From international charity to value chain coordination:

The case of Nicaraguan NGO Peoples in Comunitarian Action (PAC)

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1. Introduction

The association Pueblos en Acción Comunitaria (PAC, translated from Spanish as Peoples in Communitarian Action) is a Nicaraguan non-profit association that promotes an innovative vision of local development. It emphasizes private sector development in rural areas and rejects most of the charity and relief components common in development interventions. PAC has placed itself as the coordinator of various value chains in Nicaragua and serves 4000 rural participants of which 1203 were members of the association in June 2010. At present PAC organizes the production process from production to export through an impressive weave of reciprocal contracts that connects the actors from the local level of the communities to the global level of foreign commerce. In June 2010 PAC managed a credit portfolio of six million dollars, employed 100 workers, and showed 11.5 million dollars in assets and 4.7 million dollars of net patrimony.

These outcomes result from PAC's innovative vision of poverty reduction developed in the last ten years. It was legally constituted on July 2nd 1996 as a part of a food security program of World Relief (WR), an NGO of Christian inspiration that works around the world. Under the umbrella of World Relief, PAC offered mainly small credits for agricultural purposes, sometimes in combination with supplies and technical assistance. Later on it started offering other services along with value chain organization for crops such as coffee, taro, corn, beans, grains, and cocoa. It works with the farmers from the stage of soil preparation to the selection of supplies and seeds, care of the plants, harvest, primary processing in the farm, transportation, manufacturing in the urban areas, sale, storage, and the clearing of the final payments that cover the repayments of the loans given by PAC and the income of the farmer. In practice PAC coordinates the economic life of a large group of farmers and entrepreneurs of different sizes, lines of work and interests. In just fifteen years PAC has evolved from being the local face for one of WR's projects to a recognized and consolidated organization; independent and self-sustainable, and with various partners around the world. It has linked to other NGOs of the global civil society and is positioned as a recognized partner by some international traders and transnational banks.

This article aims to present and examine the experience from a socio-economic perspective. It describes the activities of PAC as a model of value chain organization with an entrepreneurial vision and Christian inspiration and enquires in what ways it represents a new model to promote local development and poverty reduction. It analyzes the replication potential of its intervention methods and discusses the challenges to be taken into account if the model is implemented elsewhere. The study first reviewed the previous reports and consultancy evaluations, most of them generated by the NGO Woord en Daad, a PAC donor and partner organization in The Netherlands. Several interviews followed by telephone and e-mail and the objectives of the study were defined in a research design. In June 2010 a study visit of one week was made to collect primary data; field work took place in Matagalpa, El Cuá, San José de Bocay and surrounding rural areas.

After this introduction, the second section narrates the historical evolution of PAC into the organization that it is today. The third section describes the intervention instruments and its results in terms of poverty reduction of the rural Nicaraguan farmers. The fourth focuses on the value chain organization activities and the fifth one analyzes the specificities that make

PAC an interesting case study, with the potential to replicate the model to other regions in the developing world. The present study is the result of the Knowledge Partnership between the International Institute of Social Studies (ISS) in The Hague of the Erasmus University Rotterdam and Woord en Daad in Gorinchem, Netherlands.

2. Historical Evolution

PAC's historical evolution contains a considerable degree of trial and error. The organizational model as it stands at present does not follow a master design but is the result of a series of adjustments to the conditions, social actors, and the opportunities of the international context. These factors gradually pushed the leaders to adapt their original vision in a pragmatic and dynamic process that is ongoing to the present day.

The phase with World Relief (1996-1999)

PAC's history begins with the international Christian-inspired NGO World Relief (WR). World Relief was founded in New York in 1944 as an evangelical church confederation to alleviate hunger in Europe at the end of World War II. It started operating in Nicaragua in 1992 to help the social reintegration of victims of the civil war of the 1980s. During the government Violeta Chamorro several American NGOs settled in Nicaragua to do mainly humanitarian relief. The work of WR in Nicaragua was predominantly focused on hunger relief and poverty alleviation.

In the middle of the nineties WR launched a program of rural small loans for agricultural development. It was its first micro credit program in Latin America. In the beginning it gave supplies (seeds, barbed wire and other supplies) to the farmers as a loan, with the condition to return the double of the loan in kind at the moment of the harvest. This program did not work as expected, in part because the product had more value when it was sold in the market than its value for paying a seed loan. "The farmers used to sell the seed to the best buyer or just argue that the harvest was really bad and they had lost the harvest. In both cases they didn't pay back and that's the reason why it didn't work very well", Jorge Armando Rivera, PAC Coffee Program Manager, explained on 10 June, 2010.

WR then launched a second program of home vegetable gardens with the farmer s' wives. It aimed to increase food security and eventually sell surplus vegetables in the local markets. For the new program WF selected and trained a potential community leader for each group and up to four for each community. Later on, as interest spread, more groups were formed and their leaders, trained. While the food security of rural families was the main focus of the program, the training of leaders and the strengthening of local communities were also valued. Some of these local leaders and farmers' groups created a new organization called Association of People in Communitarian Action or Asociación de Pueblos en Acción Comunitaria (PAC) in July of 1996.

In view of the widespread default on the first small-loans program, WR cancelled the "Two for one" seed exchange scheme and launched a second one in which small credit was offered directly in money. It was framed under PAC's name and targeted exclusively rural producers on an individual basis. Farmers could use the loans to buy zinc, wire, tools, seeds and other rural supplies. With credits in money the pay-back rate was slightly better but the non-payment culture continued undermining the credit program. Martha Sandra Calero, Head of the Productive Chain Integration Department, recalled on 10th June 2010: "We were just coming out of the war, when everything was a gift and the farmers had a hard time paying an interest on their loans. Little by little people understood that if they received something, they had to give it back. When they received money, farmers tried a bit harder to pay it back. Sometimes they would get seeds or other supplies but the contract was signed for money anyway, in order to emphasize that it was a loan and not a gift. Through technical assistance the non-payment culture slowly changed to some commitment and farmers understood that they had to work for a living and for the growth of the family. That change was one of the hardest things that we have achieved in PAC".

At this point PAC as an organization existed mainly on paper and most of the beneficiaries did not know it existed. They identified the credit program directly as the work of World Relief. Although WR had systematically tried to employ local personnel, WR then decided to strengthen the institutional capacities of PAC by employing a number of Nicaraguan managers, including an Executive Director and technical personnel. Still within WR's budget but with a Nicaraguan administration, new financial services with small loans were incubated and efforts to expand the loans program redoubled, given that the financial indicators were still mediocre. In turn, PAC also attempted to expand the technical assistance in agriculture, organization, trade and associational schemes. Kevin Sanderson, head of WR Nicaragua at that time, emphasized in August 2010 that, "the idea was not to simply implement a couple of programs to support agricultural production but to structure an organization, train leaders and develop the capacities of the local personnel".

The transition to autonomy (2000 – 2003)

With the devastation produced by hurricane Mitch at the end of 1998, WR again needed to allocate a large amount of its resources to emergency aid and the recovery of housing. In view of this emergency, WR's leadership came to the conclusion that the loan program was not entirely compatible with its mission of humanitarian relief. In turn, the productive scale of PAC's farmers was well above the micro level that WR worked with. WR also acknowledged that PAC had already achieved a significant organizational development and considered the possibility of gradually withdrawing from the credit program. All along WR had intended to withdraw once PAC had achieved its financial sustainability, although this idea was not outlined explicitly. The idea was matured throughout 1998 and in December of that year WR announced that it was going to withdraw from the small loans program and that this was going to be transferred to PAC.

One of the current leaders of PAC says that "it was the moment of truth" for the organization that was about to become autonomous because "most of us who worked with WR felt that our world was falling apart". Mario Perez, current Executive Director, emphasized that it was "the point of inflection" in PAC's history. In contrast, Kevin Sanderson considered that it was nothing but a logical step after several years of working together: "Perhaps PAC's leaders were not fully convinced that the time would come but in the vision of WR it was always clear that it would withdraw and it was important to make it happen".

WR's decision was not to completely withdraw at once but to gradually transfer to PAC the loans and agricultural development program and all the assets that it had accumulated during its life. To achieve this, the conditions of the transfer were negotiated in relation to the organizational capacities, the learning of the human resources and the strategic vision that PAC had framed up to that point. The agreement between WR and PAC was signed on October 4th, 1999 (an addendum was added in August 20th, 2000) that commits the Nicaraguan organization to fulfill three conditions:

a) to become financially self-sustainable within seven years,

b) to develop and strengthen the organization of PAC, and

c) to use the assets loaned in an appropriate manner.

In exchange, PAC would obtain all the assets and the agricultural services and small loans' program. These conditions reflected several points of commonality in the vision that WR and PAC had framed together. WR had planned to finish the agricultural services program in 2003, so it chose that date to start the assets transfer. An exhaustive inventory of assets was made and they included agricultural centers and other properties, machines and other equipment and stock supplies. It was agreed that in a period of 7 to 15 years the transfer should be completed. The profits generated from the use of these assets could be retained by PAC for its own capitalization and only some of the assets could be sold. WR's Regional Resource Centers became PAC's Rural Promotion Enterprises (RPC), which would start providing farmers of agricultural services like technical assistance, technological transfer, validation of new crops, and reproduction of vegetative supplies. This scope of services was designed purely from the supply side and was not giving the expected results. In turn, PAC would also offer small credits to the farmers served by the RPCs presently and in the future. The agreement also established the institutional development requirements that PAC had to achieve. For example, it was stipulated that PAC had to secure ways to raise capital from private investors. Right from that moment it was clear that PAC's work should be oriented towards the 'strengthening of the entrepreneurial capacities of farmers'.

The main asset to transfer was the financial portfolio. WR was offering PAC the management of the entire credit portfolio and all the stocks for a total of one million dollars. It also gave PAC a loan of 1.8 million dollars with an interest rate of 5% a year to use as working capital with an option to increase the amount if the agreement was fulfilled. PAC would pay interests on this loan but it was not obliged to pay it back because it was a revolving fund without expiration date. Finally, PAC had to give monthly reports to WR on given and collected loans.

One of the most challenging points of the agreement was PAC's obligation to achieve 100% financial sustainability by the end of their fifth year in the management (2005) and which included capitalization based on its own profits. During those transition years there was a close collaboration between WR and PAC to achieve this goal.

Although a strong emphasis on financial sustainability was already part of PAC's organizational strategy, it imposed a radical change in the personnel's mentality and its operations. From being the local branch of a global NGO giving assistance coming from donations and subsidies, it had to reinvent itself to survive and grow on its own resources, which were considerably less than those of WR. PAC's activities had to generate enough income to cover its costs and, if possible, generate profits to capitalize the organization. PAC was founded as a *not-for-profit* organization but then it had to become a *not-for-loss* organization too, as one of the directors of Woord en Daad expressed it. "The banker's uniform was something WR certainly did not have and PAC developed. One of the main advantages of local organizations is not having a predetermined uniform, it has to be made", Kevin Sanderson assured.

At the same time, PAC's way of working was no longer about implementing a project, evaluating it and withdrawing. PAC was an association constituted to stay for an unlimited time and its success was tied to farmer's development. An institutional diagnostic elaborated in the beginning of 2000 identified a list of challenges PAC had to resolve to become self-sustainable and it included a low capacity to generate own resources, high operative costs, numerous workers, coordination difficulties between regions and general inefficiencies in the use of resources. In words of Mario Perez, PAC's Nicaraguan executive director:

"We had a lot of conviction and a strong commitment but we honestly didn't know if we were going to be able to keep this organization running. We had to start to produce in order to support ourselves, as any other enterprise. The other question was how we would get those that came from WR to lose their charity mentality and become rural business consultants. Some of them left and others adapted, but even with those that stayed there were a lot of conflicts because some of them were conservative and others more progressive. Those that came from WR didn't see themselves as PAC but as WR. In addition, we started talking of the "poor farmers" whom we didn't have anything else to give away to and would have to start paying their loans and the services and supplies received".

The transition produced a significant and complex change in PAC's team. In December 2000, it was announced in an internal meeting how the organization was going to be from that moment on. The budget was adjusted to the real possibilities and the technical team was reduced. Other changes were implemented to increase efficiency and reduce costs, and the information systems were updated in order to follow up with account and credit conditions. Financial sources were diversified and portfolio administration procedures were established, especially to resolve of non-payment culture that affected WR's programs. The improvements to increase repayment rates included training, investments in PAC's image, and a close follow-up of the debtors. One critical change was to require real collateral for new loans and the aim of reaching 100% collateral on loans in the medium term. The technical personnel was no longer seen as a provider of "technical assistance" but of "business services", because the small farmers began to be looked at as small entrepreneurs who needed to be offered income generating opportunities. Besides that, PAC started to offer prizes and commissions for collecting the loans. One of the business managers that experienced the change from WR to PAC explained that "in the new PAC we had to recover the credits, find the more responsible farmers and communicate to the rest of the community that everything has a price". There was a natural selection process with the passage of time and the farmers that did not pay back did not receive new credits. For the new loans those who paid back got preferential treatment, and also prioritized were those that made the improvements that the technicians had suggested or who came with a recommendation from other members as 'proof of trust'. In fact, a significant number of new debtors were recommended by word of mouth by those who had paid back their loans. Finally, meetings were held in the communities where PAC was working to disseminate its new image as an independent Nicaraguan organization, no longer as a part of WR. Since PAC continued using the same assets and basically the same personnel, that process was not easy and even in 2010 there are farmers who wrongly identify PAC as part of WR.

Organizational consolidation (2003 – 2007)

The withdrawal of WR was gradual by regions and programs. In spite of the many challenges, PAC consolidated a working team, both administrative and technical, that was fully committed to the organization. Financial services were restructured in order to be compatible with the income generation objective and agricultural services for sustainable development programs were jointly implemented with WR. In 2003 the final stage of the withdrawal became a fact and PAC became gradually autonomous. "Some said that PAC was going to last one year at most. It was a challenge to see how far we could take this organization, what else we could do for those communities that felt that with the departing of WR their world was ending. We had to show that we could do it", explained Néstor Rodríguez Rivera, Under-director of PAC Enterprise Group.

In 2003 the new PAC reformed its statutes, which were mainly inherited from WR but no longer fit the Nicaraguan organization. For example, the governance structure at that time did not include regional institutions like the regional assemblies or the local business promotion groups (GADE). The new statutes emphasized the encompassing development approach, including financial services, and a participatory approach of the grassroots. The process to conform new local groups was institutionalized, as well as the farmers' representation in the general assembly (the governance structure described in the next section is the one that was defined in 2003).

The myth of the "poor farmer" was one of the hardest to eradicate, but the rural background of most of PAC's leaders played an important role in this sense. In PAC's vision, farmers with land, water, and plants that are producing a crop are not "poor farmers" but persons with resources that, with the right support, can increase their income and facilitate the payment of loans and services. This depends, of course, on the technical support which allows them to generate the profits to pay for it. PAC also understands that when farmers are paying for a service, they have the right to demand a quality service that will add value.

One of the main challenges for PAC in the agreement with WR was the strengthening of local entrepreneurial capacities. In 2003 it tried its first alliances with local entrepreneurs to generate business initiatives beyond just financial activity, preferably to coordinate value chains that would link the various local actors. It also provided training and loans to rural farmers who wanted to start up a business in selling agricultural supplies, trading crops or transportation and storage. With loans from PAC these local entrepreneurs started to finance small farmers (up to 3.5 hectares of land) with a small loans system without collateral and at the risk of the local entrepreneur. The local entrepreneur was the financer for small farmers and he charged an interest rate of one or two percentage points above what he paid PAC. The experience was varied and some entrepreneurs saw the scheme as an opportunity to increase their income in the short term. In time PAC developed control mechanisms and administrative support to monitor the behavior of the local entrepreneurs. This also helped to avoid the occasional cheating on the weight and/or delaying payments after the harvest was sold. This system of financial intermediation via a local entrepreneur was improved and remains in the present. It allows PAC to reach a larger number of farmers with lower transaction costs and it can thus concentrate on serving medium size farmers with more than 3.5 hectares of land.

The asset transference from WR to PAC was finished in 2007 although World Relief still supports certain activities and specific projects with relatively limited budgets, like the improvement in coffee quality and the diversification to the tubers and roots sector. In the period between 2003 and 2007 PAC worked in reaching its financial sustainability and generating an organizational and corporative future in the long run. It achieved operative sustainability when it structured a diversified loans portfolio in order to manage risk. It first sieved through the bad loans and redoubled its efforts to recover those in arrears. By June 30th 2007, PAC had reduced the percentage in arrears from the 8% received from WR in June 2003 to 2.20%, and the portfolio in arrears went down from 20% to 3.30% in the same period of time.

PAC gradually structured its intervention model for local development in line with the agreement signed WR but also adapting it to Nicaraguan management idiosyncrasies and institutionalizing the solutions found in trial and error. It gained credibility and obtained new loans from local and international banks. It consolidated the credit portfolio with rural farmers and made an alliance with the Dutch NGO Woord en Daad to promote the development of entrepreneurial capacities and small and medium loans (larger amounts than the micro-credits in which WR specializes). In addition to the investment resources to coordinate and strengthen value chains, the alliance with Woord en Daad was crucial to further PAC's learning process and link to W&D platform of Dutch entrepreneurs.

The leadership capacity of PAC's top managers deserves special mention because it gained respect from the Executive Board on to the lowest levels of rural farmers. As an illustration, on June 9th the Executive Director was observed motivating the farmers from the San Martin GADE, located in San Rafael del Norte, to "plant even their elbows with coffee and taro". Strong leadership at the top managerial level and commitment up to the lowest ranks have been fundamental in the success of such an organizational model. Kevin Sanderson, Executive Director of WR in Nicaragua, underlined the importance of strong leadership in organizational processes like PAC's and summarized it in a nutshell: Mario Perez, PAC's Executive Director, "reached PAC by the hand of God. One must be called by God and stick to his commitment and vocation to lead a process like this one".

PAC's intervention model has therefore consolidated with some specific Nicaraguan characteristics and shows the design of the leaders that performed the transition. A member of the board of directors said that, "PAC came out from the womb of WR but was born in Nicaragua, so in the end it is *mestizo*". This synthesis reflects a specific joint evolution that departed from a type of vision and a practice based on aid to another type of vision and practice, based on entrepreneurship. The trajectory was gradual but the orientation was clear in the transfer agreement from WR to PAC. In the beginning, WR contributed assets, capital, and a set of agricultural development projects that depended on international cooperation to subsist. When WR withdrew, it defined a set of ambitious goals that PAC would have to fulfill and gave it unusually favorable conditions such as a five years term to achieve financial sustainability[1]. It also transferred the human resources to move forward with the transition and achieve those goals. From there, the work was left in the hands of the Nicaraguan team to establish mechanisms to make the joint vision with WR come true. PAC managed to adjust the vision to structure a local development model that combines flexibility, innovativeness and appropriateness to the local reality.

WR emphasizes the culture of correcting mistakes developed by PAC. It has managed to rationalize its learning process in four main principles. The first one is *compatibility* to match interventions tools with the nature of the actors involved. The second one is *complementarity* to create synergies between the actors and develop economies of scale. The third principle is flexibility to make adjustments along the way. The fourth one is hedging to create local capacities through the investment international cooperation funds.

3. Governance structure and activities

The coordination of value chains is achieved by tying up the diverse interests of a wide variety of actors, which are linked together through PAC's activities. The organization supplies two kinds of services: technical support and financial support. This section describes first PAC's governance structure, which opens several opportunities for the representation of diverse interests within the organization. It then presents the two types of activities it performs in the local economy.

PAC introduces itself in its webpage in Internet (www.apac.org.ni) as "an organization with entrepreneurial vision and practice, with an axis on the transformation of individuals and their social and economic environment, which they are directly responsible for". In the same page PAC's announces its vision is to become a rural development corporation on the basis of strengthening business platforms integrated by small and medium rural entrepreneurs. PAC's corporate mission is to "create environments of trust in order to generate and motivate investments in a context of equity and transparency as a realistic and sustainable answer to the problem of poverty".

In order to achieve these, PAC is ruled by an institutional structure that encompasses the interests of its members. Its governance bodies are the General Assembly, Board of Directors, Regional Assemblies and the Self-management Economic Development Groups (GADE for their initials in Spanish). The farmers are organized bottom-up. At the base, the members form 79 groups (GADE) where the farmers coordinate their business platform in line with the strategies and plans approved by the General Assembly. The GADEs are territorial structures at community or regional level formed by fifteen to twenty entrepreneurs (farmers and small business owners). GADEs are created after the producers' intention to organize themselves and integrate PAC's initiatives. Recruitment is by invitation of active members only and if its size grows beyond the number of affiliates, it can divide in two, depending on the geographical

[1] The normal practice is 1 to 2 years. See, for example, Helmsing, A.H.J. (2010). Smallholder participation in high value agro-export chains in Peru. A study of the co-evolution of technology and institutions. Paper presented at the Workshop on Globalisation and the changing geographies of production and innovation: Implications for workers, firms, regions and countries, Organised by University of Utrecht, 5-7 November 2009

coverage. Some GADEs specialize in one single crop, for example, coffee, and others are constituted by farmers that grow different crops. Every GADE has a leader, who participates in a Board of Leaders, from which three representatives participate in the Regional Assemblies. At this level, specific policies are discussed and agreed for the local contexts and three representatives are chosen to participate in the General Assembly.

Besides this, farmers that grow the same crop elect a coordinator to promote the discussion and implementation of business plans per crop. These crop-groups have a coordinator and intend to promote the labeling of controlled designation of origin (AOC) for some products. At the regional level there are PAC technical councils formed by representatives of member producers, staff and local businesses; these councils meet quarterly.

The highest authority of the organization is the General Assembly, integrated by all the members and the representatives of the affiliates. The General Assembly is where strategies policies and plans are discussed and approved, as well their implementation. The General Assembly elects the Executive Director and the Board of Directors that preside over the General Assembly. The Board of Directors leads and monitors the fulfillment of the policies and strategies approved in the General Assembly and formulates proposals and resolutions for their approval in the General Assembly. The Board of Directors is integrated by seven members: President, Vice-President, Secretary, Treasurer, Comptroller, and two members to monitor.

This governance structure intends to assure that all farmers have the opportunity to participate in making decisions and to receive information about business opportunities. However, the functioning of the work teams and dynamics of the information flow in every direction is somewhat different in reality than what is intended by the organization. The visited GADEs during the field trip, for example, do not meet every month and if PAC's technician is not around they do not usually generate business opportunities. Some GADEs have developed more than others and are more dynamic in their self-management.

While PAC promotes its entrepreneurial vision, it is still faithful to its NGO mission and social responsibilities, which are considered as a corporate responsibility. Several annual assemblies have discussed possible social policies to pursue and have allocated funds to satisfy the needs of some communities. For example, roads' repair were paid out, and in 2010 PAC was running a food security program with training on nutritional quality, a waste and water-management program to protect water resources and young leaders' training via internships. The allocation of funds is decided by voting in the General Assembly and chosen from a list of needs and suggestions collected by the GADEs at the local level. The 2010 General Assembly adds the management of the fair trade coffee premium to distribute, which has been received for the first time that year[2].

In relation to the links with local businesses, PAC launched its first initiatives with local and national investors in 2009. Investors provide financial capital to feed PAC's various program and have yielded profit rates of up to 3% a month. Their participation gives PAC extra financial resources that are used to attract more producers to the value chain or offer more

[2] The Fair Trade certificated products receive a premium of the 10% over the export price that is only used for social projects.

loans to those already involved in it. The scheme with external business investors was running with the cocoa value chain. The support of some Nicaraguan businesses has been the key to attracting other investors to the scheme.

After just a decade of its first transition; PAC has started its second transition, this time toward a "rural development corporation". In 2010 PAC started an innovative structural redesign which divides it into three different entities that in the future will be separately registered: a financial services company (Finapac), a nonprofit organization (PAC ONG) and a firm of agricultural technical assistance services (Grupo Empresarial Rural, EDESA). This is the second major transformation that PAC will experience: the first one was the transfer from WR to become an independent organization and the second one is its sub-division into three different independent units. There are several motives for this re-organization. In first place, PAC offers clearly differentiated services. The capacities of the credit managers, for example, are very different from the ones of rural technicians, so the staff will be distributed in the three organizations to become more specialized. Secondly, PAC's legal nature as NGO limits its expansion and medium term strategies. For example, it prevents it from offering certain financial services area but also allows it to access international cooperation funds that, being a for-profit firm, PAC would not be able to reach. Thirdly, clear rules are needed in order to attract more resources from external investors. The reorganization will separate into three independent organizations the three fields of activities that PAC performs: agricultural development services, financial and technical cooperation. A description of these three areas follows in the rest of this section.

Entrepreneurship Development Services

The technical support services include four programs to assist rural entrepreneurship development: 1) training and technical assistance for production, 2) young leaders' support, 3) entrepreneurship capacities development, and 4) generation of market intelligence. Within the technical assistance activities, for example, PAC allocates 230,000 dollars for research and development in order to validate new agricultural technologies and to diversify the crop offer, and 243,000 dollars assist 382 farmers to obtain various international certification processes (C4, C.A.F.E. Practices, and Fair Trade). The technical assistance activity prioritizes sustainable agriculture practices. The young leaders' support program is focused on strengthening the entrepreneurial capacities of the new generations of producers and is one of the keys for the organizational culture transfer. A network of children of farmers who have been PAC members for some time is already working. The entrepreneurship capacities development program delivers training in organization and business. It entails local production diversification and the incubation of structures and networks of development services in which 82 small and medium enterprises were participating in June 2010.

PAC also offers market intelligence and marketing services, which seeks to link farmers with national and international markets and provide information to start up new businesses. It promotes long term strategic alliances with export companies for international and domestic commerce, with manufacturing firms that buy their supplies from PAC's farmers, and with the companies that produce the supplies that PAC's members buy. They also follow up spot coffee prices, for example, in the New York stock market and search for new target market niches to expand PAC's distribution channels, for example, towards Fair Trade markets. In 2010 it managed PAC's first direct export sale of specialty coffee.

Farmers are considered small rural entrepreneurs in PAC and receive a diverse menu of services in the various production, processing and commercialization stages. In the production stage, PAC offers training about soil preparation, facilitates the access to high quality plants, and offers agricultural supplies such as fertilizers and other biocides to control plagues. In the processing stage it facilitates the logistics of the crop's primary manufacturing, for example, with the transportation from the farm, storage, and the various steps of processing procedures. Finally, PAC contributes to the commercialization linking farmers to markets via a network of agricultural traders. According to farmer preferences, PAC buys and pays off the product when delivered, offers storage facilities in order to wait for better prices, or makes partial advance payments up to 80% of the estimated final sale of the crop.

This structure was consolidated after PAC became autonomous. For example, for the coffee value chain in 2003 the country was divided into two regions according to quality of the product. Some producers then started to work with specialty coffee, which now keeps a yearly export base of ten containers[3]. That same year PAC signed an agreement with Atlantic, subsidiary of ECOM group, by which this trading company commitment to sell a minimum number of containers from PAC every year (details of this agreement are described in section 4). At the end of the decade PAC pursued a fair trade certification that pays a premium of ten dollars for every hundredweight of coffee. The Fair Trade contracts specify that the coffee has to be traceable and that has required some investments by PAC on its information infrastructure. One of the managers of the coffee chain emphasized that, "the most important aspect of Fair Trade is not the extra 10 dollars for every hundredweight exported, that has to be invested in social programs, but that it makes us organize and effectively follow the route of the coffee. Besides this, Fair Trade sets a minimum price for certified coffee". Between the 2008 and 2009 seasons PAC increased its coffee exports from 23 to 40 containers.

Table 1. PAC Exports (April 2010)

	2007-2008		**2008-2009**		**2009-2010**	
INDICATOR	Vol.(TM)	USD	Vol.(TM)	USD	Vol.(TM)	USD
Coffee	352	1,033,857.20	388	1,006,365.00	721	2,168,523.18
Taro	1820	1,071,452.65	2080	1,207,801.23	1317	980,188.26
Cocoa*	-	-	25	46,821.00	50	121,709.00

* total exports and local sales

[3] Specialty coffee is the one grown above 900m above sea level and has minimally 80 points in the SCAA scale

PAC is attempting to diversify into crops with higher profits and new market niches. One example of this work is the dissemination of the taro among its members[4]. It is a high value added product with strong and growing demand, especially among immigrants in the United States and other Caribbean populations. Its human consumption was unknown in Nicaragua, but PAC has developed its planting and export business. It had to train the farmers and workers in every stage of the plant care, collection and processing, because a small mistake in the tuber collection in the field or late harvesting could ruin it and it would not be saleable in the international market. The taro dissemination is part of PAC's efforts for diversifying the use of the land on coffee farms, because it grows all year long while the coffee only produces an income a few months of the year. Many farms started to produce it, even some that are not PAC members. In fact, PAC's quality requirements for the farmers in this regard brought on the exit of some of them from the organization.

Financial Services

The financial services area is the most profitable for PAC and is the one that subsidizes most of the investments in the development services branch. According to what was revealed by one field manager interviewed on the trip, "PAC's value chain works when pushed by credit". On June 30th, 2010 the organization manages a portfolio of six million dollars in loans. The working capital comes from various sources, as shown in Table 2. The level of indebtedness (ratio between debts and patrimony) was 1.4 in June 2010 because PAC has used its own resources to invest in development services, instead of increasing its lending capacity.

Table 2. Sources of finance

Creditor	Saldo	%	Interest rate
World Relief	2,369,951	41%	8.5%
Woord&Daad	400,000	7%	5%
RABOBANK	700,000	12%	8%
OIKOCREDIT	800,000	14%	9.8%
WCCN	375,000	6%	10.5%
Domestic Banks	1,037,037	18%	12%
Others	111,900	2%	10%
Total	**5,793,888**	**100%**	

[4] Its scientific name is *Colocasia esculenta* and is native of the Asian southeast. It is known as malanga in Spanish and taro in English, a word that comes from Tahiti. It's known as kalo in Hawaii, cará in Brazil, yautía in Puerto Rico and the Caribbean, and toran in Korea (土卵), that jeans "soil egg". Is also known as mafafa, callaloo, pituca, chonque, bore, chinesse potatoe. It's a traditional food in many tropical areas of the world; ussually is boiled, cooked or fried. It grows in ricelands or lands where water is supplied abundantly by irrigation or by rain. http://es.wikipedia.org/wiki/Colocasia_esculenta

The credit portfolio has had a favorable evolution since PAC received it from WR in June 2003, even as the economic crisis of 2009/2010 took its toll. Credits center on rural activities (85% of the total) and are presently financing around 3000 rural businesses in their different stages of productive and commercial activity. The total 100% of the loans are backed by assets in land, vehicles or future harvests or a combination of all three. The balanced average credit is of 3,000 dollars exclusively for agricultural production (no consumption or commercial credit).

Table 3. Financial indicators

Indicator	June 2003	June 2007	June 2010
Portfolio size, in US$ million	2,3	5,1	6
Loans given	2558	13,465	18,707
Loans given to SME's	3	48	78
Loans given to medium size farmers, total in US$	38,150.35	259,631.46	686,391.01
Loans for rural businesses, total in US$	84,562.55	1,068,561.34	1,732,461.91
Average weighted interest rate	21,27	25,8	26,4
Weighted average term, in months	20	25	31
Arrears portfolio, in %	8	2,20	4,4
Affected portfolio, in %	20%	3,28	6,2
Average loan, in US$	916	2.000	3.150
Loans up to US$ 1,000, in %	74.12	48.27	36.3
Loans above US$ 5,000, in %	7.01	17.23	21.65

Note: As a comparison reference, a coffee picker receives a dollar for every bucket picked. The minimum subsistence salary for the agricultural sector is US$2.75 a day, equivalent to C$59, plus one daily meal, according to the Ministerial Agreement JCHG-08-0810, http://www.mitrab.gob.ni/documentos/salario-minimo/Ac-SalMinJCHG-08-08-10.pdf/view

There are three credit lines developed with Woord en Daad, depending on the amount. Credits for rural medium farmers are given to those who need to invest in productive assets, replanting their farms or for irrigation equipment, for example, and these loans can reach amounts above 10,000 dollars for periods of three to five years. The land acts as collateral and the approval is obtained straight from W&D in The Netherlands. The yearly interest rate is 15% to 20%, and from that, W&D receives 5% and PAC keeps the rest. The second line is for small loans (less than 10,000 dollars. Land acts as collateral, although the future harvest is occasionally accepted. These loans are contracted directly with PAC and the average is 1,750 dollars each, given for less than three years. The third credit line is for commercial and services SMEs which need to invest in vehicles, storage infrastructure and working capital. The object of the credit acts as collateral except when the entrepreneurs own land. The loans they receive from PAC are above 5,000 dollars and approved directly by W&D. They have a required payback period of time of three to five years with yearly interest of 15% to 20%.

Value chain organization also requires storage facilities to manage the crops from the farms to the manufacturing plants. Several storage enterprises participate in PACs' storage network, which contracted loans from PAC from the following funding sources:

Table 4. Funding sources, storage network

Debtor	Amount	Saldo	Interest rate
BANPRO	362,629.53	217,577.71	13.0%
Atlantic Trading	1,900,000.00	0.00	3.0%
W&D	400,000.00	400,000.00	9.5%

International Cooperation

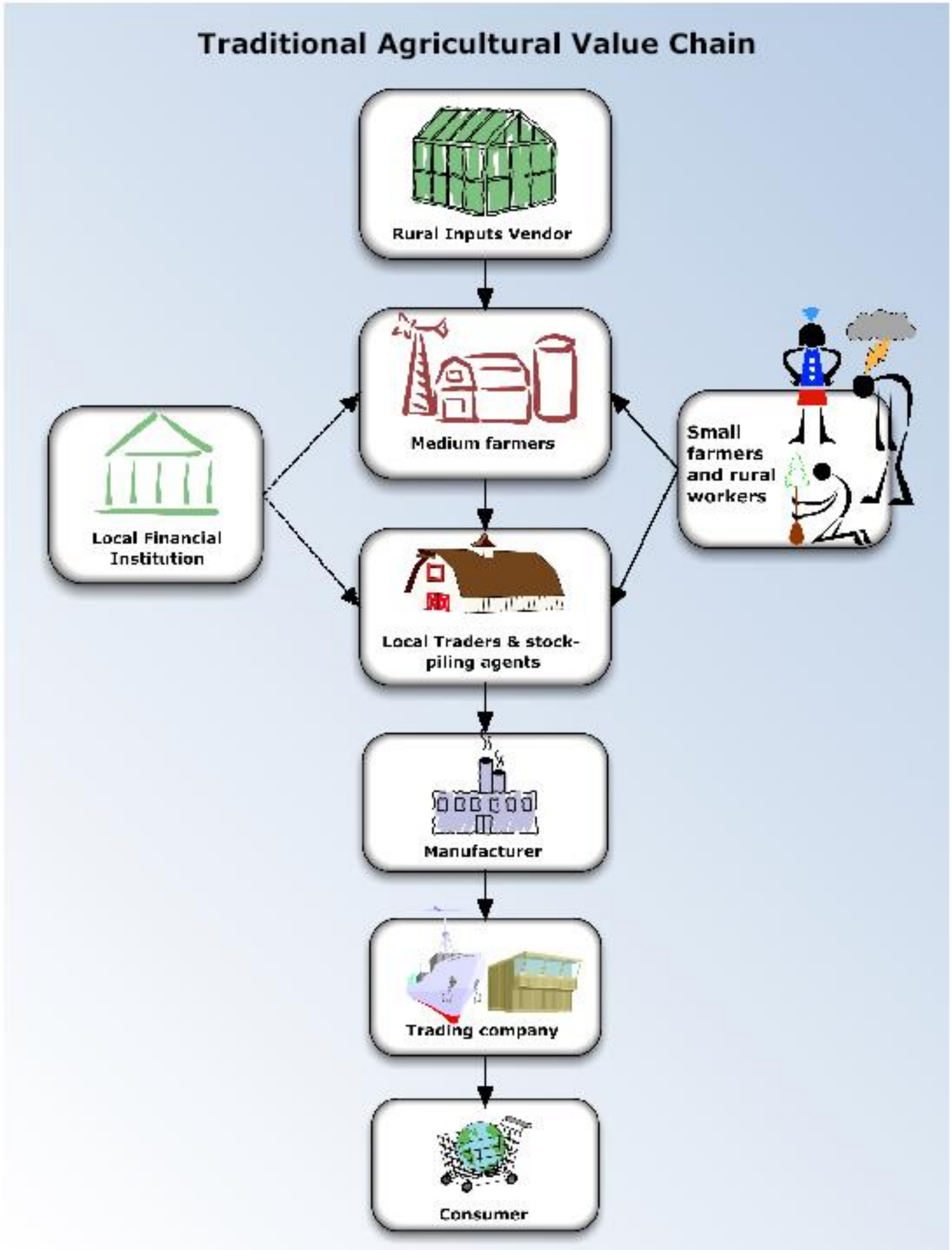
PAC receives international cooperation funds almost exclusively in the loans that were described in the last section, instead of grants. There is small percentage given as aid for the investment in specific developments, like the promotion of business platforms. These sources are: Woord & Daad, Humane Society International, Progreso-GDF y CATIE-PCC. The total amount of international cooperation aid was 265,000 dollars in the last three years. The partnership with W&D has contributed in investment resources to build and strengthen the value chains as well as knowledge and contacts to articulate PAC with the business platform of W&D in The Netherlands.

4. The Rural Value Chain and PAC

PAC's introduces its model the creation of a "risk-control business environment". This section will analyze the meaning of this statement. What is the PAC model? How does it control risk and how does it create a business environment? The situation of larger farmers (more than 10 hectares of coffee, for example) was not affected by PAC's development because they are not part of the target group of the organization. They have sufficient access to credit in local or international banks, buy their supplies in major stores and hire labor permanently through the year. They store and transport their harvest and the largest ones have their own crop processing facilities. With coffee, for example, they have their own dry mill where they finish the processing and pack it for the final sale. The international traders, mostly foreign ones, export the crop and pay when it is delivered.

The agricultural value chain for small and medium size farmers before PAC's intervention is illustrated in Graph 1, in a simplified version that varies slightly according to the crop, region and farm size. The medium size farmers (for coffee, for example, between four and seven hectares) need agricultural supplies for which they have to pay with their own resources, and they buy it from local businesses, who sometimes give them on credit in exchange for the promise that the harvest will be sold to them.

Graph 1



There are also some local credit organizations that give loans to the farmers which offer reliable collateral and are relatively close to the urban centers. In general, this group of farmers has deficient or no access to credit, so some of them drastically restrict the use of fertilizers to the minimum and the yields of their farm production are significantly lower[5]. Refinancing in case of harvest failure is complicated, expensive and sometimes impossible, and since the land

[5] A farm can produce 12 to 15 quintals of coffee with the use of proper agrochemicals, about twice the yields obtained without them (6 to 8 quintals of coffee).

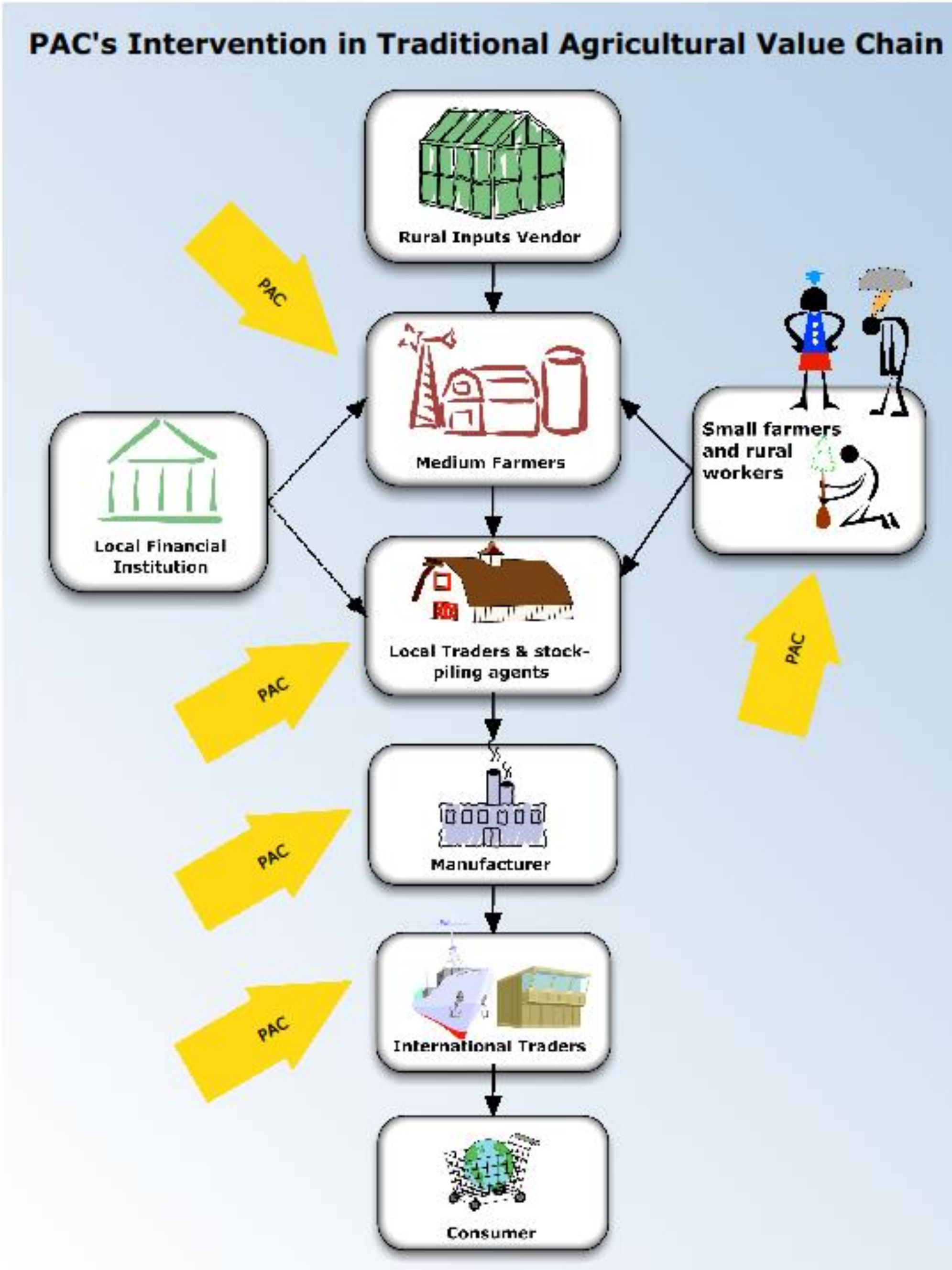
is the guarantee for the credit, the farmer risks losing part of the farm in case of non-payment. This type of farmers hires workers for the harvest period, but only after they exhausted all the family manpower (including sons and daughters older than 12, presumably). The harvest is sold to local businesses that are located in the area or travel to the area, who finish the processing or sell to international trade agencies to complete the manufacturing and packing process.

Small farmers (less than four hectares) only have access to credit, technical assistance or rural supplies through the programs of international development aid or the government, which is normally inadequate to boost their income. The production yield is low and in their free time they work as waged labor in larger farms or with rural businesses. The family income is insufficient and these rural households are almost always under the poverty line and sometimes without food security. What they grow on their farms they sell to local businesses that live in the area or that travel around it in the harvest season. Abuses with low prices, weight and payments are very common. In practice, for the most part, this farmer segment is excluded from rural value chains; therefore, usually unable to escape poverty.

The third group of actors in the chain is the rural businesses that sell agrochemicals and other basic supplies to farmers. There are rural businesses that specialize in trading crops and often buy the harvest at farms' gates. When they have working capital they become a credit option for the farmers through the pledge system. The businesses provide rural supplies in installments and in exchange they get the promise that the debt will be paid with the farmers' harvests. The agreement works on the basis of trust relationships that are characteristic in local communities, without guarantees or written contracts. In larger settlements, the various businesses exchange information about who has pledged their harvests and to whom they have given a loan, avoiding the possibility that a farmer sells the crop twice. Some businessmen travel around the communities, especially in the harvest season, buying the crops. The transaction is closed in situ: the business man loads the product and commits to pay in the next visit. In some cases, he pays for it in cash or with basic goods such as bread, oil, sugar, etc. The operation is cancelled at the market price of that day, without storage waiting for better prices. Most of the interviewed farmers on the field trip remembered having bad experiences with unknown merchants that never return to pay, and other problems.

The entrance of PAC in this scenario significantly altered the value chain (graph 2). By offering credit, medium size farmers buy agricultural supplies and improve their farms. In addition, PAC gives free technical assistance on subjects like choosing the right agrochemicals, times application advice, plant care, etc. The supplies are given by PAC directly at the market price and sometimes on credit. These two factors have remarkably increased the production yields of PAC's members. The technical advisors routinely visit the farmers and advise on plague control. A local PAC center buys the harvest at market prices, but the farmers are free to sell to whom they want.

Graph 2.



The farmers that sell their crops to PAC have the option of storing the product and receive partial payments in advance, up to 80% of the money that they will get when they sell. Since the product has been delivered already, PAC charges no interest over the advance payments. The farmer that decides to sell to somebody else pays his debt with PAC when he receives the money, but these cases are rare. Obviously, those who work with PAC are just a portion of the farmers of the community because its lending capacity is limited and also because it gives priority to those who already had credits in the past and paid or who have references from a member. On a different matter, PAC has no specific gender policy, so women farmers do not receive a differentiated treatment.

One of PAC's strengths, according to the farmer perspective, is that it works on the whole value chain. Even if the farmer has no explicit obligation to use all of PAC's services, it offers a complete package that includes credit, technical assistance, supply provisions, a market for the sale of the products and even after harvest care of the soil. While other organizations that give loans and technical assistance exist, they do not offer sales opportunities. There are also a large number of traders that buy the harvest, even at better prices than PAC, but they do not offer credit or technical assistance or attempt to establish a long term relationship with after harvest management. During the field trip, in the focus group of the San Rafael GADE the farmers explained:

"Maybe PAC pays a little bit less than others, but it always pays and they never cheat with weight. Sometimes someone sells to the merchant that goes around buying and receives a few pennies more, but that merchant leaves and that is the end of his work. When you sell to PAC, right away a technical advisor comes to help to clean the soil or re-fertilize it. That is important too, it is an entire years work."

The comprehensive chain intervention approach also generates loyalty feelings between the PAC members toward the organization. In the La Pavona GADE, still incipient, the participants emphasized that:

"Even if you lose a little bit, I understand that PAC invested in me, trained me and took me to visit other farms. I am 50 years old and I am still learning. I still don't have any credit with them but always sell to them, because I know that in the long term I am going to gain more."

The second point of PAC intervention (Graphic 2) is at the rural business level of the intermediary between PAC and smaller farmers. There have been two kinds of experiences, the businesses that were already operating and joined PAC's chain and those that were directly born in it. In the first case, there were negative experiences with people whose business culture did not always match with PAC's culture and that PAC could not control effectively. That is why PAC prefers to train and support its own local businesspersons. They are people that started their relationship with PAC as farmers, received a small loan or sold a harvest and at some point declared their intention to become rural businesspersons. With that in mind, PAC trained them in giving assistance to others and gave them loans to capitalize them, acting as an incubator. With this money the entrepreneur gets the working capital to sell and buy supplies and harvests, or to invest in buying transportation vehicles or storage facilities. The collateral for these credits are their lands or other pledges such as assets like vehicles.

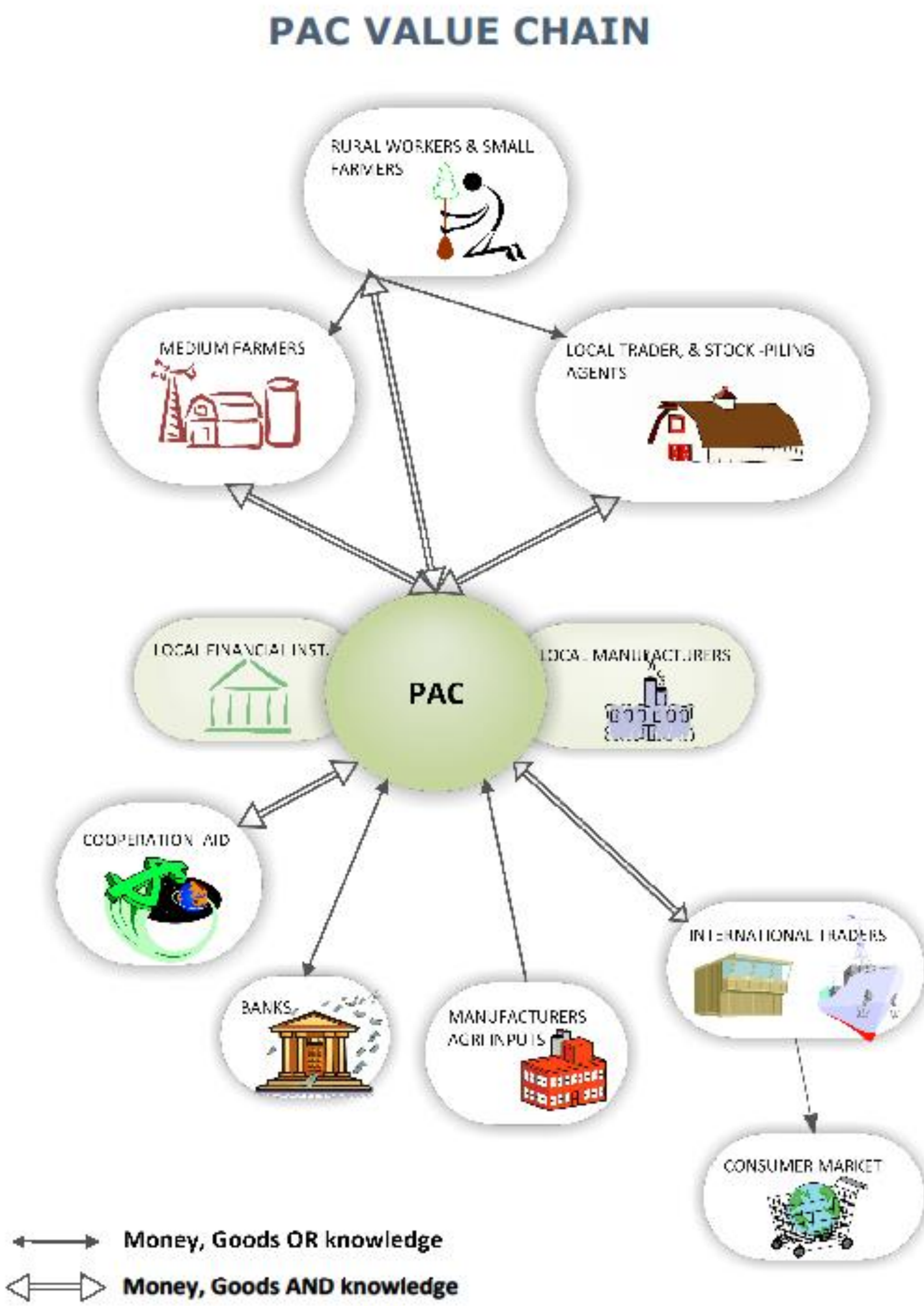
The local business has a critical importance for the third point of PAC intervention in the value chain although it is an indirect type of support. It involves the small farmers, with less than four hectares of land and financial needs of less than 1,000 dollars. The rural businesses are the ones that offer credit, technical assistance and after harvest care services to the farmers' segment that have small farms or leased land. The rural businesses act as financial agents for very small loans that usually are given in goods (supplies) and are paid also with goods (the harvest). These small-holders of land usually do not have anything other than their word of paying back the loan and as much as their small farms, but usually that is enough because they are people that live in the locality and are affected by trust and proximity relationships. Through the rural businesses PAC reaches the poorest segment of rural farmers, but at an operative cost several times lower than if it decided to do the assistance directly. The local businesses receive loans from PAC with a yearly interest rate of 20%, for example, and give the loans to small farmers with a yearly interest rate of 22%[6]. This is a small margin because the main business of the local entrepreneur is the seller-buyer of goods, and not of a financial intermediary. This is also a way to distribute the credit risk and transaction costs and to distribute credits in a more efficient way because PAC does not have social networks that reach the smallest farmers, which the local businesses do possess.

The fourth intervention point in the value chain is at manufacturing. World Relief transferred some of these facilities to PAC (for example two dry mills for coffee processing). PAC added others with the passage of time, for example the facility for taro processing that was built in Matagalpa that has value of 300.000 dollars. PAC also facilitated financial resources to the network of local businesses to build storage facilities and improve their infrastructure. The advantage of having its own facilities is to better organize the productive process and to guarantee the amount and quality of what is exported. This point is essential for the traceability of the crops that demand certification such as Fair Trade and C.A.F.E. Practices. Besides, at the hired dry mill where PAC members' coffee is processed the organization has positioned its own supervisor in order to solve problems and conflicts immediately. It was proved that the percentage of the top quality coffee was 46.5% when it was not supervised and increased to a 48% when supervision was commissioned (this difference amounted to 61,000 dollars more earnings). None of PAC associates on their own could afford to pay for their own supervisor at the mill.

The last intervention point is with the international commerce agents. Atlantic committed itself by a contract to sell a minimum quota of ten containers of coffee with C.A.F.E. Practices certification, which sells to the American company Starbucks Coffee. In turn, it declared its commitment to sell another ten containers of Fair Trade certified coffee. The rest of PAC's coffee is sold at the prices of the New York Exchange Stock Market. That means that Atlantic commercializes the coffee provided by PAC in three categories: Fair Trade certification (FLO), with C.A.F.E. certification for Starbucks, and the regular coffee. Also, Atlantic contributed with 100,000 dollars for a period of time of six months interest-free and 400,000 dollars with coffee as guarantee with a yearly interest rate of 12% as working capital, coffee storage and handling. It also made the commitment to give 20 dollars in advance for every quintal in storage which is paid on the date of the farmer's preference. In practice, in 2010 Atlantic sold 18 containers of specialty coffee and the volume of transactions was 1.9 million dollars in advance payments at a yearly interest rate of 3%. Cocoa is traded through Ritter Sport and for taro there are three international commerce agents in the United States (International Specialty Produce in Miami, Florida, Homerun Avocados in New York and Agricultural Marketing Services in Los Angeles, California). There is a long term relationship with all the traders.

Graph 3

[6] These interest rates are established in the agreement between PAC and the local businesses.



Graph 3 illustrates the value chain as reorganized by PAC. In comparison with graph 1, there are several changes obtained by the inter-crossing of contracts between different types of actors. The function of the local banks in agricultural services and process of the crops have been absorbed by PAC as the central actor of the chain. Even more, PAC coordinates the activities of other actors, a role that increases the effectiveness of the other economic agents that participate in it. PAC is the principal intermediary of the supply flow, financial capital, international cooperation funds and exports through the agents that link them with the consumer markets. This central role allows it to grasp profits in the different stages of the value chain, which is the income that finances PAC's operative costs.

PAC's presence changes the way that other actors work. The small rural farmer gets integrated in the productive network with their own farms and not only as an occasional waged worker in bigger farms. This inclusion, however, is indirect and operates through local businesspersons that are intermediaries with their own risk and their own capital and give micro-loans without collateral, free technical advice and the certainty of a selling outlet for harvests at a reasonable price. In this way, the image of rural businesspersons gains importance in the chains coordinated by PAC. The medium size farmers are usually part of a GADE and members of PAC, which grant them access to several services that they would not be able to pay for on their own and which increase the production of their farms. In addition, in the chain coordinated by PAC the development aid donors appear. These organizations have been present in Nicaragua for several decades, but they have never been coordinated around a Nicaraguan central agent.

Concerning the impact, a quick appraisal showed that the value chain re-organization through PAC modified the profit distribution. It has improved the medium size farmers' situation, and helped the small farmers to escape poverty, even if they are reached indirectly. Local entrepreneurs have expanded their businesses and multiplied rural employment for people with little land or no land. Although the impact is apparently positive, there are no specific evaluations on the differentiated impact per category of actors. During fieldwork it was observed that for the medium size farmers their link with PAC meant the increase of their entrepreneurial capacities and a significant opportunity for improving their farms that in the medium term will improve their economic situation. PAC's credits are strictly restricted to productive investment, and the totality of the interviewed farmers during the field trip reported that "the farm is healthier and producing as never before". Some of them received loans for installing anti-hail webs or to renew their coffee plantations, a necessary investment that has to be done every seven years but that in practice is delayed because they do not have enough funds available. It has a cost of 2,700 dollars per every 0.7 hectares and generates a job every 1.4 hectares. Other farmers have bought additional cattle, land or built basic housing infrastructure for temporary workers who stay at the farm during the picking season, which is a condition for the Fair Trade certification. The farm investments and increases in production provide an improvement in life quality and in the medium term may allow some farmers to escape out of poverty. The medium size farmers made some life changes, as home improvements or hiring workers in order to let the children stay in school longer. The local businesspersons show a similar trajectory after they link to PAC and the extra income is used for home improvements, window installation and buying vehicles for crop transportation. Some of their children now study in universities, something that was considered absolutely exceptional in the rural areas until now.

For the smaller farmer segment, with less than four hectares or without land, PAC intervention also brought some changes. There are no impact studies here either, but during the field trip some farm improvements were observed. Some make minor investments such as to start using agrochemicals and others have obtained loans to renew the coffee plants or lease another piece of land, with the intention of using the harvest income to pay the loan. In this segment, there have been some changes also in life style. Most of them have improved their diets, built latrines or improved the roof of their houses. It was observed that one of the extra expenses is hiring a local worker for agricultural duties, in order to let the children stay in school longer. Even if these farmers are still far from escaping from poverty, the perception is that the extra income may allow their children to finish school and have their own better conditions. For example, they commented that the children stop emigrating, as was common in the past, because now they find jobs locally as farmers.

The surpluses for the moment are marginal but significant, although this has to be measured more accurately. The PAC model offers new market opportunities for farmers to obtain better prices and, as a result, higher income. There have been improvements in production yields, quality and price, which have a direct impact on poverty reduction. In a community in San Luis, for example, the organization works with 54 farmers whose production yields have increased from 4 to 5 quintals of coffee per 0.7 hectares to a yield of twelve quintals, so the farmers have a higher income. In the colony La Fonseca there are 68 farmers linked to PAC and their production yields of taro have increased 100%, passing from 68 to 160 quintals per 0.7 hectares of land in a period of three years. A third example is found in San José de Bocay, where 200 producers had a yield of 2.5 quintals of cocoa beans per 0.7 hectares of land in 2008 and increased it to 6 quintals by June 2010. An entrepreneurial model like the one promoted by PAC seems to have a positive and apparently sustainable impact on the life quality of farmers, but this can be corroborated only with specific evaluation studies.

Is PAC a new model of local development?

PAC's intervention model centers on the reorganization of the value chain in order to increase the portion of the profits that stays in the hands of the small and medium rural producers in Nicaragua. According to its own estimations, as much as 81% of the total value of the sales of the harvest goes to the farmers. The establishment of a "controlled risk environment" means, in practice, that those who participate in it enjoy some privileges that those who are outside do not have. All participants are seen as businesses, irrespective of their activity or their size, and receive a variety of services that allow them to reduce uncertainty and the risks of their businesses.

The model rests on two basic pillars. The first is one is a comprehensive intervention that creates synergies along the whole value chain and generates profits that PAC partially captures in order to keep working. Its activities start with the first credit for planting and end with the sale of the crop to the exporter, sometimes with the traceability of where and how it was produced. In the traditional value chain, without a specific coordinator agent (like in graph 1), each one of the steps of the transformation process from the plantation to the selling to the consumer is made independently, so every agent runs its own risks and faces high uncertainty and the exchanges are handled strictly on an arms' length basis. That value chain model, in which governance is exclusively based on market relationships, impoverishes the medium size farmer and leaves the small farmer in a position of poverty or food insecurity, without access to credit or supplies.

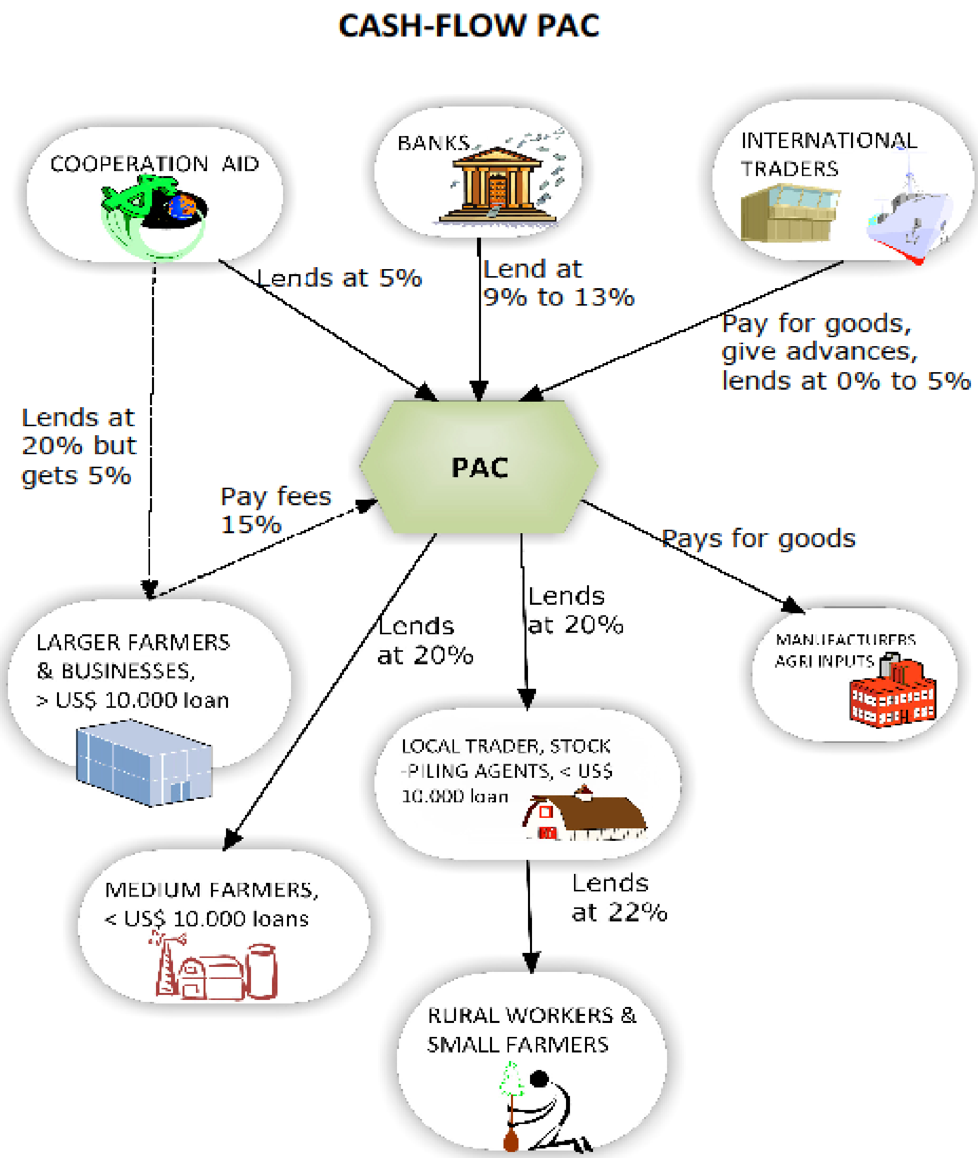
In contrast, a type of governance based on crossed contracts as we can see in graph 3 improves the business environment for those that are included in it. It reduces the risks of the productive process and the uncertainty of the exchanges because all the agents of the value chain are providers and/or buyers of goods and services of the other participants. Therefore, their interests and motivations are interwoven and the profits of each of one of them affect the profits of the others. PAC and the rural businesses give loans knowing that there will be a harvest to sell from which to recover the credit. The small and medium size farmers contract loans with a relative certainty that they will be able to sell the harvests and cancel the debts. PAC gives technical assistance for free because that will increase the payment capacity of the farmers and its own chances of recovering the loans. Private investors contribute working capital to increase productivity along the chain because in this way their profits also rise. Woord en Daad participates as an actor of international cooperation, obtains a small interest on the funds it lends PAC or through it, and hence accomplishes its mission of promoting entrepreneurial development. In general the interests of the various actors are interwoven in such a way that risks are controlled within the business environment carefully coordinated by PAC. The risk reduction is obviously limited to factors within human control and the weather, for example, is out of it, as in every rural activity. The interdependence of the actors' interests is the main success factor of the model.

The second pillar of the model is it innovative financial engineering that allows PAC to keep the scheme at work (see graph 4). The management of the cash flow is one of the most interesting characteristics and probably one of the keys to its success because it has allowed for financial sustainability. It effectively combines the development international cooperation resources with the loans from banks and its own capital from operative profits as lending capital. Financial intermediation generates the resources for the increase in value added along the entire value chain, to pay for innovation and the diversification of the services it offers. It is not only about facilitating access to credit for those that do not have it, but about tying up interests through the cash flow management.

How is the cash flow managed? On the side of inputs, PAC manages revolving funds received from international NGOs, such as WR and W&D, over which it pays an interest rate of about 5%. Another source of funding is the commercial or cooperative banking system, to which PAC pays an average interest rate of 10%. With those funds PAC gives small loans of up to 10,000 dollars to farmers and rural businesses. For larger amounts the members can apply for credits directly from W&D, which approve or reject them on the basis of the solvency information that PAC provides about the applicant. Concerning the outputs of loans, small businesses pay an average interest rate of 22% to PAC for their loans that are contracted directly with W&D. While the Dutch NGO receives an interest rate of 5%, PAC receives the remaining 17%. Farmers would pay an average interest rate of 20%, which are still convenient in the financial context of Nicaragua. The difference between the active and the passive interest rates are PAC's profit, which support the operative structure of the organization and a great proportion of the technical advisory services that it gives for free to the producers. PAC also receives funds from international donors like the Progreso – Green Development Foundation, World Relief and Woord en Daad, which are not given as credits but as grants. These resources, however, are relatively small and targeted at specific investments like the financing of missions abroad to participate in international fairs, training in coffee degustation, or hiring consultants.

The agricultural development services have finally achieved financial self-sustainability. In 2010 they generated profits for 250,000 dollars on the coffee value chain and 100,000 dollars on the taro business. The profits come from the sale of agricultural supplies, the trading of crops, and various rural services like the use of the manufacturing facilities. The total sales of crops are presented in table 5.

Graph 4



The comprehensive coordination of the entire value chain through an innovative financial engineering are the two pillars on which the PAC model lies. These are effectively combined to reduce business risks and increase the income of the rural producers. The central role that PAC takes in the value chain may seem a weakness of the scheme, in terms of generating excessive dependency of the farmers on PAC. However, PAC is no less dependent on the success of the farmers and the improvements in productivity that they can obtain than the farmers depend on PAC. In other words, these are mutual dependency relations that strengthen all participants in comparison with a situation of individual action. When they join a value chain that is coordinated for social purposes, the small and medium farmers gain access to the benefits of collective action and link to the market economy from a better position than on their own. In that sense PAC acts as a social entrepreneur: it generates economic and social benefits to the community and at the same time it functions as an enterprise that creates profits to support itself.

Table 5. Sales of crops

INDICATOR	2007	2008-2009	2009-2010	Total
Coffee	1,033,857.20	1,006,365.00	2,168,523.18	4,208,745.38
Taro	1,071,452.65	1,207,801.23	980,188.26	3,259,442.14
Total	**2,107316.85**	**2,214166.23**	**3,148711.44**	**7,468,187.52**

Sales FOB (US$)

Is the model replicable?

An analysis of the replication chances of PAC's model must start with a discussion of the factors that make it possible to manage and coordinate the value chain to benefit the rural farmer. The attempts of governments and NGOs to organize productive networks in different parts of the world are abundant, but the successful cases ones are uncommon. There is a structural factor that plays in favor of PAC's accomplishment and it is the choice of products with strong demand in market niches with a positive international context. This is a well-informed decision within a model that results from trial-and-error learning, in which options were analyzed carefully and problems were corrected contingently. Within the organization's trajectory there were several mistakes that left to lessons to learn. So the analysis of the replication chances of PAC's model assumes that adaptability and flexibility are critical elements of any future attempts to replicate it elsewhere.

The first key factor to PAC's success has to do with its origins. When WR withdrew its credit programs in Nicaragua, it offered PAC unusually favorable conditions to become independent and economically self-sustainable. From the start WR had the vision of building a local organization instead of simply implementing a project and withdrawing when it was finished. In comparison with the international experience, WR offers a best practice case of a transition from an international to a local organization. It set conditions that were clear and the period of time to reach sustainability was long enough for local capacities to develop. WR also gave assets, capital and human resources. In the transfer process WR conceded PAC a central place, which PAC was claiming for itself at the time that its structures became stronger. The transfer process set the basis on which PAC could find its own way.

A second key is the human factor and administrative capacities of the organization. The commitment of PAC workers with the organization is high and spreads from the top to the low and medium management levels. In addition, every employee has been trained to perform its duties. Almost all PAC employees and certainly the top of the organization come from a rural background and know the mentality and needs of that segment. Finally, leadership qualities among the top managers are fundamental for the replicability of a model of value chain coordination. PAC ranks highly in that respect too, although the formation of persons and structures to make the generational change possible is a challenge for the near future.

A third key factor, connected to the previous one, is the construction of an organizational culture shared by workers, leaders and producers. Each worker embraces the vision of promoting entrepreneurship among the small and medium rural producers as a way to depart from the culture of aid and "the poor farmer". This was critical in the period when PAC had to fight against the habit of not paying back loans or expect agricultural supplies delivered out of charity. This is a particular organizational culture across the value chain is basic to make interests converge, promote trust and reduce risk. The administrative infrastructure and real sanctions in case of default go together in a system of checks and balances with the positive incentives. The Christian inspiration of the organization is clearly one of the elements that support the creation of a common identity.

The fourth point is the administrative and control capacities with real sanctions in case of non-compliance. These infrastructure and control capacities were generated as the result of trial and error and it is the part of the experience that is not transferable. From negative experiences PAC learned to interpret 'alert' signs very quickly. For example, the following-up of the loans through credit officers was adjusted to the practices followed in a regular bank. The selection of community leaders and prospective debtors became more demanding and using first-hand information. PAC has invested also in control infrastructure such as the informatics platform, that is not integrated in real time in the entire country but it permits immediate knowledge of the financial status of any member, including credits, advanced payments and crop sales. For certified coffee, the same informatics system allows to follow the traceability crop.

A fifth important element is the reach to the most local of the chain. Through the local business groups (GADE), PAC has acquired a wide territorial extension and has been able to decentralize its operative structure. There are credit agents and business advisors in every community and for every farmer. The personnel of PAC's regional offices knows the network members, even those who are far away, and makes periodic follow-ups of evolution of the crops and credit situation. Therefore, if there is a need to deliver a shipment of taro or coffee, for example, PAC managers can respond very quickly and obtain those products from different places. The organization is spread out across the country, so it can spread the risks of bad weather and plagues. Also, the presence at the local level increases the commitment of the participants and promotes social control, an important factor to assure credit successes.

A sixth success factor is the coordinated expansion of the added value in the productive network. PAC coordinated the value chains at the same time as the added value was increasing for the actors that participated in it. The choice of crops with high yield and sustained demand like coffee and taro, for instance, followed wrong choices in other crops like small fruits, which ended in failure. When PAC was successful in increasing production yields for its members, it also achieved to get them to pay back their credits and align their interests with those of PAC.

The international context has played in favor with high prices for coffee, cocoa and taro, for example, and excess demand over the supply, particularly for specialty and fair trade coffees. In other words, the farmers' loyalty goes beyond positive social relations; they support PAC because of the results PAC gets for them.

Finally, another critical characteristic of PAC is its status as an association of producers because it proposes a different intervention model, without an exit date or limits to a project or predetermined results to reach. PAC is not an external agent that achieves a certain goal and withdraws when it is done. It is one more agent in the chain and its permanence in it is similar to that of the Nicaraguan rural producers. In other words, its fate is tied to the farmers. It clearly presents a different type of development support, completely endogenous and adapted to the local needs.

At the same time, there are background factors that represent obstacles and difficulties. Firstly, Nicaragua does not have safe and efficient ports to ship the coffee, taro and cocoa. Coffee is shipped in Puerto Moin, Costa Rica, while roots and tubers are shipped in Puerto Cortés, Honduras, and Puerto Acajutla, in El Salvador. These shipments are sent in convoys with armed custodies for their protection and there have been a few occasions where entire trucks go missing including their drivers during travels through Honduras. A NGO like PAC can do very little to eliminate this problem, except to face it via choosing safer shipment ports and to hire security. Improving the physical security of exportable goods and transportation infrastructure are for the Nicaraguan government to do.

Secondly, the problem with the land property titles in Nicaragua is a risk when these need to be used as credit collateral. Several governments have tried to solve this, without getting a complete success. During the Sandinista period a large number of properties were given away and those farmers do have a property title. However, around 50% of rural farmers cannot properly prove that they are the owners of their farms, even if their farms have been in their family for generations. In most of the North region of the country, where the coffee grows, there are no official property registers to record the ownerships of the farms (Miguel Gómez, 2002). Banks and credit organizations have been adapting different mechanisms to face this problem, which is being resolved in the last years. Without the regulatory mechanisms that would allow farmers to use their land as collateral and losing it to a creditor, if they do not pay back, a model like PAC's would be hard to replicate.

In comparison with other contexts, there are some key elements in this case. The conception of land as the private property of its owner is deeply rooted in Nicaragua and affects the motivation of the farmers when they decide to make investments, improvements and pay back their credits. Land is perceived as a production factor, a business out of which households need to generate an income and obtain the highest yields possible within the limits of environmental sustainability.

In short, the likelihood of replicating the PAC model in other contexts and achieve a similar success is not self-evident. The comprehensive vision of the value chain tied up by credit and the PAC controlled cash flow are crucial and depend on a complex financial engineering to cover costs and offer quality free support services to farmers. The transfer conditions from World Relief to an entirely independent and local organization represent an international best practice, including long collaboration periods, a gradual withdrawal, joint learning processes, and an early organizational capacity building with local workers in all levels. As a matter of fact, the relationship between WR and PAC is not finished and the characteristics of the partnership have changed. After PAC became autonomous, there has been a learning process based on trial and error that has marked its organizational culture and which, by definition, in not transferable to other cases. Each organizational trajectory is unique. It will have its own trials to test and its own errors to resolve and these will be bounded to the local context of the experience. In contrast, other factors are replicable or transferable, like capacity development of the organization and the human resources, the strong and efficient leadership, the commitment to entrepreneurship instead of charity in support of the "poor farmer", the managerial infrastructure to control and recover loans, the reach to the local communities to ensure representativeness and relevance to the local needs, and the positioning in highly profitable market niches to generate income to cover the costs of the value chain coordinator.