahuanca hardly benefited from municipal interventions, except for the regular support for school breakfasts and short-term tractor and caterpillar support for the construction of artificial lakes. Due to a Japanese project (coordinated with the municipality) the community benefited a great deal from a soil and water conservation programme. Highland communities like Talahuanca are in a minority position, and they only recently managed to get a representation in the federation / vigilance committee structure.
Sundur Wasi	Although close to the municipal town of Zudáñez, Sundur Wasi hardly benefited from municipal interventions. Until 2008 they received only two small projects related to primary health care. Over the last 3 years the relation improved however significantly, and the municipality supported the community also in finding projects from other sources.
La Abra	La Abra has overall high levels of public services, but hardly benefited from municipal support. La Abra is a community of difficult access, low in the valley, and has long been dominated by family of the former landlord. Currently the community has been able to nominate a member of the municipal council, but the selection process has been coincidental, leading to a lack of interest within the community.
Tuero Chico	Before 2005 the relation with the municipality was marginal, but since the entry of the Morales government more intensive. The municipality facilitated initial infrastructure for the school, a sports field and provided support for an organization of riverside communities involved in the battle against contamination. The municipality supported talks with an NGO and central government to arrange for a second round of housing improvement. The community provided substantial labour (estimate: 130 days person), and monetary contributions for the implementation of public works. Due to a decline in population the community nevertheless loses ground in its request for additional services and staffing.
Ovejerias	The low ranking for Ovejerias is no surprise, as the highland community was completely abandoned after 2005, implying that no new investments were realized. Community members have been split up over 8 new river-side communities but have maintained their original organizational structure to facilitate the exchange of experiences and to lobby jointly for new projects.

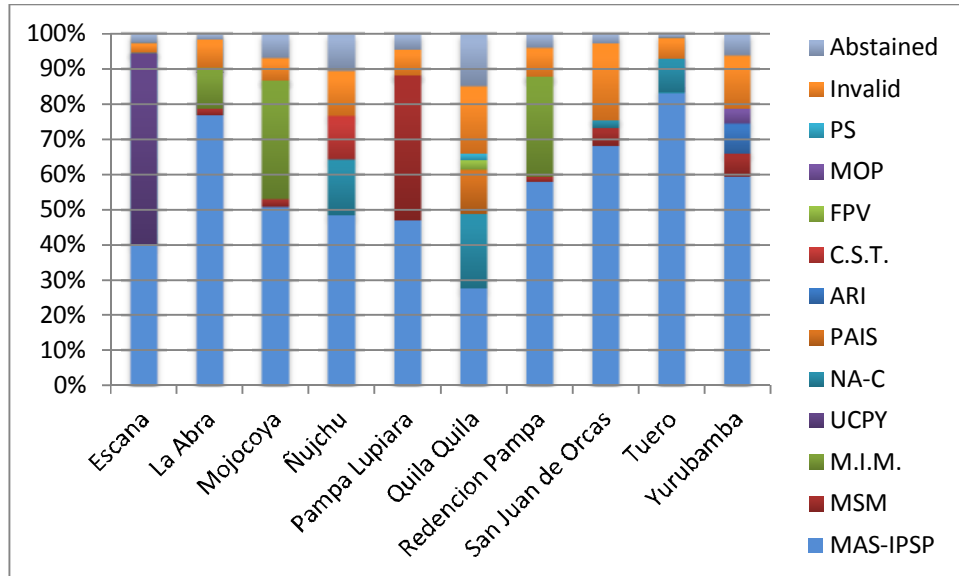
Source: Le Grand, IOB-decentralization study. Ranked according to intensity/benefits obtained

Appendix 5.7
Elections for prefecture, in 2005



Source: Tribunal Supremo Electoral.

Appendix 5.8
Votes for major in municipal elections, 2010



Source: Tribunal Supremo Electoral.

Appendix 6.1
Land distribution in Escana (irrigation growth pathway), based on formal titles in 2011

<i>Land area per household*</i>	<i>Frequency</i>	<i>Relative frequency</i>	<i>Surface area</i>	<i>Cumulative surface area</i>
0-1 ha	41	28%	20.7	20.7
1-2 ha	30	21%	45.3	66.0
2-3 ha	18	12%	43.8	109.8
3-4 ha	15	10%	49.8	159.5
4-5 ha	5	3%	22.4	182.0
5-6 ha	10	7%	55.7	237.7
6-7 ha	4	3%	25.8	263.4
7-8 ha	6	4%	45.3	308.7
8-9 ha	4	3%	33.4	342.1
9-10 ha	4	3%	38.8	380.9
10-11 ha	5	3%	52.6	433.4
11-12 ha	0	0%		433.4
12-13 ha	1	1%	12.3	445.7
13-14 ha	1	1%	13.1	458.8
> 14 ha	1	1%	16.6	475.3

Source: INRA, own elaboration.

*Appendix 7.1
Calendar of festivities in dryland communities, 1996*

<i>Month</i>	<i>Talahuanca</i>	<i>Pampa Lupiara</i>	<i>Yurubamba</i>	<i>Qochapampa</i>
January	6 Reyes Ch'alla and celebration with plough-oxen	6 Reyes	Reyes	
February	Carnival (Tinka Alcalde Y Pukara)	Carnival (Pukara)	Carnival Candelaria (Ch'alla crops)	Carnival de Tentación Challa Pachamama San Francisco
March	12 Nomination Alcalde			Challa
April	16 Pascua			Marking sheep
May	3 Cruz 26 Espiritu (Oxen) 25 Chuquisaca		27 Día De La Madre	Cruz (Challa) 27 Día Madre
June	24 San Juan (Ritual sheep) 28 San Pedro (Ritual cows)	San Juan	24 San Juan (Challa sheep)	
July	Marking cows and oxen	Santiago	26 Concepción	
August	2 Día Del Indio 6 Aniver. Bolivia 9 (Víspera) 10 San Lorenzo	17 Fiesta De La Escuela	Qh'oa Pachamama 6 Aniv. Bolivia Y Escuela 21 Virgen Copa- cabana	6 Aniversario De Bolivia
September	13 - 15 Guadalupe (Co- rrida Toros)	Guadalupe	15 Virgen Del Abra	Tata Markiri (Fiesta Comunal) 8 Guadalupe Almas San Miguel 20 Fiesta Qhara-Qhara
October		Rosario		Challa Pachamama 10 Fiesta Quirpe
November	1 Todo Santos	Todos San-	1 Todo Santos	1 Todo Santos
December	25 Christmas	8 Concepción	Jarkachis (frost)	Sta. Barbara

Source: PIED-Andino, own elaboration.

Appendix 7.2
Exchange mechanisms in Cochapampa, 1996

- *Choq'o* or *mink'a*; households invite a group of people to work together and in exchange gives them food and *chicha* (maizbeer). This is mainly done by richer families.
- *Al partir*; one family provides for the land, organic fertilizer and labour, the other family contributes with seed and chemical fertilizer. They divide the production (between family members or with people from outside the community).
- *Ayni* of livestock; one family gives their animals in custody to another household. The other household receives the organic fertilizer (between neighbours and family members).
- *Yunta* for work; provision of *yunta* labour for one-day, which is returned later again by one man or two women's days of work (between neighbours and family members).
- *Chulla puray*; between two families that each have one oxen. The pair of plough-oxen first works for the first family and then for the second family.
- Lending donkeys; exchange of donkeys to collect and transport organic fertilizer (between neighbours and family members).
- Work for use of donkey; exchange of labour for the use of donkeys for the trilla (grinding of grain) or to transport potatoes (between neighbours).
- Emergency lending; loans between households for US \$5-\$20 for a limited period without charging interest.
- Commercial lending; loans between \$100-\$200 for an interest rate of 3 to 10% on a monthly basis (between neighbours and people within the network of regular contacts).
- Lending in potato seeds; one households may lend up to 10 pesadas of potato seed, and returns the equivalent after the harvest in money (between trusted people).
- Advance payments by commercial traders: traders from Ocurí and elsewhere pay 20 to 30 Bs. for each *pesada* before the festivities (Carnival) and come after the harvest to recollect the produce.
- *Chapara*; during harvest families come from different places and bring rice, sugar, clothing etc. in exchange for part of the production (unequal exchange).
- Lending in seed from IPTK; interested community members, that don't have seed or want to experiment receive 1 qq. of seed in exchange for the devolution of 1.25 qq. after the harvest.
- Lending in seed and pesticides for potato production. They receive seed and pesticides from PROSEMPA/IPTK and need to return about US \$20 for every more qq. of seed received after the harvest.

Source: PIED-Andino report on Cochapampa, own elaboration.

Appendix 7.3 Differentiation in specialization (potato vs. mixed production systems)

Potato is the predominant crop in relation to external inputs, labour involvement and sales. It underpins many of the differences between dryland communities. Communities and households use a different mix of labour, capital and inputs for potato production, and also relate in different ways to markets. The distinction between more intensive and less intensive agricultural production is clearly visible (see appendix 7.4) when we compare differences in potato production and inputs used in 1996, distinguishing between the *decline* and *growth* pathways and between communities with a strong focus on potato production (*decline potato* and *growth potato*) and those with a more mixed maize, wheat and potato oriented portfolio (*decline mixed* and *growth mixed*).

A first possible explanatory factor is a change in landholdings. As mentioned, patterns were varied for the *dryland* pathway, with three communities showing a declining trend in landholdings, and three with a smaller or larger increase. Appendix 7.7 illustrates that land is important, but certainly not the only factor, as labour intensity and the use of seed and external inputs play an important role. Tala-huanca (*growth mixed*) used practically the same area as two of the potato communities but ended up with only a fraction of their production levels. Time spent on potato production (in relation to other crops) varied between 80-83% in the potato communities, to only 30% in San Juan de Orcas. Households in Yurubamba – traditionally a potato-producing pampa area – spent almost five times more labour in potato production than San Juan de Orcas (*decline mixed*). Unsurprisingly, the community ended up with by far the highest levels of sales. Yurubamba used significantly less seed per hectare than Cochapampa, partly explaining the relatively lower production in kg/ha. Related factors are the existing rotation systems and fallow periods. Fallow periods are significantly longer in the communities at higher altitudes (mainly *decline pathway*), and practically absent in the low and temperate valleys (see appendix 1.1).

The decade before 1996 showed an extension of the agricultural cycle, and an overall reduction in fallow periods. This trend has been due to ongoing fragmentation of land and a further reduction of productivity levels, as well as the availability of chemical fertilizer, which allowed for continued production without the need for the soil to recover. Aramayo (1998) showed that *potato communities* made far more use of improved potato varieties, organic and chemical fertilizer, and herbicides and pesticides, the latter being important to deal with frequent crop diseases which may severely hamper production results. Although many of these changes have been promoted by external organizations, quite a number of crops and varieties were introduced by farmers themselves, also by exchanging seeds and products within their network or with neighbouring communities. The drought of 1982-1983 and subsequent relief efforts had a considerable impact on seed availability and innovation in the following years, and in the response of NGOs and several specialized state institutions. Only in a few cases did the private sector play a role. The availability and use of organic fertilizer largely correlates with total production levels, though there is a clear additional differentiation between the pampa (*growth potato*) and the remaining communities in terms of the external acquisition of fertilizer, both through direct acquisition as well as through credit. The use of organic fertilizer in *potato communities* doubled ongoing practices in the remaining communities, while for chemical fertilizer the frequency of application was eight times higher.

Only after 1995, Yurubamba intensified the use of fertilizer acquired from chicken farms in Sucre and the Rio Chico area, most of it directly acquired by truck-owners (who charged a fee of around Bs 3,000 for delivery of 5,000 kg of fertilizer) from within the community, indicating the importance of changes in the external context. The use of chemical fertilizer is practically absent in communities with a stronger emphasis on maize production. Aramayo (*ibid.*) also found strong differentiation be-

tween socio-economic strata. Among the lower income strata the difference in the application of chemical fertilizer between the two groups of communities is only 3:1, but this gap increases to almost 9:1 for richer households. For organic fertilizer, the difference is almost negligible for the lower income strata, and only 2:1 for higher income strata. This implies that richer families in communities with high potential for potato production made by far the most intensive use of external inputs. These households have been able to accumulate capital and resources, partly also with external support.

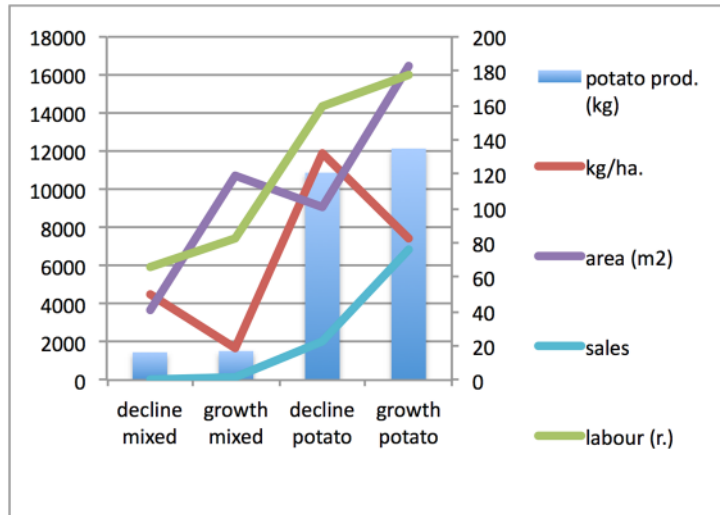
Appendix 7.5 illustrates the differences in the use of *yunta* (oxen-plough) and internal and external labour, paid for either in cash, in product, or through exchange mechanisms such as *ayni*, based on the application of around 25 *quintales* of potato, for most communities roughly equal to 1 ha of production. Combining family and external labour most households spent between 100-120 days, but differences in the use of external labour and capital were considerable, in particular again among the *growth-potato* communities. Households in the latter group often rented 'modern equipment' like tractors, for around 2.5 hours per hectare. The *mixed production* communities hardly attracted additional labour except through exchange mechanisms such as *ayni*, and only a few households in San Juan were able to access tractors. As they ended up with the lowest production and sales levels, it is not surprising that they could not invest in external inputs or additional labour.

Most of the traditional farming equipment, such as the *yunta* (oxen-plough) or *chaquitaccla* is still very similar to the instruments encountered before the land reform of 1952-1953. The main exception is the widespread use (especially among the richer households) of chemical fertilizer and, only for a few communities, the introduction of tractors and other equipment. While initially there was interest in mechanical traction, this only had a more systematic impact in the *pampa* communities. Inappropriate use of tractors may severely damage soils, and is hardly suitable for communities with more inclined slopes or terraces. Among the *potato communities*, households in Cochabamba most frequently used the *yunta* (oxen-plough), but still needed 20 days of additional labour compared to the households in the *pampa* communities making use of tractors. Finally, the substantially higher production levels among the *potato* communities allowed for a larger share of sales and an equally lower share for consumption.

The analysis above illustrates differences in potato production in relation to landholdings, labour, fertilizer and other inputs, and the destination of the production in terms of consumption, sales and exchange. The picture for wheat is similar in terms of the higher production levels in the communities with high potential for potato production.

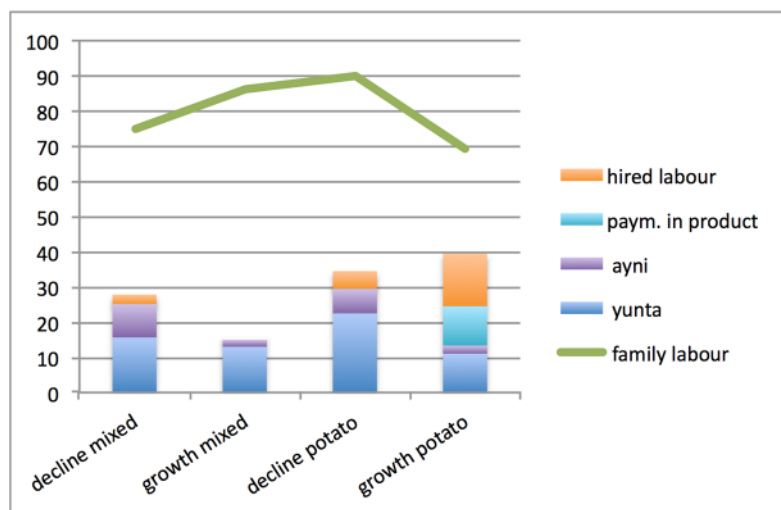
The surveys brought out a number of constraints that affect production at the household and community level. In Talahuanca, even with relatively large landholdings and substantial labour invested in potato production (comparable to Pampa Lupiara), due to limited soil conditions for potato production, limited availability of organic fertilizer and low sales, households didn't have the ability to extend the use of chemical fertilizer or to hire additional labour. For San Juan the restrictions resulting from the agricultural calendar (limited and irregular rainfall) led to very high temporary migration rates.

Appendix 7.4
Potato production in dryland pathways, 1996



Source: PIED studies, own elaboration. Note: sales in Bs. (r=right axis).

Appendix 7.5
Family labour, use of yunta (oxen) and external labour (days/ha), 1996



Source: PIED-Andino, own elaboration. Note: based on 25 qq of potato seed for roughly 1 ha; the growth potato communities made significantly more use of tractors (on average 2.5 hours vs. 0-0.5 hours for the other communities).

Appendix 7.6
Coverage of seed projects Aprocay (areas, production levels and nr. of families)

Crop	Ha		Production quintales*		nr. families	
	1994	1995	1994	1995	1994	1995
Grain (seed)	66.8	6.5	1,388	169	91	10
Commercial grain	0	39	0	780	0	60
Improved barley seed	0	5	0	120	0	10
Bean (commercial seed)	0	1.5	0	0	0	12
Barley	0	90	0	2,160	0	90
Potato improved seed	11	0	3,340	0	45	0
Total	77.8	142	4,728	3,229	136	182

Source: Informes ACLO. Note: 1 quintal=48 kg. The table is ranked from poor to rich, with the richest households (P. Ortiz/Pachacopa) producing the highest levels.

Crop production (kg) for eight families, 1996

Families	Potato			Barley	Grain		Total
	Sani imilla	Kallpa runa	Other varieties	barley grinon	trigo Rendición	trigo chileno	
C. Ortiz	816	0	0	0	0	0	816
Nunez	1,728	0	672	0	0	528	2,928
Cayo	0	1,776	13,248	3,696	1,536	0	20,256
Cruz	4,128	1,776	720	0	0	768	7,392
Vela	14,064	240	1,152	0	0	288	15,744
Quispe	14,688	0	0	0	0	336	15,024
Pachacopa	14,832	11,904	0	2,256	2,352	0	31,344
P. Ortiz	28,992	0	0	4,656	0	0	33,696
Total	79,296	15,744	15,792	10,656	3,840	1,920	127,248

Source: PIED household survey.

The poorest family (widow Ortiz) did not participate in the association and sold little of its produce. The other poor households (Cayo and Nunez) all worked about 50% of their time in agriculture as day laborer (*peon*) for other families, and also were hardly able to sell to the association. Two intermediate families (Quispe and Cruz) had important functions in the association and sold about 80% of their production to Aprocay. The richest family (P.Ortiz), a *mozo*, worked in the early years with the association, but in 2011 only sold for his own account directly to intermediaries. He assumed almost 70% of all sales and in fact started to compete with the association with his own mill, shop and the provision of services and transport. This was largely due to his access to resources: the availability of around 8 ha land (some of it rented) and his ability to hire substantial manpower (20-30 *peones* during harvest) and pay for the rental of tractors were also made possible by the additional income from the harvest.

Appendix 8.1
Irrigation projects and activities in survey communities

<i>Year</i>	<i>Community</i>	<i>Institution</i>	<i>Modality</i>	<i>Bene- ficiaries</i>	<i>Contribution (days/hh)</i>	<i>Costs (Bs)</i>
1983	Escana	PCHN	construction	50	5-40	105,000
1983	Escana	PCHN	construction	12	8-50	6,300
1983	Escana	PCHN	construction	85	8-50	10,000
1983	Escana	PCHN	construction	20-40	8-50	35,000
1987	Escana	CARITAS	construction		5-44	
1987	San Juan	Cardinal Maurer	construction	8	15	
1988	Quila Quila	PCHN	construction	50	40-60	80,000
1988	Quila Quila	PCHN	construction	40	80-120	105,000
1988	Quila Quila	FSE	construction	0	40-100?	
1988	La Cañada/RP	PCHN	construction	60		105,000
1990	La Abra	PCHN-CORDECH	construction	45	5-15	
1990	Wasa Ñucchu	PCHN	construction	45		
1991	Sundur Huasi	CARITAS	construction	25	30 days	
1991	Sundur Huasi	community	implementation			
1993	Quila Quila	Plan				
1994	Yurubamba	IPTK	construction	8-15		
1995	Escana valley	Proyecto Escana	construction	300 hh	labour and cash	+/- US \$8 million
1995	Tuero	CARITAS	construction	33		
1995	Wasa Ñucchu	FAE-Plareg	construction	45	8-12	
1996	La Cañada	Proagro				
1996	La Cañada	Municipality				
2003	La Abra	FPS/PRONAR (50%)	construction	30	labour	26,722
2003	Escana	Municipality	implementation	ld.		1245
2003	La Cañada	Municipality/Evo				
2003	La Cañada	Cumple	study	n.a		61,210
2004	Escana	Municipality	implementation	200-300		3,815
2006	Ovejeria	Municipality	construction	2		19,933
2006	San Juan	Municipality	study	n.a.		13,659
2006	Wasa Ñucchu	Municipality	study	n.a.		41,024
2007	Escana	Municipality	extension	ld.		433,921
2007	La Cañada	Municipality	construction	13	100-250 days	303,272
2008	Escana	Municipality	extension	ld.		72,108
2008	La Cañada	Municipality	construction	12		141,186
2008	San Juan	Municipality	Constr. <i>atajados</i>	-	12-20 days / Bs 800 each	58,291
2008	Talahuanca	Municipality	Constr. <i>atajados</i>	30	idem	
2009	Cochapampa	Municipality	construction	30/47	7 each	
2009	San Juan	Municipality	Constr. <i>atajados</i>	3 hh/ <i>atajado</i>	3 each	
2009	Wasa Ñucchu	Programa Evo cumple	improvements	majority	12 each	
2010	Escana	Prefecture	extension	ld.	all	

Source: PIED-Andino reports, VIPFE, various project documents, own elaboration.

Appendix 8.2

Differentiation in irrigation systems and productive outcomes

Following table 8.1 a summary is given of the main irrigation systems identified:

The first group of interventions relates to small-scale gravity-based systems, some of them upgraded and extended in a number of valley communities. Systems in Quila Quila and Escana date from far before the land reform. These systems are built in the form of simple canals transporting water from the main source to individual fields. As response to the drought of 1982-1983 the PCHN supported the upgrading or extending of these systems. Overall, these systems remain dependent on rainfall, principally guaranteeing a minimal harvest and the extension of fruit production, but only in Escana had this led to a substantial rise in sales.

The second group of small-scale riverside systems includes Tuero Chico, la Abra, Ovejerías/Río Chico and Wasa Ñucchu. They obtain access to irrigation from major rivers in the area. The irrigated area is generally flat and concentrated, with possibilities for mechanization and intensive agricultural production. Parts of these systems were inherited from the hacienda. Two communities benefited from large-scale land reclamation efforts and irrigation systems built or improved with support from PNCH and a few NGOs. One community obtained irrigation water directly from the river, while in the other cases shorter or longer canals were built upstream. The use of cement increased the provision of water at the level of individual plots, and the almost continuous availability of water led to an open (without shifts) and intensively used system in a relatively small area. The main advantage of these systems is the almost continuous availability of irrigation water throughout the year, generally allowing for a double harvest and in practice implying the almost complete abandonment of production in the dryland areas available to these communities. The biggest disadvantage of these systems were the constrained land area, which limited access for young households and left them little alternative than to migrate, and the unpredictable and often uncontrollable river currents, which led to recurrent flooding, loss of land, destruction of irrigation infrastructure and contaminated water sources. In the initial stages this required continuous adjustments to different levels of soil fertility.

The third group of mixed systems gives an entirely different perspective and includes La Cañada and Escana (in its second phase). After initial extension of the simple canal infrastructure Escana now has a large dam and sophisticated sprinkler irrigation system (see next section). While initial interventions in Redención Pampa started in 1995-1996, after 2005 – and in a relatively short timeframe – a wide spectrum of irrigation systems was implemented, varying from wells, lagoons, small river dams (*badenes*) and several larger dams. These dramatically changed the agricultural calendar, with an extension in irrigation from originally small plots to more extended areas of about 2 ha per family, allowing for two or three harvest a year. The new production system requires far more labour, external inputs, machinery and technical management than the prior dryland circumstances.

Appendix 8.3
Main outcomes of irrigation for pathways and related systems

<i>Pathway/ characteristics</i>	<i>Decline marginal</i>	<i>Decline riverside / growth riverside (only Wasa Ñucchu)</i>	<i>Growth intensification</i>	<i>Growth intensification</i>
Irrigation systems	Small scale gravity systems	Small medium scale river fed / continuous irrigation	Large dam / reservoir and sprinkler system	Mix of large and small scale individual and collective
Maximum estimated bruto income per ha.	US \$300-500	Max. US \$8,500 (Rio Chico)	US \$5,000	US \$2,000
Land market	No	Yes, mainly in Rio Chico.	Yes	Gradually, but only sales within community or with neighbouring communities
Implications for production system	Gradual reduction	Livestock is completely separated from irrigation fields	Livestock is completely separated from irrigation fields	Difficulties, due to regular incursions and inadequate separation
Sustainability	Yes, with regular maintenance and adjustments by community members, some systems are interrupted	Affected by contamination and recurrent land loss. In Rio Chico annual recurrent investments are considerable	System is vulnerable to colmation of dam, high maintenance costs, recurrent replacement of sprinklers	Mostly individually maintained, risk of gradual lowering of groundwater.
Impact on migration	Limited.	None. In fact 3 out of 4 communities showed a strong increase in migration, possibly due to lack of space for inheritance of land under irrigation. Only Wasa Ñucchu has been growing, basically due to alternative income sources (cooperative)	Some return migration, but also increasing double residence. In the community is high demand for labour.	Some return migration, also due to high labour demand.

Appendix 10.1
Examples of collective action efforts in communities

- Road construction efforts have been very intensive in communities like San Juan de Orcas and La Abra, but also in more accessible communities like Sundur Wasi and Pampa Lupiara. In San Juan de Orcas, after initial lobbying, the community received support from at least three different institutions, and together with three other communities, they worked on a large stretch of the road between Sucre and the community. Road construction was mainly done with picks and sticks and took about one and a half years of almost permanent participation. Community members rotated and participated for about three months each, receiving compensation in the form of food aid, with men doing most of the road clearing, and women preparing meals and fetching water. In Pampa Lupiara, which already had rudimentary road access, improvement work required seven days in 1980 and several days a year in recurrent road maintenance.
- The construction of a new primary school in Tuero Chico in 2001 took 40 days/household, the building of a secondary school in San Juan de Orcas in 2008 took four months, while subsequent maintenance typically takes one day (refurbishment, painting etc.).
- The building of health centres ranges between seven days/household for the extension of the existing health centre in San Juan de Orcas to 11 days for each of the 44 members for the complete new building in Cochapampa.
- The building of a community centre in Tuero took 15 days in 2008.
- The construction of a sports field in San Juan de Orcas in 2001 required between 15 and 30 days of labour participation of the community (*Ayllu* Yucas) directly involved. For those not contributing, a counterpart contribution of Bs 30 was requested.
- For the construction of drinking water systems in La Abra some households contributed 82 days (but others left halfway, as they discovered that they would probably not benefit). In Tuero Chico, each member spent 30 days and contributed Bs 50 in 1999. In San Juan de Orcas they also spent about one month, in Talahuanca only six days (as the construction only included 10 small water points distributed among the community), and in San Juan only one day of assistance with perforations of boreholes.
- In housing, community members in Tuero Chico participated (but not full-time) during eight months of the year for the complete rebuilding of their already improved houses, when those were affected by a major flood weakening the basement and increasing the danger of collapse.

Appendix 11.1
Pathways, communities and selected trends

Trends*	decline dryland				decline irrigation					growth dryland			growth irrigation		
	OV	CPP	SJ	SJDO	SW	QQ	LA	TC	OV-R	TL	PL	YBB	WN	LC	ES
Community															
Demographic change	--	--	--	-	-	-	--	--	-	+	+	++	+	+	+
Agric. production/household	--	--	--	--	-	-	-	-	-	-	-	-	+	++	++
Agric. prod. <i>per capita</i>	-	-	-	-	-	-	0	0	-	0	0	0	+	++	++
Increase in freq. harvests	-	-	-	-	+	+	+	+	++	0	0	+	++	++	++
Livestock small	--	-	-	+	-	-	-	-	-	+	-	-	--	-	--
Livestock large	--	+	0	-	-	0	-	+	-	+	-	+	+	--	-
Levels of mechanization/prod. equipment	-	-	+	-	-	-	-	+	+	--	++	++	++	++	++
Household resources	--	-	+	+	+	+	+	+	+	+	0	++	+	++	++
Accessibility	--	+	+	++	+	-	+	+	++	0	+	++	++	++	++
territorial change/interaction	--	--	-	--	-	-	-	-	+	-	-	0	-	+	+
Status (nucleo/ subcentralia)	-	-	+	++	-	++	-	-	-	-	++	++	+	++	++
Splitting (-)/joining (+)	--	--	-	+	+	-	--	-	-	-	+	-	+	--	-
level of public services	--	+	+	+	+	-	++	++	++	-	+	+	+	++	++
Primary school/ enrolment trend	--	--	-	-	-	-	--	--	-	+	+	+	+	+	+
Secondary/enrolment	-	-	-	++	-	-	-	-	-	+	++	++	-	+	+
Access to boarding fac.	-	-	-	++	-	-	+	-	-	+	-	-	+	+	++
Nr. of bachilleres	-	-	+	+	+	-	++	+	+	-	++	++	++	++	++
Health services	--	+	+	++	+	+	+	++	++	-	++	++	+	++	++
Housing improvement	--	+	+	++	+	-	++	++	++	-	-	-	+	+	++
Drinking water	--	+	+	+	+	+	+	++	++	-	-	+	+	++	++
settlement concentration	-	+	-	++	-	-	+	++	++	-	-	-	++	++	+
Strong double residence in peri-urban areas	-	-	-	-	+	++	-	-	+	++	-	+	-	++	++
Affected by <i>chagas</i> disease	-	0	-	0	-	-	--	--	--	0	0	-	--	-	--
Affected by drought	--	--	--	-	-	-	+	+	+	+	+	+	+	+	+
Other shocks (flooding, hailstorms etc.)	-	--	--	-	-	-	-	--	-	--	-	-	--	-	-
Intern. migration/ networks	-	-	-	-	+	-	++	++	+	-	-	-	++	+	++
National migration	+	+	++	+	+	+	+	-	+	+	+	+	+	+	+
Temporary migration	-	--	--	-	-	-	--	--	-	-	+	+	-	+	-
Land degradation/abandoning	--	--	--	-	-	-	-	-	-	-	+	+	+	+	+
Land fragmentation	+	--	-	-	-	-	--	--	--	-	+	+	--	+	+
Incipient land market	--	--	-	-	-	-	-	-	++	--	-	+	+	+	+
Market access	--	--	-	+	-	-	+	+	++	--	++	++	+	++	++
Wealth accumulation ind. households	-	-	-	+	-	-	-	-	-	-	+	++	+	++	++

Trends (continued..)	OV	CPP	SJ	SJDO	SW	QQ	LA	TC	OV-R	TL	PL	YBB	WN	LC	ES
Prevalence exchange mechanisms	--	--	-	+	0	-	+	+	-	+	+	+	-	-	-
Organizational dynamics.	-	--	-	+	-	-	-	+	-	+	+	+	+	+	+
Major conflict incidence	-	--	--	-	-	--	--	-	-	+	+	-	-	+	+
Econom. agglom.	-	-	-	++	-	-	-	-	+	-	+	+	+	++	+
(Stronger) economic associations / supra-communal	--	-	+	-	-	+	-	+	+	-	+	-	++	++	++
Growing inequality	-	-	-	+	-	-	--	--	-	+	-	--	-	--	--
Cultural identity	-	-	-	++	-	++	-	-	+	+	++	+	-	+	+
Int. power relations	-	-	-	-	-	-	--	-	-	+	+	+	+	+	-
External articulation associations / <i>sindicato</i>	-	-	+	+	-	-	-	+	-	-	+	+	+	++	++
Political incidence (e.g. in municipality)	-	-	+	++	-	+	-	+	-	--	++	++	+	++	++
Access to municipal funding	--	-	++	+	+	-	-	-	?	+	?	-	++	++	++
Ext. interventions productive	-	-	-	--	-	-	-	-	-	+	++	+	+	++	++
Ext. interventions social services.	+	+	+	++	-	-	+	+	+	-	+	+	+	+	++
Labour constraint	-	--	--	-	-	-	-	-	-	-	+	+	+	+	+

Source: For those trends/factors that have not been included in previous tables/graphs, the assessment is either derived from other findings or based upon community reports, visits and interviews, own elaboration.

Note: ++ very strong, positive, + positive, 0 almost without change, - negative, -- very negative/very weak.

* Many of these trends are difficult to quantify and may fluctuate over time.

OV=Ovejeras; CPP=Cochapampa; SJ=San Juan; SJDO=San Juan de Orcas, SW=Sundur Wasi; QQ=Quila Quila; LA=La Abra; TC=Tuero Chico; OV-R=Ovejeras Rio Chico; TL=Talahuanca; PL=Pampa Lupiara; YBB=Yurubamba; WN= Wasa Nucchu; LC= La Cañada; ES=Escana;



Acronyms

ACLO	Acción Cultural Loyola
ADIC	Asociación de Desarrollo Integral Campesino
ALFALIT	Literacy programme (NGO)
ARVE	Asociación de regantes del valle de Escana
BAB	Banco Agrícola Boliviano
CAF	Comisión Andina de Fomento
CARE	International NGO
CAT-SAN	Catastro Integrado al Saneamiento
CEDEC	Centro de Estudios para el Desarrollo de Chuquisaca
CEPOS	Consejos Educativos Pueblos Originarios de Bolivia
CIDOB	Confederación de Pueblos Indígenas de Bolivia
CONAMAQ	Consejo Nacional de Ayllus y Markas del Qullasuyu
CORDECH	Corporación de Desarrollo de Chuquisaca
CORDEPO	Corporación de Desarrollo de Potosí
CSUTCB	Central Sindical Unitaria de trabajadores campesinos de Bolivia
DGIS	Directorate General for International Cooperation (Netherlands)
EBRP	Estrategia Boliviana de reducción de la pobreza
ENTEL	Telecommunications company (nationalized)
FAM	Federación de Asociaciones Municipales
FAO	The Food and Agriculture Organization of the United Nations
FAUTAPO	Fundación Educación para el desarrollo
FIS	Fondo de inversión social
FPS	Fondo Productivo Social
FSE	Fondo Social de Emergencia
GDP	Gross domestic product
GESPRO	Prog. Apoyo a Gestión de Inversión Municipal
HIPC	Heavily Indebted Poor Countries
HPA	High Potential Areas
IBTA	Instituto Boliviano de Tecnología Agropecuaria
ICCO	Interchurch Organization for Development Cooperation

IDB	Inter-American Development Bank
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
ILO	International Labour Organization
IMF	International Monetary Fund
INE	Instituto Nacional de Estadística
INIAF	National Institute for Agricultural, Livestock and Forestry Innovation
INRA	Instituto Nacional de la Reforma Agraria
IOB	Policy and Operations Evaluation Department (Netherlands Ministry of Foreign Affairs)
IPTK	Instituto Técnico Tomás Katari
JAE	Junta de Auxilio Escolar
JICA	Japan International Cooperation Agency
LDA	Ley de Decentralización Administrativa
LPP	Ley de Participación Popular
MAS	Movimiento al Socialismo
MDG	Millennium Development Goals
MIR	Movimiento Izquierda Revolucionario
MNR	Movimiento Nacional Revolucionario
NEP	New Economic Policy
NGOs	Non-governmental organizations
NOR-SUD	Non-governmental organization
ODA	Official development assistance
OTBs	Organizaciones Territoriales de Base
PAN	Programa de Atención de Niños y Niñas
PASA	Programa de Apoyo a la Seguridad Alimentaria
PASOS	Fundación participación y sostenibilidad
PCHN	Proyecto Chuquisaca Norte
PDC	Plan de Desarrollo Comunal
PDM	Plan de Desarrollo Municipal
PEIRAV	Programa Enseñanza e Investigación Riego Andino y Valles
PEN	Proyecto Educativo del Núcleo
PIED-Andino	Proyecto de Investigación de Estrategias de Desarrollo Andino
PIEN-riego	Proy. de Innovación Estratégica Nacional en Riego
PLANE	Plan Nacional de Empleo de Emergencia
PNC	Plan Nacional de Cuencas
PND	Plan Nacional de Desarrollo
PNR	Plan Nacional de Riego

POA	Plan Operativo Anual
PRACA	Emergency Relief Programme (national NGOs)
PROAGRO	Promotores Agropecuarios (National NGO)
PROCADE	Programa Campesino Alternativo de Desarrollo
PROINPA	Promoción e Investigación de Productos Andinos
PRONAR	National Irrigation Plan
PROSEMPA	Programa Nacional de Semilla de Papa
PRSP	Poverty Reduction Strategy Paper
SAI	Servicio Agrícola Interamericano
SEDUCA	Servicio Departamental de Educación
SIBTA	Sistema Boliviano de Tecnología Agropecuaria
SNDC	Servicio Nacional de Desarrollo de Comunidades
SNV	SNV Netherlands Development Organization
SUMI	Seguro Universal Materno Infantil
SWAP	Sector-wide approach
TCOs	Tierras Comunitarias de Origen (recognised indigenous territories)
UNCDF	United Nations Capital Development Fund
UNDP	UN Development Programme
UNEC	Cooperative for the commercialization of oregano
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	UN Children's Fund
USAID	United States Agency for Intern. Development
WHO	World Health Organization
WOTRO	Science for Global Development Programme



Glossary

Actas	Minutes
Adobe	Clay
Al partir	Exchange mechanism (sharing land or production)
Alcalde	Traditional authority, charged with ceremonial tasks
Anticrético	The renter pays owner a fixed sum at the start and receives this amount back after returning the land.
Arrendero	A worker on the hacienda
Atajados	Rainwater catchment basin
Autonomía	Autonomy (related to decentralization process / mandate for municipalities)
Ayllu	Indigenous community governed by a traditional organization; or kinship group
Aymara	Large indigenous group in Bolivia and Peru
Ayni	Reciprocal exchange of labour or products
Bachillerato	Secondary school diploma
Bachilleres	Students that finished secondary school
Bono Juanito Pinto	Conditional cash transfer, oriented to keep children in school and allow acquisition of learning materials
Cantón	A territorial unit below the level of municipality
Cargos	Community functions (like secretary general)
Carteras	Functions, see <i>cargos</i> .
Castellano	Spanish
Catastro	Cadastral
Catastro Integrado al saneamiento	Land registration
Ch'alla	Ritual celebration, for instance by pouring drink on the ground
Chagas	Tropical disease transmitted by an insect, sometimes called kissing bug
Chuño	Dried potato
Club de Madres	Mother Clubs
Colonizadores	Settlers
Colonos	Workers on the hacienda
Comité de vigilancia	Vigilance committee (related to municipal accounts)

Compadrazgo	Enduring relations with <i>compadre</i> , related, e.g., to ceremonies like baptism
Compadre	Godfather or ritual co-parenthood, close friend
Compañeros	Other community members
Comunario	Community member
Comunidad originaria	Community that remained outside the hacienda system
Conquistadores	Spanish colonial power (the conquerors)
Consejal	Municipal council member
Consejo Municipal	Municipal council
Corregidor	Formerly: lowest traditional authority nominated by the Spanish crown. Today, a function like mayor, nominated by the government, but often proposed by the community
Cosmovisión Andina	Andean worldview
Cumbres	Municipal summits
Curanderos	Local medicine man
Dirigentes	Community leaders
Empleada	Women working for urban households
Enganche	When a migrant labourer is hooked by a pre-payment into a longer term and often onerous contract
Estatuto campesino	statute defining rules for ‘farmers’
Estiércol	Manure
Ex-hacienda	Now independent community that used to form part of a hacienda
Faena	Collective work, usually involving all households
Feria	Local market
Forastero	Community member not being <i>originario</i> or having access to hereditary land
Hacendados	Owners of the hacienda
Haciendas	Large landed property
Hierbajeros	People who pay for the right to leave their cattle grazing in pastoral areas of other communities
Internado	Boarding centre
Juez de aguas	Traditional authority, ‘water judge’
Kanta runas	People coming to the community to work under a system of reciprocity
Kuraka	Indigenous political leader, in the past fulfilling an intermediary role between state and <i>ayllu</i>
Latifundio	Large landholdings (or haciendas)
Libros de actas	Minute book (held by the community organization)
Madre tierra	Mother Earth (or <i>pachamama</i>)
Mantas	Term used to describe agricultural areas in the highlands with communally controlled rotation

Marchas	Protests, demonstrations
Mercado campesino	Campesino (farmer) market
Mestizo	People of mixed descent (Indian and white)
Minifundio	Very fragmented landholdings
Mink'a	Collective work, generally in a rotating manner and among small groups, for instance to improve housing. The beneficiary provides coca and drinks
Mita	Compulsory labour service as a form of tribute (both under Inca and Spanish dominion)
Mozos	See <i>Mestizos</i>
Multigrado	Groups of pupils from different levels brought together in one class
Municipios	Municipalities
Núcleo	A higher level school with more facilities, surrounded by sectional schools. A similar status is given to health centres
Obra vendida	Work sold for a global price, in the context of this study generally tendered by municipalities.
Originarios	Originally: Person with land rights based upon his descent from previous owners with historical titles. Today also used in ex-hacienda communities for first owners.
Pampa	Flatland area
Pampa de puna	Ecological zone between aprox. 3.000-3.600m
Puna alta	Ecological zone above 3.800m.
Pachamama	Mother Earth
Peón	Day labourer
Plaza	Town square
Pongueaje	Obligatory service on the hacienda, practically in conditions of slavery
Postrera	Third harvest
Puna Baja	Lower <i>puna</i> area (aprox. 3.000-3.800m)
Quechua	Indigenous language, primarily spoken in the Andes
Quintal(es)	Quantity of product = aprox. 48 kg
Ranchos	Hamlets
Reducciones	Forced relocation and settlement concentration as part of Viceroy Toledo's efforts to control the indigenous population
Renta Dignidad	New pension system introduced by Morales government
Residentes	People who are originally from the community that have migrated to the city, but still retain their property rights.
Riadas	Heavy flooding
Ripio	Gravel, building material found in the river
Ritos	Ritual practices
Saneamiento	Land registration

Servidumbre	Slavery
Sindicato	Organizational structure introduced in ex-hacienda communities after the land reform of 1952-1953
Subcentralia	The organizational structure of a group of 5-6 communities together, also forming part of the hierarchy within the national farmer federation (CSUTCB)
Tasa	Land tax
Tatitos	An internal qualification to distinguish indigenous community members (in Pampa Lupiara) from the <i>mozos</i> or <i>mestizos</i> living in the community
Todos los Santos	All Saints
Tramitador	Person taking care of bureaucratic paperwork
Trueque	Barter
Tuberculos	Tuber, root vegetable
Usufructo	Temporary use (of land or other resources)
Valle templado	Temperate valley (2.000-2.800m)
Vecinos	People related to the hacienda
Vinchuca	An insect causing <i>chagas</i> disease; 'kissing bug'
Vivir bien/mejor	'Living good' or 'living better'
Yunta	Oxen-plough



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Samenvatting

Deze PhD studie richt zich op de analyse van ontwikkelingspaden van dorpsgemeenschappen in de Andesvalleien in Bolivia in een longitudinaal en vergelijkend perspectief. De eerste drie hoofdstukken gaan in op de bredere context en relevantie van het onderzoek, het theoretisch kader en een basisclassificatie van de ontwikkelingspaden. De hoofdstukken vier en vijf gaan in op de belangrijkste interne en externe actoren en instituties en hoofdstuk zes tot en met tien bieden een gedetailleerde analyse van trends in ontwikkelingspaden in zowel de productieve sfeer als in het publieke domein. Deze hoofdstukken gaan achtereenvolgens in op land en identiteit, droge en irrigatielandbouw, onderwijs en andere publieke dienstverlening. De laatste twee hoofdstukken geven een samenvatting van de ontwikkelingen in de verschillende ontwikkelingspaden en een reflectie op de theoretische bevindingen.

Hoofdstuk 1 plaatst de studie in de context van de ontwikkelingen in Bolivia en het internationaal gevoerde ontwikkelingsbeleid. De armoede in Bolivia is ook na 50 jaar ontwikkelingssamenwerking nog steeds zeer zichtbaar, maar veel minder uniform en statisch dan vaak verondersteld wordt. In die context is het van belang te analyseren waarom ontwikkelingen sterk uit elkaar of juist parallel lopen, en waarom sommige dorpen en regio's meer succes lijken te boeken dan andere. Bolivia heeft met name na de grote droogte van 1982-1983 een forse toename in externe steun gezien, die zich vertaalde in een breed scala aan ontwikkelingsparadigma's en ontwikkelingsinterventies, variërend van *basic needs* en integrale rurale ontwikkeling tot vergaande gemeentelijke decentralisatie. Al deze benaderingen en programma's zijn terug te vinden in de Andesvalleien in het noorden van Chuquisaca en Potosí, de regio waarop deze studie zich richt. Deze regio kenmerkt zich door een grote mate van diversiteit in landschappen en ecosystemen, en, zoals uit de studie zal blijken, aan een grote diversiteit in ontwikkelingspaden, variërend van geleidelijke groei en een zekere mate van accumulatie tot vrijwel totale leegloop. De overkoepelende onderzoeksvraag is:

Hoe kunnen we veranderingsprocessen in ontwikkelingspaden van dorpsgemeenschappen karakteriseren? Wat is rol van agency (inspanningen van huishoudens en het collectief) en instituties en externe actoren in deze veranderingsprocessen en in hoeverre zijn deze onderling gearticuleerd? Is er sprake van verdere differentiatie of van convergentie en van padafhankelijkheid of het creëren van nieuwe paden?

Hoofdstuk 2 schetst het theoretisch kader voor de studie. De analyse van de ontwikkelingspaden richt zich op een perspectief waarin het al dan niet voorkomen van pad-afhankelijkheid (path dependency) een belangrijke rol speelt. De veranderingsprocessen in ontwikkelingspaden worden ontleed in verschillende fasen en gelaagde processen die wederzijds op elkaar inwerken, waarin de 'uitgangssituatie' en daarna optredende gebeurtenissen of externe 'contingente' schokken van grote invloed kunnen zijn op het verdere verloop. Daarbij is het van belang om de eigen percepties en herinneringen van dorpen en dorpsbewoners mee te nemen, omdat deze kleur en richting geven aan hun handelen. In die dynamiek is de interactie tussen structurele factoren (land, instituties, demografische samenstelling etc.) en agency van groot belang. Agency maakt dat dorpen ruimte creëren om instituties te vormen en aan te passen en om nieuwe paden in te slaan, en krijgt vorm in nieuwe regels, rou-

tines en gewoonten, die op hun beurt weer tot spanningen of nieuwe aanpassingen kunnen leiden. In de Andesregio is het bestaan van formele en informele instituties en de daarmee gepaard gaande institutionele veranderingsprocessen van groot belang voor de dorpsdynamiek en voor de interactie met de buitenwereld. De dorpsorganisatie kent zijn eigen logica van besluitvorming, vooral gericht op het bestedingen van collectieve besluitvorming binnen de gemeenschap. Actoren gaan actief in de slag om toegang tot natuurlijke hulpbronnen en publieke diensten, maar ook om zich een betere positie te verwerven in relatie tot overheidsinstanties, gemeenten en NGOs. Daarbij wordt gebruik gemaakt van vele verschillende vormen van ‘collectieve actie’, maar ook van meer subtiele mechanismen, bijvoorbeeld gekoppeld aan de representatie van de eigen identiteit in vele verschijningsvormen. Collectieve actie gaat echter niet vanzelf, en is afhankelijk van talloze beperkende en versterkende factoren, die zowel intern als extern beïnvloed kunnen worden. Ontwikkelingsorganisaties spelen hierbij een belangrijke rol, omdat nieuw beleid of directe interventies niet alleen bijdragen aan de evt. opbouw van productieve infrastructuur of sociale diensten, maar ook direct of indirect doorwerken op lokale instituties, en daarbij zowel stimulerend als ondermijnend kunnen werken.

Hoofdstuk 3 gaat nader in op de onderzoeksregio en de gevolgde methodiek. Deze studie bouwt voort op een eerder en zeer uitgebreid onderzoek in 17 dorpen in de regio uitgevoerd in 1994-1997, waarin al deze dorpen en een selecte groep huishoudens in een volle jaarlijkse cyclus elke maand zijn bezocht. Tijdens dit eerste onderzoek werden de dorpsontwikkelingen sinds 1983 zeer gedetailleerd in kaart gebracht. In een tweede ‘herhalingsonderzoek’, dat plaatsvond verspreid over enkele maanden in 2010 en 2011 zijn 14 van deze dorpen opnieuw bezocht en is een vergelijkbare dorpsstudie en huishoudens survey uitgevoerd. Dit herhalingsonderzoek maakte het mogelijk om tot een longitudinale analyse en vergelijking te komen. Mede op basis van een clusteranalyse zijn de dorpen vervolgens geclassificeerd in vier hoofdgroepen of clusters van ontwikkelingspaden, en in een reeks van sub-classificaties voor verschillende domeinen. De hoofdclassificatie maakt een onderscheid in dorpen met een *krimpende* en *groeïende* bevolking tussen 1996-2011, en in dorpen met een concentratie op *droge landbouw*, dan wel met toegang tot *irrigatie*. De meer gedetailleerde classificatie gaat daarnaast in op verschillen in irrigatiesystemen en intensiteit, de ontwikkelingen in dienstverlening en in onderwijsaanbod, de (internationale) oriëntatie van migratiepatronen en het onderscheid tussen zogeheten *sindicato* en *ayllu* dorpen. Een eerste analyse laat zien dat de dorpen in het ‘groeipad’ het in productief opzicht beter deden over de afgelopen 15 jaar dan de dorpen met een krimpende bevolking, en de irrigatiedorpen beter dan de droge landbouw dorpen. Deze patronen zijn echter niet geheel eenduidig, en ook groei- en irrigatiedorpen kampen met de nodige problemen.

Hoofdstuk 4 inventariseert en onderzoekt de belangrijkste dorpsinstituties en organisatievormen. Ik ga in op de ontstaansgeschiedenis van dorpen en enkele problemen rondom het gangbare gebruik van ‘community’ (dorpsgemeenschap). Dorpsdynamiek, zeker over een langere termijn, laat zich moeilijk vangen in een statische analyse van dorpen op basis van bepaalde kenmerken. Wat alle dorpen in ieder geval bindt is het belang van gemeenschappelijke besluitvormingsprocessen in de dorpsraad, dat als belangrijkste forum fungeert voor het vastleggen van normen en regels, voor het stimuleren van collectieve actie, en voor de interactie met externe partijen. De eerder genoemde *sindicatos* zijn voortgekomen uit ex-hacienda’s, en hebben een andere ontwikkeling doorgemaakt dan de meer traditionele *ayllu* dorpen, die buiten de directe invloedssfeer van de hacienda bleven, maar wel degelijk geraakt zijn door de expansiedrift van het systeem van grootgrondbezit. Daarnaast zijn er verschillende andere samenwerkingsvormen op dorpsniveau en daarbuiten, die voor een deel extern geïnitieerd of gestimuleerd zijn. In dit hoofdstuk laat ik zien dat institutionele veranderingsprocessen beïnvloed worden door de omvang van dorpen, hun identiteit en ‘kritische massa’, door demografische veranderingen, door de invloed van nieuwe parallelle organisatiestructuren, door interne differentiatieprocessen en de aanwezigheid van ‘sociaal kapitaal’, en door externe interventies. Dorpen

spelen vaak proactief in op veranderingen in de externe context en gaan pragmatisch om met extern geïnitieerde parallelle organisatiestructuren, maar nemen verrassend vaak ook hun toevlucht tot onorthodoxe besluiten als de interne opsplitsing van dorpen. Initiële veranderingen, bijvoorbeeld in de structuur van de sindicatos, hebben vaak lang doorgewerkt, en uiteindelijk zowel geresulteerd in meer grip van de staat op lokale organisaties als vice-versa, getuige de recente ontwikkelingen waarbij de rurale bevolking meer invloed heeft gekregen in regionale en nationale politieke ontwikkelingen.

Hoofdstuk 5 verkent de veranderingen in de externe context en met name de rol en invloed van overheidsbeleid, semipublieke instanties, gemeenten en NGOs. Ondanks de 'omwenteling' van 1952 gebeurt er in de eerste decennia van achtereenvolgende militaire dictaturen weinig voor de rurale gemeenschappen. Pas na de grote droogte begin jaren tachtig groeit de belangstelling voor rurale dorpsgemeenschappen, met name onder multi- en bilaterale organisaties en NGOs. In de regio vertaalt zich dit patroon in een zeer ongelijke aanwezigheid en verdeling van investeringsmiddelen, programma's en uitvoeringsmodaliteiten, zowel op meso- als microniveau. Ontwikkelingsorganisaties tonen een constante verschuiving in focus en in presentie, en initiatieven sluiten vaak amper op elkaar aan. De gemeentelijke decentralisatie ingevoerd in 1994 brengt hier geleidelijk aan verandering in, doordat externe partijen meer geneigd zijn zich aan te sluiten bij gemeentelijke ontwikkelingsplannen en de cyclus van besluitvorming. Desalniettemin is de verdeling in projecten tussen dorpen, en met name ook tussen publieke en productieve infrastructuur erg wisselend, waarbij met name de fragmentatie van interventies in het oog springt. Terwijl de *krimp* dorpen langzamerhand de achterstand in publieke dienstverlening inlopen, blijft de focus in productieve infrastructuur vooral gericht op *irrigatie* en *groei* dorpen waarin externe partijen meer potentieel zien. De interactie tussen ontwikkelingsorganisaties en dorpen en huishoudens verloopt vaak moeizaam door gebrekkige afstemming in de prioriteitsstelling en in de selectie van doelgroepen, maar ook door het arbitraire gebruik van *incentives* (prikkels) of conditionaliteiten. Gemeentelijke decentralisatie brengt daar weinig verandering in, maar vergroot wel het gevoel van betrokkenheid van dorpen bij de eigen ontwikkelingsagenda.

Hoofdstuk 6 verlegt de focus naar een specifiek domein, waarbij land en natuurlijke hulpbronnen centraal staan, gekoppeld aan veranderingen in identiteit of in de perceptie daarvan. Land wordt niet alleen gezien als randvoorwaarde voor de landbouwproductie, maar geconceptualiseerd als basis voor de gemeenschappelijke identiteit, en voor de verhouding en opstelling tegenover derden, inclusief naburige dorpsgemeenschappen. Pas na de landhervorming kregen de sindicato dorpen toegang tot het land wat ze altijd al bewerkt hadden, terwijl voor de ayllu dorpen juist vaak een breuk optrad in de toegang tot land in de vallei. De historische druk, de nog voortdurende aanwezigheid van voormalige landheren en de toenemende schaarste maakt dat dorpen en huishoudens al het mogelijke doen om de zekerheid over toegang tot land te vergroten. Land, in de vele verschillende toegangsvormen, is daarmee voor vrijwel alle huishoudens de basis voor de eigen bestaanszekerheid. Landeigendom verschilt drastisch tussen dorpen en huishoudens, maar is zeker niet de belangrijkste factor. Veel belangrijker zijn de mogelijkheden voor intensivering in de landbouw en met name toegang tot irrigatie. De irrigatiedorpen doen het met veel kleinere percelen dan ook vaak veel beter dan de droge landbouw dorpen met ruimer grondbezit. Huishoudens proberen via verschillende kanalen duurzame toegang tot land te garanderen. Dit geschiedt zowel via collectieve actie gericht op het verkrijgen van landtitels, door een breed spectrum aan informele uitwisselingspraktijken (bv. landgebruik in ruil voor arbeid of inputs), door geleidelijke aanpassingen in overervingsmechanismen, als door nieuwe vormen van landwinning, en door regels op te stellen waarmee landdegradatie en verwaarlozing worden tegengegaan. Anders dan in de droge landbouwdorpen wordt in irrigatiedorpen land incidenteel zelfs aan buitenstaanders verkocht. Zelfs decennia na de landhervorming blijft grondbezit nog zeer ongelijk verdeeld. Pogingen van de centrale overheid om landeigendom beter vast te leggen verlopen

moeizaam, en leiden door het niet aansluiten bij lokale concepties tot ongeduld, verwarring en soms ernstige conflicten.

Hoofdstuk 7 gaat in op de ontwikkelingen in de productieve sfeer in de droge landbouwdorpen. De droge landbouw kenmerkt zich door een systeem waarin akkerbouw en veeteelt wordt gecombineerd en afgewisseld op hetzelfde land, en waarbij huishoudens risico's beperken door gewas teelt te spreiden over een groot aantal percelen in verschillende ecologische zones. Door klimaatverandering, en met name door enkele jaren van grote droogte en toenemende onregelmatigheid in regenval is de landbouw steeds onzekerder geworden. De *groei* dorpen doen het over het algemeen aanzienlijk beter dan *krimp* dorpen (waarvan sommige gedeeltelijk of zelfs geheel leegliepen), maar dat ligt niet alleen aan het potentieel. Terwijl de dorpen met concentratie op aardappelteelt het over het algemeen beter doen dan de meer gemengde akkerbouw dorpen, zijn er ook uitzonderingen. Lokale instituties en externe interventies spelen daarin een belangrijke rol. Door een serie van 'negatieve' feedback effecten raakte een van de aardappeldorpen in grote problemen, terwijl omgekeerd een van de meer marginale *groei* dorpen met gemengde gewasproductie zich redelijk wist te handhaven. Externe actoren zijn er amper in geslaagd om een antwoord te vinden op de ontwikkelingen in m.n. de *droge landbouw/krimp* dorpen. De nauwe en onzekere marges van de landbouwkalender, gekoppeld aan de dalende omvang van huishoudens, toegenomen schaarste van arbeid en geleidelijk dalende veestapels betekent dat op korte termijn interventies nauwelijks zoden aan de dijk zetten en dat er een permanente druk blijft tot migratie. Extern gefaciliteerde coöperatieve structuren bleken niet levensvatbaar, mede omdat ze amper aansloten bij de brede op risicospreiding georiënteerde landbouwproductie. Aan het belang van informele uitwisselingsmechanismen als bescherming tegen risico is weinig aandacht besteed. Opvallend is dat de dorpsorganisatie maar beperkte sturende invloed weet uit te oefenen op langdurige processen als landdegradatie en het 'verstek' laten gaan (*free rider behaviour*) van leden bij dorpsinitiatieven. De *groei* dorpen deden het over het algemeen beter, niet in de laatste plaats doordat ze veel meer steun ontvingen in de productieve sfeer, maar ook in dit geval liepen vele initiatieven door elkaar heen zonder elkaar te versterken. Een langduriger inzet en stapsgewijze aanpak hielp in enkele dorpen om bestaande machtsstructuren te doorbreken of tot betere productieomstandigheden te komen.

Hoofdstuk 8 zet de lijn van het vorige hoofdstuk voort met een analyse van de irrigatiedorpen en door een vergelijking te trekken met de droge landbouw dorpen. Toegang tot irrigatie leidt tot veranderingen in de landbouwkalender, in de mogelijkheden voor productie van verschillende gewassen en meerdere oogsten per jaar, maar ook tot grote diversiteit in waterbeheer en een veelal dynamisch stelsel van watergebruiksrechten. Het *irrigatie* cluster deed het in productief opzicht dan ook aanzienlijk beter dan het *droge landbouw* cluster. Dit leidde tot relatief hogere verdiensten en daarmee eveneens tot meer internationale migratie, met name onder jongeren. Vrijwel alle irrigatiedorpen wisten de productie per hoofd van de bevolking te handhaven op het niveau van 1996, en de dorpen met meer intensieve irrigatie bereikten zelfs een verdubbeling. Dat proces ging niet vanzelf. De meeste irrigatiedorpen laten diverse 'transities' zien in zowel de verschuiving van droge landbouw naar irrigatie, als tussen verschillende systemen. Dit proces vergde langdurige en zeer intensieve betrokkenheid van de bevolking en externe actoren. In dit proces leidden bestaande machtsverhoudingen (en waterrechten), en *free-rider* gedrag regelmatig tot conflicten, zowel binnen dorpen, als in de relatie met externe actoren, en ook hier bleek de dorpsorganisatie maar in beperkte mate in staat bij te sturen. Externe actoren hebben relatief veel meer aandacht besteed aan irrigatie dan aan andere productieve projecten, maar de investeringen zijn zeer ongelijk verdeeld. Daarnaast leidde de nadruk op het formaliseren van waterrechten tot *de facto* bestending van ongelijke toegang tot irrigatie. De *irrigatie/groei* dorpen tonen dat het mogelijk is om de landbouw ook voor jongere huishoudens weer aantrekkelijk te maken, maar

ook deze dorpen kampen nog met vele uitdagingen om tot een duurzaam productiesysteem te komen.

Hoofdstuk 9 gaat in op het grote belang dat dorpen hechten aan onderwijs en de ontwikkelingen in de afgelopen decennia. De roep om onderwijs dateert al van begin vorige eeuw, en enkele dorpen beginnen zelf met scholenbouw al direct na de landhervorming van 1953, maar het duurt nog tot midden jaren zeventig voor de massale verspreiding van basisscholen van start gaat. Halverwege de jaren negentig is in de dorpen pas de eerste middelbare school opgericht, en wordt een onderscheid gemaakt tussen kernscholen (*nucleos*) en omliggende scholen. In dit proces speelt de overheid zowel een sturende als een beperkende rol. Het onderwijsbeleid heeft de afgelopen drie decennia gezorgd voor een forse toename in onderwijsaanbod. De hervormingen in het beleid gaan echter uitermate traag en docenten zijn bijvoorbeeld amper geneigd om zich aan te passen aan de nieuwe concepten van de onderwijshervorming die in 1994 van start gaat. Dorpen verzetten zich verrassend genoeg tegen diverse aspecten van die hervorming, met name de plannen gericht op tweetalig onderwijs en nieuwe pedagogische benaderingen. De deelname van jongens en meisjes neemt fors toe, en gaat ten koste van hun inzet in met name het hoeden van kleinvee. Onderwijs komt daarmee steeds meer centraal te staan in het dorpsleven, maar wordt tegelijkertijd steeds meer gezien als belangrijke voorwaarde voor een leven buiten de landbouw en buiten het dorp. De kwaliteit van het onderwijs blijft evenwel gebrekkig door ongemotiveerde en vaak afwezige leraren, door het ontbreken van adequaat lesmateriaal, en doordat ouders amper in staat zijn kinderen te ondersteunen. Demografische veranderingen leiden met name in *krimp* dorpen tot samenvoeging van klassen en de dreiging van mogelijke sluiting. De dorpen met kern en/of middelbare scholen hebben het voordeel van 'early movers', maar ook daar dreigt inmiddels geleidelijke leegloop. De groeiende externe betrokkenheid en met name die van gemeenten heeft geleid tot de opbouw van vrij complementaire programma's die op de korte termijn scholing een impuls hebben gegeven. Dit leidt echter niet tot duurzame verbetering van de ontwikkelingsmogelijkheden binnen dorpen, en jongeren blijven massaal naar de stad trekken.

Hoofdstuk 10 analyseert tenslotte de veranderingen in publieke voorzieningen. De dorpen verschillen historisch sterk in hun ontwikkelingspatroon op dit terrein, hetgeen gedeeltelijk komt door verschillen in toegankelijkheid. De historisch beter toegankelijke dorpen hebben ook sneller toegang gekregen tot basisvoorzieningen als drinkwater en elektriciteit en een eerste gezondheidspost, en in een beperkt aantal gevallen programma's gericht op huizenverbetering. Dit proces heeft in verschillende 'rondes' plaatsgevonden, en veel van de basisinfrastructuur is in verschillende fases aangelegd om ook andere delen van een dorp te bereiken, dan wel geheel opnieuw uitgevoerd. In de loop der tijd is een groot verschil ontstaan tussen meer geconcentreerde dorpen, niet geheel toevallig ook de dorpen met irrigatie, waarbij huizenverbetering nog meer van belang was door het frequenter voorkomen van de ziekte van *Chagas*. In de laatste jaren hebben de *droge landbouw* dorpen echter een inhaalslag gemaakt en is ook daar vaker een patroon van dorpsconcentratie waar te nemen, wat indirect ook invloed heeft op de landbouw, en op de frequentie van interactie met de stad of de directe omgeving. Externe actoren hebben een belangrijke rol gespeeld in dit proces. De meeste interventies zijn, veelal in lijn met MDG-doelstellingen, echter aanbod gestuurd of gericht op 'gap-filling' en technocratische 'oplossingen' zonder zicht te krijgen op de daadwerkelijke behoefte en draagkracht op dorpsniveau. Doordat externe organisaties, zoals de gemeente, steeds meer aanbesteden, vermindert de verantwoordelijkheid voor implementatie en onderhoud bij de dorpsgemeenschappen. Dorpsparticipatie wordt hierdoor eerder ondermijnd dan gestimuleerd. De extern gestimuleerde vorming van bijvoorbeeld water- of gezondheidscomités draagt nauwelijks bij aan het versterken van de dorpsorganisatie.

In hoofdstuk 11 werk ik toe naar een integrale analyse van de differentiatie en convergentie van de verschillende ontwikkelingspaden.

- De *droge landbouw/krimp* dorpen hebben het meest te leiden gehad onder externe schokken, zoals jaren van grote droogte. Deze dorpen kampen met de grootste daling in *per capita* productie over de laatste 15 jaar. De marges voor risico strategieën om de terugkerende onzekerheid over regenval het hoofd te bieden werden steeds kleiner door de afname van vee en mest, door fragmentatie van landbezit en in een aantal dorpen door bodemdegradatie. Externe steun in de productieve sfeer was uitermate fragmentarisch en heeft weinig zoden aan de dijk gezet. Het is dan ook niet verwonderlijk dat ondanks de verbetering in voorzieningen niveau hier de grootste leegloop is opgetreden, waarbij migratie zich vooral op nationale bestemmingen richtte.
- De *irrigatie/krimp* dorpen deden het beter in productief opzicht, maar de fysieke beperkingen om nieuw land onder irrigatie te brengen, en terugkerende problemen met landverlies en of vervuild irrigatiewater leidden ook hier tot een vrij massale uitstroom van jongeren, ditmaal veel vaker naar internationale migratiebestemmingen, zoals Argentinië. Relatief kleine basisscholen, potentieel met sluiting bedreigd, spelen hierin ook een rol. Twee van de meer marginale irrigatiedorpen kampten daarnaast met interne geschillen, in een geval uitmondend in een conflict dat de samenwerking binnen het dorp jarenlang verlamde.
- De *droge landbouw/groei* dorpen hebben het in productief opzicht redelijk gedaan en *per capita* ongeveer het niveau van 15 jaar eerder vastgehouden. Bij twee van de drie dorpen is een zeker proces van accumulatie ontstaan, waarbij rijkere huishoudens in staat waren tot mechanisatie over te gaan en zelf de productie te vermarkten. Deze dorpen hebben langduriger externe steun gekregen en tot op zekere hoogte hiermee ook bestaande machtsverhoudingen weten te doorbreken. Ondanks het relatief lage publieke voorzieningenniveau (m.u.v. onderwijs) zien ook jongere huishoudens nog mogelijkheden in deze dorpen.
- De *irrigatie/groei* dorpen hebben alle drie relatief intensieve irrigatie, maar daarnaast ofwel mogelijkheden om extra land onder irrigatie te brengen, dan wel om andere natuurlijke hulpbronnen zoals grind te vermarkten. In alle drie bestaan inmiddels relatief effectieve associaties, en alle drie kennen ook een relatief hoog voorzieningenniveau. Ondanks vrij hoge migratie naar landen als Argentinië blijven deze dorpen aantrekkelijk voor latere terugkeer, en is de bevolking redelijk op peil gebleven. In twee van de drie dorpen speelde externe steun een belangrijke, welhaast buitenproportionele rol, hetgeen ook aanleiding gaf tot slepende conflicten.

Dit hoofdstuk gaat vervolgens nader in op de verandering in interne dynamiek, zowel op het gemeenschaps- als huishoudensniveau en de interactie met externe actoren. De bestaande instituties in dorpen lijken amper een antwoord te vinden op de groeiende problemen in de productieve sfeer, zoals de massale migratie, afwezigheid bij collectieve actie en verwaarlozing van landbezit. Nieuwe (en vaak extern ondersteunde) associaties zijn vrijwel alleen effectief in dorpen met redelijk intensieve productie en goede vermarktingsmogelijkheden. Zowel in de productieve als in de publieke sfeer zijn externe partijen er amper in geslaagd tot duurzame verbetering van infrastructuur of dienstverlening te komen. In de productieve sfeer is de balans daarbij ook duidelijk doorgeslagen naar de dorpen die meer potentieel lijken te bieden, terwijl de balans in de publieke sfeer, waarschijnlijk vooral door de 'middelende' rol van gemeenten, meer in evenwicht is. Binnen dorpen is de toegang tot projecten of diensten vaak zeer ongelijk. Dat leidt tot extra interventies, maar soms ook tot scheve verhoudingen en interne conflicten. Met name bij drinkwatervoorziening en huizenverbeteringsprogramma's is dat regelmatig het geval. Externe interventielogica's sluiten vaak niet aan op de lokale wensen en dynamiek, waardoor projecten op weinig 'ownership' kunnen rekenen, veelal leidend tot ineffectief gebruik en onderhoudsproblemen.

Hoofdstuk 12 vat de veranderingen in ontwikkelingspaden in een meer theoretisch perspectief. De dorpen hebben indrukwekkende veranderingen en zelfs complete transformatieprocessen door-

gemaakt. Niet altijd in positieve zin, en er is dan ook groot verschil tussen de door ontwikkelingsorganisaties beoogde ontwikkelingen en de dagelijkse realiteit. De analyse van de ontwikkelingspaden laat zien dat gebeurtenissen en ontwikkelingen uit een ver verleden nog lange tijd door kunnen werken. Dit geldt in het bijzonder voor de geschiedenis van dorpsinstituten, de mechanismen voor besluitvorming en voor zaken als landbezitsverhoudingen, maar vertaalt zich ook door naar hoe dorpen en huishoudens daar collectief en individueel mee omgaan. Terwijl de meeste ontwikkelingsinterventies plaatsvinden na de grote droogte van 1983, brengen dorpen hun eigen geschiedenis en ervaringen mee, variërend van pogingen tot het verbeteren van hun basisinfrastructuur, het krijgen van erkenning van dorpsgrenzen of landtitels, en het zich positioneren ten opzichte van buurdorpen of externe partijen als de overheid, lokale gemeenten en NGOs. Dorpspaden zijn verre van statisch, en vrijwel alle dorpen kenden op enig moment een interne breuk, de verschuiving van de bevolking of de productie van hoger naar lager gelegen delen of de vrij abrupte concentratie van woningen en voorzieningen in een zichzelf versterkend proces. Dit soort transities zijn te kenmerken als *critical junctures*, soms gedreven door externe schokken, in andere gevallen door intern conflict, maar met zekere regelmaat ook als gevolg van externe interventies. De evolutionaire ontwikkeling van dorpen wisselt dus sterk, waarbij dorpen weliswaar door vergelijkbare fasen heengaan, maar waarbij individuele dorpspaden sterk afhankelijk zijn van historische ontwikkelingen, zoals ligging, toegankelijkheid, demografische veranderingen, toegang tot natuurlijke hulpbronnen, en de presentie en acties van externe actoren. Lokale programma's en projecten, en het 'normaliseringsbeleid' in bv. onderwijs of rondom land of irrigatie leiden vaak tot onbedoelde bijeffecten en tot op zekere hoogte een inperking van de keuzevrijheid van dorpen, terwijl het recent doorgevoerde decentralisatiebeleid juist heeft bijgedragen aan het vergroten van de ruimte voor dorpsparticipatie in lokale ontwikkelingsprocessen.

Het initiatief van een kleine groep of de collectieve actie van het dorp kan snel tot een betere positie kan leiden, maar deze kan ook weer verloren gaan. Dorpen en huishoudens werken onderling samen om toegang tot voorzieningen te krijgen, maar zijn soms ook elkaars concurrenten. Collectieve actie is dus een context gebonden proces, waarbij externe actoren een stimulerende maar ook belemmerende rol kunnen spelen. In de literatuur wordt er te veel van uitgegaan dat mits aan bepaalde voorwaarden voldaan is, de capaciteit en het langdurige potentieel voor collectieve actie zal blijven toenemen. Deze studie laat zien dat dit een verre van vanzelfsprekend proces is. In de loop van de tijd is de balans tussen dorpsparticipatie en externe inbreng steeds verschoven, en in enkele gevallen is in plaats van *co-productie* het initiatief of de verantwoordelijkheid voor de uitvoering weer vooral bij externe partijen komen te liggen. Door demografische veranderingen, verkleining en veroudering van huishoudens ontbreekt ook steeds meer de wil en inzet om tot grootschalige collectieve actie te komen. Veel van de *mismatches* tussen externe interventiepraktijken en dorpslogica's komen voort uit gebrekkige of geheel afwezige *theories of change*, en uit een op 'oplossingen' gerichte praktijk, in plaats van een focus die zich vooral richt op het scheppen van de randvoorwaarden die dorpen en dorpelingen zelf in staat stellen om hun ontwikkelingspad te bepalen, ook als dat ver buiten de eigen dorpsgrenzen uitkomt. In een complex raamwerk van risicoafweging en een veelheid aan mogelijke strategieën kiezen dorpen en huishoudens uiteindelijk hun eigen weg, in plaats van de vele paden die anderen hen toebedenken.

Sustainable pathways or troubled development?



Summary

This PhD study uses a longitudinal and comparative perspective to analyse development pathways among rural communities in the Andean valleys of Bolivia. The first three chapters introduce the broader context and relevance of the research, the theoretical framework and a basic classification of the community pathways. Chapters four and five discuss the main internal and external actors and institutions, and chapters six through ten provide a detailed analysis of trends in development pathways in both the productive sphere and in the public domain. These chapters deal successively with land and identity, dryland and irrigated agriculture, and education and other public services. The last two chapters provide an overview of the developments among the different community pathways and reflect on the theoretical findings.

Chapter 1 situates the study in the context of developments in Bolivia and international development policies. After 50 years of development efforts, poverty is still very visible in the country, but it is far less uniform and static than often assumed. In this context it is important to analyse why development processes sometimes diverge and in other cases converge, and why some regions and communities seem to be making more progress than others. Bolivia experienced a sharp increase in external aid, in particular after the severe drought of 1982-1983, which brought on a wide range of development interventions and paradigms, ranging from *basic needs* and integrated rural development to profound changes in the field of municipal decentralization. All of these are evident in the Andean valleys in northern Potosí and Chuquisaca, the research area under study. This region is characterized by a high degree of diversity in landscapes and ecosystems, and, as this study shows, also by a great diversity of community pathways, ranging from gradual population growth and a degree of accumulation to almost complete community abandonment or collapse.

The overarching research questions are as follows:

How can we characterize change processes in development pathways of rural communities? What is the role of agency, institutions, and the collective efforts of households and external actors in these change processes, and how are these mutually articulated? Has there been further differentiation or convergence, and do we find path dependence or the creation of new pathways?

Chapter 2 outlines the theoretical framework of the study. The analysis of development pathways takes a perspective in which the presence or absence of path dependence plays an important role. The change in development pathways is analysed and unravelled in layered processes that mutually interact at different stages. The 'initial conditions' and subsequently occurring events or external 'contingent' shocks can have great influence on the further course of development. It is important to take into account the 'living' memories of communities and households because these colour communities' perceptions and give direction to their actions. In this dynamic, the interaction between structural factors (e.g., land, institutions and demographics) and agency is of great importance. Agency gives communities space to create or adapt institutions and to establish new pathways, which are translated

into new rules, routines and habits that in turn can lead to tensions or subsequent modifications. In the Andean region, the existence of formal and informal institutions and the associated institutional change processes was of great importance in community dynamics and interactions with the outside world. Community organizations had their own logic of decision-making, focused on the reproduction of community practices. Community actors engaged actively in the battle for access to natural resources and public services, but also to position themselves in relation to government agencies, municipalities and NGOs. They made use of many different forms of visible 'collective action', but also of more subtle mechanisms, linked to the representation of community identity in multiple forms. However, collective action did not automatically come into play. It was dependent on numerous restrictive and reinforcing factors that furthermore were acted upon by internal and external influences. Development organizations played an important role, as new policies or direct interventions not only contributed to the possible building up of productive infrastructure or social services, but also directly or indirectly impacted local institutions, sometimes stimulating them but often undermining them too.

Chapter 3 discusses in detail the research area and fieldwork methodology. This study builds on earlier, quite extensive research in 17 communities in the region conducted between 1994 and 1997. All communities and a selected number of households were visited every month during a full annual cycle. This initial in-depth research reconstructed in detail community developments from 1983 to 1996. In a second survey, spread over several months in 2010 and 2011, 14 of the same communities were revisited, and a similar community study and household survey were conducted. This second survey made it possible to analyse the communities from a longitudinal and comparative perspective. Partly based on a cluster analysis, the communities were classified into four main groups or clusters of development pathways and a series of sub-classifications for different domains. The main classification distinguishes between communities with shrinking and growing populations between 1996 and 2011, and between communities with a concentration on dryland farming and those with access to irrigation (implying a range between *decline/growth* and *dryland/irrigation* pathways). A more detailed classification differentiates between irrigation systems and intensity, developments in public services and education, a national or international orientation in migration patterns and the distinction between so-called *sindicato* and *ayllu* communities. An initial analysis shows that the communities in the *growth* pathway did better over the past 15 years in productive terms than the *decline* pathway communities with their shrinking populations, and *irrigation* pathway communities did better than the *dryland* pathway communities. However, these patterns are not entirely self-evident, and *growth* and *irrigation* pathway communities also faced multiple problems.

Chapter 4 identifies and analyses the main community institutions and organizations. The history of these communities are discussed along with issues related to common perceptions of 'community'. Community dynamics, especially over a longer period, are difficult to capture in a static analysis of communities on the basis of a few selected criteria. Common to all communities was the importance of the shared decision-making process taking place in the community assembly, which acts as the main forum for the definition of the 'rules of the game', to stimulate collective action and manage interaction with external parties. The aforementioned *sindicatos* emerged from former haciendas, and differ in their historical development from the more traditional *ayllu* communities, which largely remained outside of the direct influence of the hacienda, but were nevertheless also much affected by different forms of external encroachment. In addition to the *sindicato* and *ayllu* organizational structure, there were several other forms of cooperation at the community level and beyond, some of them externally initiated or stimulated. This chapter demonstrates that institutional change processes were influenced by the size of communities, their identity and 'critical mass', by demographic changes, the impact of new parallel organizational structures, internal differentiation processes, the pres-

ence of social capital, as well as by external interventions. Communities often responded proactively to changes in the external context and dealt in pragmatic ways with externally initiated parallel organizational structures, but they resorted surprisingly often to unorthodox actions, such as the internal splitting up of communities. Initial changes, for example in the structure of the *sindicatos*, often had long-term consequences, eventually resulting in more top-down state control of local organizations as well as vice-versa, as evident from recent developments in which the rural population increased its influence and leverage in both regional and national political fora.

Chapter 5 explores changes in the external environment and, in particular, the role and influence of government policies, semi-public agencies, municipalities and NGOs. Despite the ‘revolution’ of 1952-1953, and especially because of the almost uninterrupted range of military dictatorships in the following decades, the situation in rural communities hardly improved. Only after the severe drought in the early eighties did interest in rural communities increase, especially among multilateral and bilateral organizations and NGOs. In the study region, this translated into a very uneven presence and distribution of investments, programmes and implementation modalities, at the meso-level and at the micro-level. Development organizations exhibited a constant shift in focus and presence, with their initiatives often barely mutually related. The municipal decentralization process initiated in 1994 led to gradual changes, principally because other external parties became more inclined to fine-tune their activities with municipal development planning efforts and the related cycle of decision-making. Nevertheless, the distribution of projects between communities, and especially between social and productive infrastructure remained erratic, and the overall intervention pattern remained rather fragmented. While the shrinking *decline* pathway communities gradually managed to improve their lagging service delivery, provision of productive infrastructure remained largely focused on the *growth* and *irrigation* pathway communities in which external parties perceived more potential. Interaction processes between development organizations and communities and households were often characterized by misunderstandings and mismatches in priority setting and in selection of target groups, but also by arbitrary use of incentives and conditionalities. In this aspect, municipal decentralization brought little change, although it certainly increased the involvement of communities in their own development agenda.

Chapter 6 shifts the focus to a specific domain, in this case, land and natural resources, also linked to changes in or shifting perceptions of identity. Land was not only seen as a precondition for agricultural production, but conceptualized as the basis of a common identity and for relationships and attitudes towards third parties, including neighbouring communities. The land reform gave the *sindicato* communities access to the hacienda lands they had been working before, while the *ayllu* communities were faced with reduced access to land in the valleys. The historical pressures, the continuing presence of former landlords and the increasing land scarcity led communities and households to do everything in their power to increase security of land access. Land, in its multiple forms of access, was for virtually all households the basis of their livelihood. Land ownership differed dramatically between communities and households, but it certainly was not the most important factor. Far more important was the potential for intensification in agriculture and, in particular, opportunities to access irrigation. Even though they had much smaller plots and land ownership, irrigation communities were often much better off than the dryland communities with their larger landholdings. Households tried to guarantee sustainable access to land through various channels. This was done through collective action aimed at obtaining land titles, through informal exchange mechanisms, via gradual changes in inheritance mechanisms, by new forms of land reclamation and by defining ‘rules of the game’ to counter land degradation and neglect. Unlike the *dryland* pathway, land in *irrigation* pathway communities was occasionally even sold to outsiders. Nonetheless, decades after the land reform, land ownership remained uneven. Attempts by the central government to better define and register land owner-

ship faced multiple complications, and the lack of connection with local conceptions of access led to impatience, confusion and sometimes prolonged internal conflict.

Chapter 7 discusses developments in the productive sphere in the *dryland* pathway communities. Dryland farming was characterized by a system in which crops and livestock were combined and alternated in the same agricultural space. Households reduced risks by spreading cultivation of different crops over a large number of plots in different ecological zones. Due to climate change, and in particular several years of severe drought and increasing irregularity of rainfall, agricultural production had become rather uncertain. *Growth* pathway communities performed generally better than *decline* pathway communities (some of which had been partially or completely abandoned), but this was not only related to productive potential. While communities with a concentration on potatoes were doing generally better than communities with more mixed farming systems, there were also exceptions. Local institutions and external interventions played an important role in this respect. Through a series of 'negative' feedback effects, one of the potato-producing communities faced increasing problems in productivity, while conversely, one of the more marginal *growth* pathway communities with a mixed production system managed to maintain more or less their productive capacity. External actors have barely been able to find adequate answers to the challenges faced by the more marginal *dryland decline* pathway communities. The narrow and uncertain margins of the agricultural calendar, coupled with a decrease in household size, increased scarcity of labour and a gradual decline in livestock and availability of organic fertilizer meant that short-term interventions were unable to provoke sustainable improvements, leading people to feel a permanent pressure to migrate. Externally facilitated cooperative structures were not viable, in part because they did not build on an agricultural production system focused on risk reduction. In this respect little attention had, for instance, been given to informal exchange mechanisms as a means to share risks and opportunities. Remarkably, community organizations had only limited capacity to influence long-term processes of land degradation and to reduce *free-rider* behaviour among members in relation to collective action initiatives. *Growth* pathway communities did generally better, not least because they received a lot more support in the productive sphere, but even there many initiatives were overlapping or contradictory in purpose. A long-time commitment and stepwise approach helped in some cases to break through existing power structures and to improve productive conditions.

Chapter 8 continues along the lines of the previous chapter with an analysis of the *irrigation* pathway communities and an overall comparison with the *dryland* pathway. Access to irrigation led to changes in the agricultural calendar, with added opportunities to produce various crops and multiple harvests per year, but it also affected water management and water access rights. The irrigation pathway performed significantly better in productive terms than the *dryland* pathway. This led to relatively higher earnings, allowing for more internationally oriented migration among younger adults. Almost all irrigation communities managed to maintain the production levels of 1996, and output per head of the population even doubled in communities with intensified irrigation. That transition was far from easy and uniform. Most irrigation communities experienced different 'transitions', in the shift from dryland farming to irrigation as well as between different irrigation systems. These processes required long and intensive involvement of the population and support from external actors. In these processes, existing power relations (and related water rights), and free-rider behaviour led to frequent conflicts, within communities and in the relationship with external actors. Again the community organization showed limited capacity to influence those developments. External actors devoted relatively more attention to irrigation than to other productive projects, but their investments remained unevenly distributed. In addition, the emphasis on the formalization of water rights led to *de facto* persistence of unequal access to irrigation. The *irrigation/growth* pathway communities show that it is possi-

ble to make agriculture attractive again for younger households, but even these communities were still struggling with multiple challenges in their efforts to attain a more sustainable production system.

Chapter 9 discusses the great importance communities attached to education, and discusses education-related developments over the past decades. The ‘clamour for education’ dates back to the early decades of the last century, and some communities began building their first schools immediately after the land reform of 1952-1953. It took until the mid-1970s, however, to achieve large-scale provision of primary education. Only in the mid-1990s was the first secondary school established in the research communities, with distinctions being made between *nucleo* schools and surrounding *sectional* schools. In this process, the government played both a stimulating and a limiting role. Education policies over the past three decades led to a sharp increase in the provision of schooling. Implementation of the reforms in education policy were rather slow, and teachers were reluctant to adapt their methods to the new concepts introduced starting in 1994. Communities resisted various aspects of the reform, in particular, the elements focused on bilingual education and new pedagogical approaches. Participation of boys and girls did increase rapidly, partly at the expense of household labour, particularly in livestock husbandry. With the construction of new facilities, sports fields and related infrastructure, education became central in community dynamics, but was at the same time increasingly seen as an important precondition for a life outside of agriculture and outside of the community itself. The quality of education remained poor, however, as a consequence of unmotivated and often absent teachers, a lack of adequate teaching materials and because parents were unable to provide their children adequate guidance. Demographic changes, particularly in *decline* pathway communities, resulted in mergers of multiple grade levels into single classrooms and the threat of imminent school closure. Communities with *nucleos* and especially those with secondary schools had the advantage of being *early movers*, but even there the sustainability of the educational system was threatened by the gradual exodus of the youth to peri-urban areas and abroad. Growing external involvement, and in particular the increasing importance of municipalities led to establishment of a range of complementary programmes that boosted provision of education and related services. However, these did not lead to sustainable improvement in opportunities within communities, and young people continued to leave.

Chapter ten, finally, analyses the changes in public services provision. The communities differ substantially in their historical development pattern in the domain of public services, partly due to differences in initial accessibility. The historically more accessible communities obtained faster access to basic services such as drinking water and electricity and a first basic health centre. In a few cases, the benefited from programmes aimed at housing improvement. This process took place over several ‘rounds’, and much of the basic infrastructure was delivered at different stages, extending in most cases from the core to more remote areas. Existing infrastructure was even entirely rebuilt in some communities. Over time, a discrepancy emerged between communities with more concentrated settlements and those without. Not entirely coincidentally, the more concentrated communities were usually those with irrigation, for which housing improvements were more important due to the frequent occurrence of *chagas* disease. In recent years, dryland communities were able to catch-up, and we observed pattern of semi-concentrated settlements in those communities as well. This process indirectly affected agriculture, and the frequency of interaction with the city and surrounding areas. External actors played an important role in this process. Most interventions, generally in line with the Millennium Development Goals, were supply-driven, however, and focused on ‘gap-filling’ and ‘technocratic’ solutions without attuning to the actual needs and capacities at the community level. External organizations, such as the municipality, increasingly operated through a tender process for the provision of public services. This led to reduced community involvement in the design, implementation and maintenance of public infrastructure, undermining, rather than promoting, community

participation. The externally stimulated formation of ‘health’ or ‘water’ committees barely contributed to the strengthening of the community organization.

Chapter eleven focuses on a comprehensive analysis of differentiation and convergence of different development pathways.

- The *dryland decline* pathway communities suffered from external shocks such as major droughts. These communities faced the greatest decline in *per capita* production over the last 15 years. The margins for risk-minimization strategies to cope with persistent uncertainty about rainfall patterns were narrowing due to the decline in livestock and manure, fragmentation of land ownership and in some communities also because of land degradation. External aid in the productive sphere was extremely patchy and provided little added value. It is therefore not surprising that these communities, despite their improved service provision, faced the largest exodus, primarily focused on national migration destinations.
- The *irrigation decline* pathway communities did better from a productive perspective, but the physical limitations for bringing new land under irrigation and recurrent problems with land losses and contaminated irrigation water led also here to a fairly massive outflow of young people, this time more often to international destinations such as Argentina. Relatively small primary schools, threatened with imminent closure, also played a role. Two of the more marginal *irrigation* pathway communities also faced internal disputes, in one case resulting in a conflict that had crippled internal cooperation within the community for years.
- The *dryland growth* pathway communities did reasonably well, more or less maintaining *per capita* production levels over the past 15 years. In two of the three communities a process of accumulation allowed richer households to embark on mechanization and to sell a larger share of their production on the market. These communities received prolonged external support, which to some extent also allowed them to overcome existing power relations. Despite the relatively low level of public service provision (excluding education) younger households still saw opportunities in these communities.
- The *irrigation growth* pathway communities all had relatively intensive irrigation, but also either opportunities to bring additional land under irrigation or to commercialize other natural resources such as gravel. In all three communities we identified fairly effective associations, and all three communities had a relatively high level of public services. Despite the high migration rate to countries like Argentina, these communities remained attractive for return migrants, and the population remained relatively stable. In two of the three communities, external support had played an important, and almost disproportionate role, which also gave rise to lingering conflicts.

Chapter eleven continues with a discussion of the changes in internal dynamics, both at the community and the household level and regarding the interaction with external actors. The existing institutions seemed hardly capable of responding to the growing problems in the productive sphere, such as massive outmigration, *free-rider* behaviour in relation to collective action, and unattended or abandoned land. New (and often externally supported) associations seemed to be effective only in communities with relatively intensive production and better market access. In the productive and in the public sphere, external actors barely managed to support a more sustainable improvement of infrastructure and service delivery. In the productive sphere, the balance was clearly in favour of communities that seemed to offer more potential, while the results in the public sphere were more balanced, probably because of the ‘mediating’ role of municipalities. Within communities access to projects or services was often very uneven. This led to additional interventions, but also to frequent imbalances and internal conflicts. This occurred especially in the provision of drinking water and housing improvement programmes. The logic of external interventions was often not adapted to local needs and

dynamics, resulting in projects with limited ownership, leading to ineffective use and maintenance problems.

Chapter twelve summarizes the changes in development pathways from a more theoretical perspective. The communities went through impressive changes, and some even experienced complete transformations. These did not always occur in a positive direction, and there was often a considerable gap between the objectives and development solutions of development organizations and everyday reality. The analysis of development pathways shows that historical events and developments may have a profound impact on future developments. This applies in particular to the history of community institutions, mechanisms for decision-making and matters such as land ownership. Yet, historical events and developments also affect the way communities and households attempt to deal with such issues, individually or collectively. While most development interventions took place after the major drought of 1982-1983, communities built upon their own history and experiences, ranging from efforts to improve basic infrastructure, gaining recognition of community boundaries or land titles, and positioning themselves in relation to neighbouring communities or external parties such as the central government, municipalities and NGOs. Communities were far from static. At some point, almost all experienced an internal split, the shift of the population or production from higher to lower agro-ecological zones or the generally rather abrupt and self-reinforcing process of settlement concentration. These kinds of transitions can be characterized as *critical junctures*, sometimes driven by external shocks, in other cases by internal conflict, and with some regularity in association with external interventions. The evolutionary development of communities thus varied widely, and although communities went through similar stages, individual community pathways were highly dependent on specific historical developments and factors such as location, accessibility, demographic changes, access to natural resources and the presence and actions of external actors. Local programmes and projects, and 'normalization policies', for instance, in education or around irrigation often led to unintended and distorting side effects by reducing the space for community agency, while on the other hand the decentralization process allowed for broadening community involvement in the local development agenda.

The initiative of a small group or the collective action of a community in some cases led to quick improvements, but these were often lost again. Communities and households worked together to gain access to public services, but they also competed with each other. Collective action was a contextual process in which external actors sometimes played a stimulating role, but they often also constrained community involvement. The available literature too often assumes that, upon the fulfilment of certain conditions, the capacity and the long-term potential for collective action will continue to increase. This study shows that this is far from self-evident. Over time, the balance of community participation and external input continually shifted. In some cases, instead of strengthening participation or coproduction, the initiative or responsibility for implementation shifted to external actors. As a consequence of demographic changes, the reduction in size and ageing of households, communities increasingly lacked the willingness and commitment to embark on large-scale collective action. Many of the mismatches between external intervention practices and community logics arose from inadequate or completely absent *theories of change*, and from practices focused on 'solutions', rather than creation of conditions in which communities and households could determine their own development path – even if the pathways they choose extend far beyond their community boundaries. In a complex framework of risk assessment and a multiplicity of potentially valid strategies, communities and households ultimately choose their own pathway, instead of the many trajectories that others may project on them.

¿Caminos sostenibles o un desarrollo problemático?

Resumen

Este estudio de doctorado se centra en el análisis de los caminos de desarrollo (*development pathways*) de las comunidades rurales de los valles andinos de Bolivia en una perspectiva longitudinal y comparativa. En los tres primeros capítulos se analiza el contexto más amplio y la pertinencia de la investigación, el marco teórico y una clasificación básica de los caminos de desarrollo de las comunidades. Los capítulos 4 y 5 discuten los principales actores e instituciones internas y externas, y los capítulos 6 a 10 proporcionan un análisis detallado de las tendencias de los caminos de desarrollo, tanto en el ámbito productivo como en el ambiente social. Estos capítulos tratan sucesivamente la tierra y la identidad; la agricultura a secano y la producción bajo riego; y la educación y otros servicios públicos. Los dos últimos capítulos ofrecen una visión general de la evolución de los diferentes caminos de desarrollo y una reflexión sobre las conclusiones teóricas. Capítulo 1 ubica el estudio en el contexto del desarrollo económico y político en Bolivia y de las políticas internacionales de desarrollo. También después de 50 años de éstas, la pobreza en Bolivia sigue siendo muy visible, pero es mucho menos uniforme y estática que a menudo se supone. En este contexto, es importante analizar por qué los procesos de desarrollo a veces divergen y en otros casos más bien convergen, y por qué algunas comunidades y regiones parecen tener más éxito que otras. En Bolivia, se produjo un espectacular aumento de la ayuda externa, en particular, después de la gran sequía de 1982-1983, que se tradujo en una amplia variedad de paradigmas e intervenciones de desarrollo, que van desde las necesidades básicas y el desarrollo rural integrado hasta una descentralización municipal de gran alcance. Todos estos enfoques y programas se pueden encontrar en los valles andinos del norte de Potosí y Chuquisaca, la región a la que este estudio se dedica, y que se caracteriza por una gran diversidad de paisajes y ecosistemas. Otra característica, como el estudio mostrará, es la gran diversidad en caminos de desarrollo, que van desde el crecimiento gradual con un cierto nivel de acumulación hasta el abandono casi total. A raíz de estas constataciones se formuló la siguiente temática central:

¿Cómo podemos caracterizar los procesos de cambio en los caminos de desarrollo de las comunidades rurales? ¿Cuál es el papel del ejercicio de la agencia (agency, entendido como los esfuerzos de los hogares y colectivos,) las instituciones y los actores externos en estos procesos de cambio y cómo se articulan entre sí? ¿Hay una mayor diferenciación o una convergencia? ¿Hay dependencia de caminos (path dependency) o la creación de nuevos caminos?

Capítulo 2 describe el marco teórico del estudio. El análisis de los caminos de desarrollo se centra en una perspectiva en la que la presencia o ausencia de la llamada dependencia de camino (*path dependency*) juega un papel importante. Los procesos de cambio en los caminos de desarrollo se descomponen en diferentes etapas y procesos estratificados que interactúan entre sí, en los que la 'línea de base' y los acontecimientos que ocurren posteriormente o los choques externos 'contingentes' pueden tener una gran influencia en lo que ocurre después. Por tanto, es importante tomar en cuenta los recuerdos 'vivos' de las comunidades y comunarios, ya que dan color a sus percepciones y explican el porqué de su accionar. En esta dinámica, la interacción entre los factores estructurales (la tierra, las instituciones, la composición demográfica, etc.) y el ejercicio de agencia es de gran importancia para las comunidades; pues, crea el espacio para formar y adaptar instituciones y para seguir caminos inexplorados, y se plasma en nuevas reglas, rutinas y hábitos, que a su vez pueden dar lugar a tensiones o a nuevas modi-

ficaciones. En la región andina de Bolivia, la existencia de instituciones formales e informales y el cambio institucional asociado con ello, es de gran importancia para la dinámica interna de la comunidad y su interacción con el mundo exterior. La organización comunal tiene su propia lógica para la toma de decisiones, centrándose sobre todo en la reproducción de las prácticas en la comunidad. Los actores comunales se esfuerzan para conseguir acceso a los recursos naturales y los servicios sociales, y también para fortalecer su posición frente a los organismos gubernamentales, los municipios y las ONGs. Hacen uso de diversas formas de acción colectiva ‘visibles’, pero también de mecanismos más sutiles vinculados a la representación de la identidad comunal en sus muchas formas. Sin embargo, la acción colectiva no es algo ‘automático’, y depende de numerosos factores restrictivos y de refuerzo, que pueden ser influenciados tanto interna como externamente. Las organizaciones de desarrollo juegan un papel importante, ya que las nuevas políticas o intervenciones directas no sólo contribuyen a la construcción de infraestructura productiva o de servicios sociales, sino también inciden, directa o indirectamente, en las instituciones locales, de una forma estimulante o más bien debilitante.

Capítulo 3 discute en detalle la zona de investigación y la metodología utilizada. Este estudio se basa en una extensa investigación anterior en 17 comunidades de la región, realizada en los años 1994 a 1997, en la que se hicieron visitas mensuales a todas estas comunidades y a un selecto grupo de hogares durante un ciclo anual completo. Durante esta investigación inicial, se realizó un estudio detallado de los acontecimientos en la comunidad desde 1983. En una segunda ‘encuesta de repetición’, que tuvo lugar en un período de varios meses en 2010 y 2011, 14 de estas comunidades fueron visitadas nuevamente. En estas 14, se repitieron el estudio comunal y la encuesta de hogares, lo que permitió hacer un análisis longitudinal y comparativo. Basado en parte en un análisis de conglomerados, las comunidades fueron clasificadas en cuatro grandes grupos de caminos de desarrollo, y en una serie de sub-clasificaciones para distintos dominios. La clasificación principal distingue a las comunidades con una disminución de la población y las con un crecimiento demográfico en el período comprendido entre 1996 y 2011, y a las comunidades con una agricultura mayormente a secano, o más bien con acceso al riego (implicando una gama de caminos de *desarrollo de contracción/ crecimiento* y de a *secano/ con riego*). La clasificación más detallada también examina las diferencias en los sistemas de riego y su intensidad, las tendencias en los servicios y en la educación, la orientación nacional o internacional de la migración, y la distinción entre las comunidades de ayllu y las con sindicato. Un primer análisis muestra que las comunidades del camino de *crecimiento* tuvieron mejores resultados en el tema productivo en los últimos 15 años que las comunidades de *contracción*, y las comunidades de *riego* mejor que las con una agricultura a *secano*. Sin embargo, estos patrones no son unívocos, y también las comunidades de crecimiento y con riego tuvieron que enfrentar a varios problemas.

Capítulo 4 identifica y analiza las principales instituciones y organizaciones comunales. Analiza la historia de las comunidades y algunas cuestiones relacionadas con las percepciones comunes de lo que es una ‘comunidad’. Es difícil captar la dinámica comunal, especialmente sobre un período más largo, en un análisis estadístico de comunidades sobre la base de ciertos criterios. Lo que une a todas las comunidades, es la importancia de los procesos de toma de decisiones en conjunto en la asamblea comunal, que actúa como el principal foro para el establecimiento de normas y reglas, para fomentar la acción colectiva, y para la interacción con las partes externas. Los mencionados sindicatos se remontan a las ex haciendas, y han evolucionado de otra manera que las comunidades de ayllu más tradicionales, que se mantuvieron fuera de la influencia directa de la hacienda, pero de hecho, sí son afectadas por el expansionismo del sistema terrateniente. Además de los sindicatos y los ayllus, hay varias otras formas de cooperación a nivel comunal y más allá, en parte iniciadas o fomentadas externamente. En este capítulo, se muestra que los procesos de cambio institucional se ven afectados por el tamaño de las comunidades, su identidad y su ‘masa crítica’, por los cambios demográficos, por el impacto de las nuevas estructuras organizativas paralelas, por procesos de diferenciación interna, por

el capital social y por intervenciones externas. Las comunidades suelen responder de forma proactiva a los cambios en el contexto externo y manejan de forma pragmática las estructuras organizativas paralelas iniciadas externamente, pero con una frecuencia sorprendente recurren a actos poco ortodoxos como la división interna de la comunidad. Los cambios iniciales, por ejemplo en la estructura de los sindicatos, a menudo han tenido consecuencias a largo plazo, y han resultado, con el tiempo, tanto en un mayor control del Estado a las organizaciones locales como al revés, lo muestran los últimos acontecimientos en los que la población rural ha visto crecer su influencia en las decisiones políticas regionales y nacionales.

Capítulo 5 analiza los cambios en el contexto externo y, en particular, el papel y la influencia de las políticas gubernamentales, los organismos paraestatales, los municipios y las ONGs. A pesar de la ‘revolución’ de 1952, y sobre todo por las sucesivas dictaduras militares casi ininterrumpidas en las décadas siguientes, la situación de las comunidades rurales ha mejorado poco. Es solo después de la grave sequía de principios de los años ochenta del siglo pasado, que el interés en las comunidades rurales va creciendo, especialmente entre los organismos multilaterales y bilaterales y las ONGs. En la región, esto se traduce en un patrón muy irregular de la presencia institucional y de la distribución de fondos de inversión, programas y mecanismos de implementación, tanto en el nivel meso como micro. Las organizaciones de desarrollo cambian constantemente el enfoque y su presencia en la zona, y las iniciativas a menudo no son coherentes entre sí. La descentralización municipal introducida en 1994 gradualmente cambia esto, ya que las otras partes externas están más inclinadas a unirse a los planes de desarrollo de los municipios y al ciclo de toma de decisiones. Sin embargo, los proyectos se distribuyen de manera dispar entre las diferentes comunidades, especialmente en lo que concierne la proporción de la infraestructura social frente a la productiva, lo que hace evidente la fragmentación de las intervenciones. Mientras que las comunidades de *contracción* poco a poco recuperan el retraso en los servicios sociales, los programas de infraestructura productiva siguen siendo enfocados hacia las comunidades de *crecimiento y con riego*, que son consideradas por las partes externas con más potencial. La interacción de las organizaciones de desarrollo con las comunidades y hogares a menudo es difícil no solo por los malentendidos y los desajustes en la priorización y en la selección de los grupos beneficiarios, sino también por el uso arbitrario de los incentivos o condicionalidades. La descentralización municipal no provoca grandes cambios en esto, pero sí aumenta el compromiso de las comunidades con su propia agenda de desarrollo.

Capítulo 6 cambia el enfoque a un dominio específico, centrándose en la tierra y los recursos naturales, vinculados a los cambios en la identidad o la percepción de la misma. Se ve la tierra no solo como un recurso esencial para la producción agrícola, sino también se la conceptualiza como la base para una identidad común, así como para el relacionamiento con terceros, incluyendo comunidades vecinas, y la actitud hacia ellos. Solo después de la reforma agraria, las comunidades con sindicato pudieron acceder a la tierra que siempre habían trabajado, mientras que las comunidades de ayllu, más bien, a menudo perdieron el acceso a la tierra en los valles. Las presiones históricas, la presencia continuada de los antiguos terratenientes y la escasez de tierra cada vez mayor hacen que las comunidades y las familias hacen todo lo posible para asegurar el acceso a la tierra, que en sus muchas formas diferentes de acceso, es para casi todos los hogares la base de sus estrategias de vida. La tenencia de la tierra difiere mucho entre comunidades y hogares, pero ciertamente no es el factor más importante. Otros factores como el potencial para la intensificación de la agricultura y, en particular, el acceso al riego son mucho más importantes. A pesar de que sus parcelas son mucho más pequeñas, las comunidades de riego a menudo tienen rendimientos mucho mayores que las comunidades con agricultura *a secano*. Los hogares intentan asegurar un acceso sostenible a la tierra a través de diversos canales: a través de la acción colectiva dirigida a la obtención de títulos de propiedad, a través de prácticas informales de intercambio muy variadas (por ejemplo, el uso de una parcela a cambio de mano de obra

o insumos agrícolas), por la introducción de cambios (graduales) en los mecanismos de la herencia, por nuevas formas de recuperación de tierras, y por la creación de reglas para impedir la degradación del suelo y su abandono. A diferencia de las comunidades con agricultura *a secano*, en las comunidades *con riego* de vez en cuando incluso se vende tierra a los forasteros. Incluso décadas después de la reforma agraria, la propiedad de la tierra sigue siendo muy desigual. Los intentos del gobierno central para definir mejor la propiedad de la tierra y mejorar su registro encuentran muchos problemas y, por no encajar bien con las concepciones locales, llevan a la impaciencia, a la confusión y a veces a conflictos prolongados.

Capítulo 7 analiza los avances en la esfera productiva en las comunidades con agricultura a secano. La agricultura a secano se caracteriza por un sistema en el que se combinan los cultivos y el ganado, que se alternan en la misma área. Las familias reducen el riesgo mediante la distribución geográfica de los cultivos en un gran número de parcelas en diferentes zonas ecológicas. Debido al cambio climático, y en particular después de varios años de sequía en combinación con lluvias cada vez más irregulares, la agricultura se ha vuelto más y más incierta. Por lo general, las comunidades de *crecimiento* están en una situación considerablemente mejor que las comunidades de *contracción* (algunas de las cuales estaban parcialmente o completamente abandonadas), pero esto no se explica solo por diferencias en el potencial productivo. En general, las comunidades de producción de papa tienen mayores rendimientos que las comunidades con una agricultura mixta, pero hay excepciones; las instituciones locales y las intervenciones externas juegan un papel importante. A través de una serie de efectos de retroalimentación ‘negativa’, una de las comunidades de papa tuvo muchos problemas, mientras que una de las comunidades de *crecimiento* bastante marginal, con producción mixta, supo mantenerse razonablemente. Los actores externos apenas han podido encontrar respuestas ante la situación, sobre todo en las comunidades con una agricultura *a secano/ de contracción*. Los estrechos e inciertos márgenes del calendario agrícola, en combinación con el tamaño cada vez menor de los hogares, la escasez creciente de mano de obra y la disminución gradual del ganado significan que en el corto plazo, las intervenciones no tienen un impacto significativo y que sigue habiendo una presión continua hacia la migración. Las estructuras cooperativas externamente facilitadas no eran viables, en parte debido a que no guardaron relación con la producción agrícola orientada a la reducción de riesgo. La importancia de los mecanismos informales de intercambio para compartir riesgos y oportunidades ha recibido poca atención. Cabe destacar que la organización comunal tiene poca capacidad para influir en los procesos a largo plazo, tales como la degradación de la tierra y las muchas faltas en iniciativas de la comunidad, el llamado comportamiento de polizón, que se refiere a aquellos individuos o entes que no afrontan una parte justa del costo de la producción o mantenimiento de un recurso. Por lo general, las comunidades de *crecimiento* tuvieron más éxito, sobre todo porque recibieron mucho más apoyo en la esfera productiva, pero también aquí había muchas iniciativas duplicadas o contradictorias. En algunas comunidades, un compromiso más largo y un enfoque incremental ayudaron a romper las estructuras de poder existentes o a mejorar las condiciones de producción.

Capítulo 8 continúa con un análisis de las comunidades de riego, comparándolas con las comunidades con agricultura a secano. El acceso al riego resulta en cambios en el calendario agrícola, la posibilidad de diversificar los cultivos producidos y de obtener varias cosechas al año, pero también en una mayor diversidad en la gestión del agua y en un sistema a menudo dinámico de los derechos de agua. En el aspecto productivo, el grupo de las comunidades de *riego*, por tanto, tuvieron resultados significativamente mejores que el de comunidades con agricultura de *secano*, lo que dio lugar a ingresos relativamente más altos y con eso también a más migración internacional, especialmente entre los jóvenes. Casi todas las comunidades de riego lograron mantener el producto per cápita en el nivel de 1996, y las comunidades con *irrigación* más intensiva incluso alcanzaron un redoblamiento de la producción. Ese proceso no fue fácil, ni uniforme. La mayoría de las comunidades de riego pasaron por

varias 'transiciones', tanto en el cambio de la agricultura a secano a la con riego, como entre diferentes sistemas de riego. Este proceso requirió una dedicación larga e intensa de la población y de los actores externos. En este proceso, las relaciones existentes de poder (y los derechos de agua) y el comportamiento de polización condujeron a conflictos, tanto dentro de las comunidades, como en la relación con los actores externos. Nuevamente, la organización comunal mostró tener una capacidad solo limitada para corregir la situación. Los actores externos prestaron más atención al riego que a otros proyectos productivos, pero las inversiones se distribuyeron de manera muy desigual. Además, el énfasis en la formalización de los derechos de agua tuvo como resultado una consolidación de facto de la desigualdad de acceso al riego. Las comunidades de *irrigación/ de crecimiento* muestran que es posible hacer atractiva la agricultura también para los hogares más jóvenes, pero también para estas comunidades todavía es un gran desafío llegar a un sistema de producción sostenible.

Capítulo 9 trata de la gran importancia que las comunidades dan a la educación y de la evolución en las últimas décadas. El 'clamor por la educación' se remonta a principios del siglo pasado, y después de la reforma agraria de 1953, algunas comunidades ya empiezan a construir una escuela ellas mismas, pero recién a mediados de los años setenta, se inicia la difusión masiva de escuelas primarias. Es a mediados de los años noventa, que se establece la primera escuela secundaria en una de las comunidades de investigación, y se hace una distinción entre las escuelas centrales de los núcleos y las seccionales. En este proceso, el gobierno juega un papel estimulante, pero al mismo tiempo se convierte en un factor limitante. En los últimos tres décadas, la política de educación llevó a un fuerte incremento en 'oferta' de educación. Sin embargo, las reformas en la política son muy lentas y los profesores apenas están inclinados a adaptarse a los nuevos conceptos de la reforma educativa que se ha iniciado en 1994. Sorprendentemente, las comunidades se oponen a varios aspectos de la reforma, en particular los planes para una educación bilingüe y los nuevos enfoques pedagógicos. La asistencia escolar de niños y niñas está aumentando, pero va en detrimento del tiempo dedicado a, especialmente, el pastoreo de las ovejas. La educación ocupa un papel cada vez más central en la vida comunal y al mismo tiempo es considerada cada vez más como una condición importante para una vida fuera de la agricultura y fuera de la comunidad. Sin embargo, la calidad de la educación sigue siendo pobre por la desmotivación y las ausencias frecuentes de los profesores, la falta de materiales didácticos adecuados, y porque los padres apenas son capaces de apoyar a los niños. Sobre todo en las comunidades de *contracción*, los cambios demográficos resultan en que se juntan clases y en la amenaza de un posible cierre. Las comunidades nucleadas y/o con centros de enseñanza secundaria tienen la ventaja de ser pioneros en la adopción, pero aun así hay peligro de un éxodo gradual de los jóvenes que van a las áreas periurbanas o al extranjero. La creciente participación externa, en particular de los municipios, ha llevado a la creación de programas complementarios, que en el corto plazo han dado un impulso a la educación. Sin embargo, esto no ha resultado en una mejora sostenible de las oportunidades de desarrollo dentro de las comunidades, y los jóvenes siguen emigrando.

Por último, en el capítulo 10 se analizan los cambios en los servicios sociales. Históricamente, las comunidades varían mucho en su patrón de desarrollo en este tema, en parte debido a las diferencias en la accesibilidad inicial. Las comunidades históricamente más accesibles han conseguido más rápidamente un acceso a los servicios básicos como el agua potable y la energía eléctrica y un primer puesto de salud, y en unos pocos casos, los programas de mejoramiento de vivienda. Este proceso ha tenido lugar en varias 'rondas', y gran parte de la infraestructura básica ha sido construida en varias etapas para alcanzar también otras partes de la comunidad, o, en otros casos, reconstruida totalmente. En el transcurso del tiempo, las comunidades nucleadas han ido a la cabeza. No es casualidad, que hay muchos proyectos de mejoramiento de vivienda en las comunidades con *irrigación*, pues, es donde el mejoramiento de vivienda fue muy importante porque allí se encuentra con mayor frecuencia el mal de Chagas. En los últimos años, las comunidades con agricultura a *secano*, sin embargo, hacen un

esfuerzo para ponerse al día y allá también se puede ver un proceso de semi-nucleación, que también tiene un impacto indirecto en la agricultura, y en la frecuencia de la interacción con la ciudad y con las comunidades vecinas. Los actores externos han jugado un papel importante en este proceso. Sin embargo, la mayoría de las intervenciones, que contribuyen a lograr los ODM, son basadas en la oferta y dirigidas a ‘rellenar huecos’ y a ‘soluciones’ tecnocráticas, sin responder a las necesidades reales y sin tomar en cuenta las posibilidades a nivel comunal. Ya que las organizaciones externas, como el municipio, cada vez más sacan a concurso público los proyectos, esto reduce la responsabilidad de las comunidades para la ejecución y el mantenimiento de la infraestructura. De esta forma, la participación de la comunidad es más bien socavada en vez de promovida. La formación de por ejemplo comités de agua o salud fomentada externamente contribuye muy poco al fortalecimiento de la organización comunal.

Capítulo 11 se dedica a un análisis exhaustivo de la diferenciación y la convergencia de los diferentes caminos de desarrollo.

- Las comunidades de la *agricultura a secano/contracción* han sufrido de los grandes choques externos, como los años de sequía. Estas comunidades son las que enfrentan el mayor descenso de la producción per cápita en los últimos 15 años. Los márgenes de las estrategias de riesgo para afrontar la incertidumbre recurrente sobre la precipitación se vuelven cada vez más estrechos por la disminución de la ganadería y del estiércol, por la fragmentación de la tierra y, en algunas comunidades, por la degradación del suelo. La ayuda externa en el tema productivo era muy fragmentada y no tenía un buen resultado. Por lo tanto, no es sorprendente que a pesar del mejoramiento en el nivel de los servicios sociales, es aquí donde se produjo el mayor éxodo, con una migración dirigida principalmente a los destinos nacionales.
- Las comunidades de *riego/contracción* tuvieron mejores resultados, pero las limitaciones físicas para obtener nuevas tierras bajo riego y los problemas recurrentes de pérdida de tierra o de contaminación de agua de riego, han conducido aquí a una salida bastante masiva de jóvenes, en este caso más a menudo a destinos internacionales de migración, como la Argentina. El hecho de que haya escuelas relativamente pequeñas y potencialmente en peligro de cierre, también influye en esta situación. Dos de las comunidades más marginales de riego también tienen conflictos internos, los que en un caso resultaron en un conflicto que paralizó la cooperación dentro de la comunidad durante años.
- Las comunidades con *agricultura a secano/crecimiento* tienen resultados razonables en el área productiva y sus ingresos por cápita se han mantenido en los últimos 15 años. En dos de las tres comunidades se produjo un proceso de acumulación, en el que los hogares relativamente ricos pudieron mecanizar la agricultura y comercializar los productos ellos mismos. Estas comunidades han recibido apoyo externo por más tiempo y en cierta medida, esto ha ayudado para romper las relaciones de poder existentes. A pesar del nivel relativamente bajo de servicios sociales (a excepción de la educación) en estas comunidades, incluso los hogares relativamente jóvenes todavía ven oportunidades.
- Las comunidades de *riego/crecimiento* tienen un riego relativamente intensivo, pero aparte de esto también oportunidades, ya sea para regar más tierras, sea para comercializar otros recursos naturales tales como el ripio. Las tres cuentan con asociaciones relativamente eficaces, y las tres también tienen un nivel relativamente bueno de servicios sociales. A pesar de una migración relativamente elevada a países como Argentina, estas comunidades siguen siendo atractivas para un posible retorno en el futuro, y la población se ha mantenido relativamente estable. En dos de las tres comunidades, la asistencia externa jugó un papel importante, casi desproporcionado, que también dio lugar a conflictos prolongados.

A continuación, en este capítulo se analiza el cambio en la dinámica interna, tanto a nivel comunal como familiar, y en la interacción con los actores externos. Las instituciones comunales existentes

parecen no encontrar una respuesta a los crecientes problemas en el área productiva, tales como la migración masiva, el comportamiento de polización en lo que concierne la acción colectiva y la existencia de parcelas desatendidas o abandonadas. Las asociaciones nuevas (que a menudo reciben apoyo externo) solo son eficaces en comunidades con una producción relativamente intensiva y buenas posibilidades para vender. Tanto en lo productivo como en lo social, la ayuda externa casi no ha logrado un mejoramiento sostenible de la infraestructura o de los servicios. En el ámbito productivo, el apoyo externo prioriza las comunidades que parecen ofrecer mayor potencial, mientras que en el ámbito social, la distribución es más equilibrada, probablemente debido al papel 'mediador' de los municipios. Dentro de las comunidades, el acceso a proyectos o servicios es a menudo muy desigual, lo que resulta en intervenciones adicionales, pero también en desequilibrios frecuentes y conflictos internos, sobre todo en el caso de programas de agua potable y de mejoramiento de viviendas. Las lógicas de intervención externas muchas veces no se adaptan a las necesidades y la dinámica local, por lo que las comunidades no se sienten dueños de los proyectos, lo que a menudo resulta en un uso ineficaz y problemas de mantenimiento.

Capítulo 12 resume los cambios en los caminos de desarrollo, desde una perspectiva más teórica. Las comunidades han pasado por cambios impresionantes e incluso procesos de transformación completa, pero no siempre de una manera positiva y hay, por lo tanto, una gran diferencia entre los logros previstos por las organizaciones de desarrollo y de la realidad cotidiana. El análisis de los caminos de desarrollo muestra que durante mucho tiempo se siente la influencia de acontecimientos o procesos del pasado, especialmente en lo que concierne a la historia de las instituciones comunales, los mecanismos de toma de decisiones y para un tema como la tenencia de la tierra. También se traduce en cómo las comunidades y los hogares manejan estos temas tanto colectiva como individualmente. Mientras que la mayor parte de las intervenciones de desarrollo se llevan a cabo después de la gran sequía de 1983, todas las comunidades tienen su propia historia y experiencias, que van desde los esfuerzos por mejorar su infraestructura básica, conseguir el reconocimiento de los límites de la comunidad o de los títulos de propiedad, hasta posicionarse en relación con las comunidades vecinas o actores externos, tales como el gobierno, los municipios locales y las ONG. Los caminos de desarrollo de las comunidades no son nada estáticos, y en algún momento, casi todas las comunidades experimentaban una división interna, el desplazamiento de la población o de los cultivos de zonas altas a zonas bajas, o la nucleación de las casas y servicios, por lo general, en un proceso de auto-refuerzo y bastante abrupto. Este tipo de transiciones se puede caracterizar como momentos críticos, a veces impulsados por choques externos, en otros casos por un conflicto interno, pero con cierta regularidad también como resultado de las intervenciones externas. La evolución de las comunidades, entonces, varía bastante; si bien es cierto que las comunidades pasan por etapas similares, el camino de desarrollo de una comunidad determinada depende mucho de procesos históricos específicos y de factores como la ubicación, la accesibilidad, los cambios demográficos, el acceso a los recursos naturales, y la presencia y las actividades de los agentes externos. Los programas y proyectos locales y la 'política de normalización' en por ejemplo la educación o con relación a la tierra o al riego muchas veces resultan en efectos secundarios no deseados, y en cierta medida una restricción de la agencia de las comunidades, mientras que la política de descentralización implementada recientemente más bien ha contribuido a aumentar el espacio para la participación comunal en la agenda de desarrollo local.

La iniciativa de un pequeño grupo o la acción colectiva de la comunidad pueden llevar fácilmente a mejoramientos, pero esos pueden perderse de nuevo. Las comunidades y hogares cooperan entre sí para tener acceso a los servicios, pero a veces también son competidores. Por lo tanto, la acción colectiva es un proceso contextual en el que los actores externos pueden jugar un papel estimulador pero también pueden convertirse en obstáculos. En la literatura, se asume fácilmente que una vez cumplidas ciertas condiciones, la capacidad y el potencial a largo plazo para la acción colectiva seguirán

aumentando. Este estudio demuestra que este proceso no es nada evidente. Con el tiempo, el equilibrio entre la participación comunitaria y los insumos externos todo el tiempo se está moviendo, y en algunos casos, en vez de fortalecer la participación o un proceso de co-producción, se ve que la responsabilidad para la implementación queda casi exclusivamente con las partes externas. Por los cambios demográficos, la reducción y el envejecimiento de los hogares, cada vez más falta la voluntad y el compromiso de lograr una acción colectiva a gran escala. Muchos de los desajustes entre las prácticas de intervención externa y la lógica de las comunidades surgen de unas teorías de cambio inadecuadas o completamente ausentes, y desde una práctica enfocada en 'soluciones', en lugar de un enfoque que se centra en la creación de condiciones que permitan a las comunidades y a los comunarios determinar su camino de desarrollo, incluso si eso va mucho más allá de los límites de la comunidad. En un marco complejo de evaluación de riesgos y una multitud de estrategias potenciales, las comunidades y hogares, en última instancia, eligen su propio camino, y no uno de los muchos caminos que otros definen para ellos.



Curriculum Vitae

Jan Willem le Grand was born in Bangangté, Cameroon, on 3 June 1963. He finished his secondary education (VWO) at the Revis Lyceum in Doorn in the Netherlands in 1981. In 1988 he completed his study in Human Geography at the University of Amsterdam, with a specialization in developing countries. During his study he travelled extensively in both Africa and Latin America, which he combined with several short-term internships and assignments. Between 1987 and 1990 he worked at the Latin America Department of ICCO, followed by short-term assignments at Cordaid for the country desk Bolivia and Colombia and with ETC-Leusden in analysing projects related to sustainable agriculture in the Andean region. In 1991 he received a scholarship from WOTRO for fieldwork in the border region between Peru and Bolivia, and from 1991 to 1994 he worked as project secretary and later as head of the Communication Assistance Foundation (currently Free Press Unlimited) in The Hague, involved in the support of media projects worldwide. From 1994 to 1997 he worked as a researcher and fieldwork coordinator in the PIED-Andino research project in Sucre, Bolivia. In 1997 he was selected for the training programme for Dutch diplomats, followed by postings abroad for the Foreign Ministry in Brazil from 1998 to 2000, as head of the embassy delegation in Nampula, Mozambique (until 2002), as deputy head of cooperation in Maputo, Mozambique (2002-2005) and also as responsible officer for environmental issues and as deputy head of cooperation in La Paz, Bolivia (2005-2008). In 2008, he returned to The Hague as senior policy officer for relations with the international financial institutions, including assignments related to the World Bank, IMF and G20. In 2005, he obtained a second master's degree in Public Policy and Management at the Centre for Financial and Management Studies of the University of London. Currently he is strategic policy advisor of the Western Hemisphere Department in the Ministry of Foreign Affairs of the Netherlands.