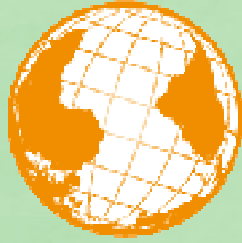


ejolt



ejolt report

no. **3**

June, 2012

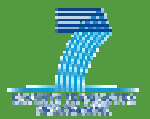


An overview of industrial tree plantations in the global South

Conflicts, trends and resistance struggles

Contributions by

Winfridus Overbeek, Markus Kröger and Julien-François Gerber



An overview of industrial tree plantations in the global South

Conflicts, trends, and resistance struggles

Report written by:

Winfridus Overbeek (WRM)
Markus Kröger (University of Helsinki)
Julien-François Gerber

Edited and revised by:

Larry Lohmann

Design:

Jacques bureau for graphic design
(Netherlands)

Layout:

Winfridus Overbeek

Series editor:

Beatriz Rodríguez-Labajos

The contents of this report may be reproduced in whole or in part for educational or non-profit services without special permission from the authors, provided acknowledgement of the source is made.

This publication was developed as a part of the project Environmental Justice Organisations, Liabilities and Trade (EJOLT) (FP7-Science in Society-2010-1).

EJOLT aims to improve policy responses to and support collaborative research and action on environmental conflicts through capacity building of environmental justice groups around the world.

Visit our free resource library and database at www.ejolt.org or follow tweets (@EnvJustice) or updates on our facebook page (EJOLT) to stay current on latest news and events.

This document should be cited as:

Overbeek W, Kröger M, Gerber J-F. 2012. An overview of industrial tree plantation conflicts in the global South. Conflicts, trends, and resistance struggles. EJOLT Report No. 3, 100 p.



Abstract

Over the past two decades, industrial tree plantations (ITPs), typically large-scale, intensively managed, even-age monoculture plantations, mostly exotic trees like fast-growing eucalyptus, pine and acacia species, but also rubber and oil palm, all destined for industrial processes to produce paper, palm oil and rubber products, increased their area in the global South about fourfold. Some of the main countries with millions of hectares include Brazil, Malaysia and Indonesia while ITPs are expanding in African countries, like Mozambique, and in the Mekong region in a context of increasing land grabbing. This expansion is Northern-driven; the US and the European Union together consume most of the final products, benefiting also their banks and businesses that are key players in the different industry sectors behind ITPs, and also increasingly investment funds.

In the global South where plantations are set up, local people, while having a very low consumption level, suffer severely from the negative impacts of these plantations. The social and environmental justice conflicts that result from the negative impacts of plantations are mainly about land access and tenure, but also other social, economic, environmental and cultural impacts. Human rights violations are common in many countries.

In spite of the heavy negative impacts of ITPs, they continue being actively promoted as carbon sinks, or to supply energy and electricity through biofuels and burning wood in specially designed and subsidized wood-based power facilities in Europe. These new trends only aggravate the negative impacts, while the proven deforestation and land use change that results from plantation expansion undermines the supposed carbon neutrality.

Although consumption reduction and paper recycling are important, a structural change in the global industrial production and consumption system, of which paper, vegetable oils and rubber are fundamental parts, is needed in order to build a truly sustainable future. Meanwhile, local communities in the South face the challenge to continue building a stronger and broader movement to halt the continuous land grabbing for industrial tree plantations.

Keywords

carbon trade	industrial tree plantations
commodity chains	land grabbing
conflicts	resistance struggles
ecologically unequal exchange	social and environmental justice
enclosure of the commons	sustainable consumption



Contents

Foreword	7
1 Introduction	9
2 Industrial Tree Plantations: a story of conflicts, resistance and irrationality	11
2.1 The increase in area of pulpwood, fuelwood and rubber ITPs in the global South	13
2.2 The increase in oil palm ITPs	17
2.3 How ITPs are established and how conflicts arise	18
2.3.1 Before the first tree is planted	18
The general context	18
Guaranteeing a 'secure' investment	19
Local people are not involved, but receive many promises	21
Getting control of land, much land: conflicts and human rights violations	21
2.3.2 Clearing the area to plant the first trees: loss of biodiversity and people's homes	25
2.3.3 Creating jobs	26
2.3.4 Once plantations are established: more impacts and conflicts	30
2.3.5 In the end, 'fenced' and 'imprisoned' by tree plantations	32
2.3.6 Women are most affected	33
2.4 The irrationality behind ITPs	34
2.4.1 Paper and paperboard	35
Pulp production	36
Paper consumption	38
2.4.2 Rubber	39
2.4.3 Oil Palm	40
2.5 Final remarks	43



3	Country case studies	44
3.1	Brazil: the ‘success’ country	44
3.1.1	The current ITP boom in Brazil	45
3.1.2	Increasing resistance and conflicts around land	47
	More conflicts	48
3.1.3	The reaction of the ITP companies during the second ITP expansion boom	51
	Violence, criminalization and cooptation	51
	‘Behind the scenes’	53
	Flexibilization of environmental legislation	53
	An escape to regions ‘without conflict’: Mato Grosso do Sul	55
3.1.4	A final remark: a ‘threat’ called China	56
3.2	Mozambique: a new plantation frontier in Africa on peasants’ land	57
3.2.1	ITP expansion in Niassa Province	59
	Conflicts over land	59
	Food sovereignty at risk	61
	Insecure jobs	62
3.2.2	Land grabbing	62
3.2.3	Final remarks: increasing resistance and the response of an exposed investor	64
3.3	Indonesia: the country with the most ITP conflicts in the world	65
3.3.1	A brief history of Indonesian tree plantations	65
3.3.2	Conflicts over tree plantations	67
3.3.3	Dissecting a plantation conflict	68
3.3.4	The example of APP	70
4	Drivers of ITP expansion	71
4.1	Carbon sink plantations	72



4.2	ITPs as ‘renewable’ energy producers	75
4.2.1	Biofuel from palm oil	75
4.2.2	Wood-based biomass energy	77
4.2.3	Certification schemes and ‘Dialogue’ initiatives: other drivers of expansion?	80
	The Forestry Stewardship Council	80
	The Roundtable on Sustainable Palm Oil	81
	‘Dialogue’ initiatives	82
4.2.4	Second generation wood-based biofuels and biotechnology	83
	Genetically engineered (GE) trees	84
5	Final considerations	87
	Acknowledgments	92
	References	93



Acronyms

ABP	Dutch Pension Fund	IBRA	Indonesian Bank Restructuring Agency
ADB	Asian Development Bank	IFC	International Finance Corporation
APP	Asian Pulp & Paper	IMF	International Monetary Fund
APRIL	Asia Pacific Resources International Holdings Limited	INCRA	National Institute for Colonization and Agrarian Reform (Brazil)
BNDES	National Social and Economic Development Bank (of Brazil)	INEMA	Institute of Environment and Water Resources of Bahia (Brazil)
BRACELPA	Brazilian Cellulose and Paper Industry Association	ITP	Industrial Tree Plantations
CAN	National Confederation of Agriculture (of Brazil)	JA	Justiça Ambiental (Friends of the Earth Mozambique)
CCX	Chicago Climate Exchange	KPA	Consortium for Agrarian Reform (Indonesia)
CDM	Clean Development Mechanism	MPE	State Public Prosecution Service (of Brazil)
CIFOR	Center for International Forestry Research	MST	Movement of Landless Rural Workers (of Brazil)
CONAMA	National Council for Environment (of Brazil)	MTOE	Million Tons Oil Equivalent
CSO	Civil society organizations	NGO	Non-Governmental Organization
DUAT	Right to Use and Take advantage of Land (Mozambique)	NIB	Nordic Investment Bank
EC	European Communities	OVF	Norwegian Lutheran Church Endowment
ECA	Export Credit Agency	PCF	Prototype Carbon Fund
EIA	Environmental Impact Assessment	RSPO	Roundtable for Sustainable Palm Oil
EIA/EIR	Environmental Impact Assessment and Report	SAMFU	Safe my Future Foundation
EIB	European Investment Bank	SCS	Scientific Certification Systems
EJO	Environmental justice organizations	SETSAN	Technical Secretariat for Food Security (Mozambique)
EJOLT	Environmental Justice Organizations Liabilities and Trade	SGS	Société Générale de Surveillance
EU ETS	European Union Emissions Trading Scheme	SIDA	Swedish International Development Cooperation Agency
EU	European Union	UCA	Union of Associates and Peasants of Lichinga (Mozambique)
FAO	Food and Agriculture Organization of the United Nations	UK	United Kingdom
FETRICOM	Federation of Workers in the Industries of Construction and Housing in Mato Grosso do Sul (Brazil)	UN	United Nations
FOE	Friends of the Earth	UNAC	National Union of Peasants (Mozambique)
FSC	Forest Stewardship Council	US	United States (of America)
FWI	Forest Watch Indonesia	USDA	United States Department of Agriculture
GE	Genetically Engineered	VCP	Votorantim Celulose e Papel
GMO	Genetically Modified Organism	WALHI	Indonesian Environmental Forum
GSFF	Global Solidarity Forest Fund	WRM	World Rainforest Movement
IATA	International Air Transport Association	WWF	World Wildlife Fund

The ISO 4217 standard is used for the currency codes (e.g. USD for US dollar or BRL for Brazil real).



To Ricardo Carrere



Foreword

Conflicts over resource extraction or waste disposal increase in number as the world economy uses more materials and energy. Civil society organizations (CSOs) active in Environmental Justice issues focus on the link between the need for environmental security and the defence of basic human rights.

The EJOLT project (*Environmental Justice Organizations, Liabilities and Trade*, www.ejolt.org) is an FP7 Science in Society project that runs from 2011 to 2015. EJOLT brings together a consortium of 23 academic and civil society organizations across a range of fields to promote collaboration and mutual learning among stakeholders who research or use Sustainability Sciences, particularly on aspects of Ecological Distribution. One main goal is to empower environmental justice organizations (EJOs), and the communities they support that receive an unfair share of environmental burdens to defend or reclaim their rights. This will be done through a process of two-way knowledge transfer, encouraging participatory action research and the transfer of methodologies with which EJOs, communities and citizen movements can monitor and describe the state of their environment, and document its degradation, learning from other experiences and from academic research how to argue in order to avoid the growth of environmental liabilities or ecological debts. Thus EJOLT will increase EJOs' capacity in using scientific concepts and methods for the quantification of environmental and health impacts, increasing their knowledge of environmental risks and of legal mechanisms of redress. On the other hand, EJOLT will greatly enrich research in the Sustainability Sciences through mobilising the accumulated "activist knowledge" of the EJOs and making it available to the sustainability research community. Finally, EJOLT will help translate the findings of this mutual learning process into the policy arena, supporting the further development of evidence-based decision making and broadening its information base. We focus on the use of concepts such as ecological debt, environmental liabilities and ecologically unequal exchange, in science and in environmental activism and policy-making.

The overall **aim** of EJOLT is to improve policy responses to and support collaborative research on environmental conflicts through capacity building of environmental justice groups and multi-stakeholder problem solving. A key aspect is to show the links between increased metabolism of the economy (in terms of energy and materials), and resource extraction and waste disposal conflicts so as to answer the driving questions:

Which are the causes of increasing ecological distribution conflicts at different scales, and how to turn such conflicts into forces for environmental sustainability?



This report is part of the outcomes of EJOLT's WP5 (Biomass and land conflicts), which is focussed on compiling information about land grabbing and (agricultural and tree) plantations, detailing their impacts on local communities. Within this context, the report aims at analysing conflict on industrial tree plantation based on the activist knowledge of the World Rainforest Movement, an international network of citizens' groups of North and South involved in efforts to defend the world's forests.



1

Introduction

Since its very beginning, the World Rainforest Movement (WRM), listening carefully to local communities, has reported the negative impacts of large-scale tree monocultures in the global South. In 1994, WRM commissioned a book on the topic from Ricardo Carrere and Larry Lohmann, published in 1996 as *Pulping the South*. The book describes the expansion of industrial tree plantations, mainly for pulp and paper production, throughout the global South. It analyzes the drivers of the expansion, the main actors involved and the negative impacts of plantations on people and their environment, as well as the resistance struggles which these impacts provoke.

In, 1998, seeing that industrial tree plantations were becoming a growing global problem, WRM published the Montevideo Declaration launching a permanent international campaign to support local people's struggles against them, to raise awareness about their negative impacts and to join and strengthen efforts to change the conditions that make these plantations possible.

With this new report, we intend to update *Pulping the South*. Following expansionary trends since the 1990s, we also highlight and reflect on some of the resistance struggles that have resulted. Unlike *Pulping the South*, our report will not restrict itself to pulpwood plantations, but will also explore the problems caused for local communities by oil palm, rubber, wood energy and carbon plantations. The report is being written under the auspices of the project EJOLT (Environmental Justice Organizations, Liabilities and Trade)¹, which brings together 23 activist organizations and universities to document environmental injustice. Simultaneously, the project aims to encourage policy makers, especially at the European Union level, to formulate policies supporting a transition toward a truly sustainable society based neither on the continuous expansion of industrial tree plantations nor on the continuous plundering of natural resources in the global South generally. The connection with the EJOLT project is an extra motivation for emphasizing the links between industrial tree plantation expansion in the global South and actors in EU countries that benefit from this expansion.

This report is structured as follows. **Chapter 2** briefly describes the size of the problem, the dynamics of tree plantation establishment in the global South, and

¹ For more information, see www.ejolt.org



the reasons conflicts arise. Who are the local and global players behind pulpwood, oil palm and rubber plantations that benefit most from increasing consumption of their products? In **Chapter 3**, we look at the expansion and impacts of industrial tree plantations and resistance struggles in three selected countries. First is Brazil, which since the 1960s has developed into the main export-pulp producing country in the global South, where the newest tree-plantation technologies are applied and productivity rates per hectare of harvested wood are the highest in the world. At the same time that Brazil's 'forestry model' has become a reference point for corporations and governments everywhere, however, many social conflicts have developed around plantations. The second example is Mozambique, an African country where a new boom in plantation expansion is taking place in the context of a more general trend toward 'land grabbing'. The third example is Indonesia, a country that has within its borders probably most of the world's conflicts over industrial tree plantations, with oil palm, eucalyptus and acacia all playing a role. **Chapter 4** will conclude the report by analyzing likely drivers of further plantation expansion in the near future, including the promotion of plantations as 'carbon sinks', as supposed 'renewable' energy producers and as sites for the use of biotechnology to create new products. Reflections will be offered on how to move forward in the struggle for environmental and social justice in a world where industrial tree plantations continue expanding.

We hope this report will be considered a useful tool by local communities, social and environmental movements and NGOs in the global South, both those who have been struggling against industrial tree plantations for a long time and others who are facing them for the first time. We hope it will also be useful for the more general public in both South and North who are concerned with a sustainable future for all.



2

Industrial Tree Plantations: a story of conflicts, resistance and irrationality

Trees have always been planted by indigenous and peasant peoples, in the global North as well as in the South. Some trees are sacred, while others offer delicious fruits, cooking oil, medicines to cure diseases, durable wood to construct houses and other tools and materials.

Especially since colonial times, when contacts and exchange of goods between continents in the global South increased significantly, people have also planted exotic tree species. Starting a century ago, for example, various species of eucalyptus, a tree originally from Australia, could already be found inside many rural communities all over the global South, where they were appreciated for their fast growth and their usefulness in making fences and stables and in building houses. Eucalyptus became one more ingredient in the diversity of native and exotic species that people planted to provide a diversity of benefits.

According to Carrere and Lohmann (1996), 'tree plantations' of one single tree genus have historically most often been of fruit-bearing species. During the colonial period in Africa, for example, commercial state-owned oil palm plantations were set up to export palm oil and palm kernel to Western Europe (Aghalino, 2000). The first eucalyptus and teak plantations were set up mostly because of overexploitation of native forest. In South Africa, with only 1% indigenous forest



cover,² eucalyptus plantations were established by the state beginning in the early 20th century to produce timber for industry (Carrere and Lohmann, 1996).

Fig 1

Industrial tree plantation

large-scale, intensively-managed, even-aged monocultures, mostly exotic trees like fast-growing eucalyptus, pine and acacia species, destined for industrial processes that produce pulp and paper as well as rubber and oil palm products

Photo credit: Winfridus Overbeek



However, the significant rise in so-called industrial tree plantations (ITPs) is a relatively recent phenomenon dating from the 1960s and 1970s. ITPs in the global South are large-scale, intensively-managed, even-aged monocultures, mostly exotic trees like fast-growing eucalyptus, pine and acacia species, destined for industrial processes that produce pulp and paper as well as rubber and oil palm products. ITPs also increasingly supply industrial fuels. Typically owned and promoted by corporate actors, ITPs can also be partly or totally state-owned; they are seldom peasant or community-controlled, although communities can get involved in the ITP business by signing contracts to establish ITPs on their lands as part of a strategy of out-sourcing by ITP firms. ITPs also tend to be harvested mechanically, in the case of pulpwood, and cover large areas, from hundreds up to hundreds of thousands of hectares.

Although present in the global North too, ITPs for pulp and paper have increasingly expanded in the global South, simply because, from a corporate perspective, land and labour are cheaper there, environmental rules often less rigid, and wood productivity per hectare in general higher. Typical ITP countries in

² According to Cooper (1990), cited in Carrere and Lohmann (1996).



the global South like Brazil, Chile, Uruguay and Indonesia can produce eucalyptus hardwood at rates of 20-44 m³/year, several times higher than the rates of 4-6 m³/year for hardwood tree plantations in typical countries with a wood-based industry in the global North, like Sweden and Finland³. From a local community perspective, however, ITPs of any type often mean incalculable losses and bitter conflicts.

2.1 The increase in area of pulpwood, fuelwood and rubber ITPs in the global South

It is difficult to have a precise idea of the increase of ITPs, including eucalyptus, pine, rubber and acacia, in the global South over the past two decades. The UN Food and Agriculture Organization (FAO) is the main official organization that tabulates such information. However, not all countries in the global South report to the FAO, and those that do sometimes report only partially. Besides, some governments do not collect information at all, merely presenting, for example, industry association figures. Also, different interpretations of what plantations consist of lead to different estimates, as the case of China below shows. Finally, local people in ITP areas often claim that the real plantation area is bigger than official figures claim. In this report, accordingly, we use FAO figures merely as a rough indicator of how far ITPs have expanded over the past two decades and if so, in which countries and continents this expansion has been most greatest.

Box 1 What is behind FAO's definition of 'Planted forests'?

Why does FAO refer to 'planted forests' instead of 'tree plantations'? Why does it bring under the same heading of 'forest' areas as different as Ecuador's stupendously biodiverse Yasuni forest and the 'green desert' consisting of an industrial crop of even-aged *Eucalyptus grandis* along Brazil's Atlantic coast? This strategy becomes possible only through an odd, physicalistic definition of a forest as a 'land with tree crown cover (or equivalent stocking level) of more than 10 percent and area of more than 0.5 hectares (ha). The trees should be able to reach a minimum height of 5 meters (m) at maturity in situ'.

According to this definition, forests are nothing more than an abstract collection of trees with certain physical characteristics. Obviously, trees are indeed crucial elements of a forest, but what this conception leaves out is that forests are also composed of plants, insects, birds and animals, as well as forest and forest-dependent peoples.

According to WRM (2011 a), FAO's reason for focusing narrowly on trees, or wood, has much to do with the agency's close ties to the wood-based industry. These ties can be seen, for example, in FAO's Advisory Committee on Paper and Wood Products (ACPWP), which is composed of executives from private industry. It is therefore no surprise that FAO's definition of forests includes industrial monocultures. Legitimizing ITPs as 'forests' helps ITP companies convince authorities and the public that their plantations do not cause environmental harm but rather provide the same benefits native biodiverse forests do. In times of climate and environmental crises, 'forests' is also a useful word for attracting the interest of investors interested in carbon and 'renewable' energy projects (see also Chapter 3).

For more than 10 years, various organizations have been campaigning to make the FAO change its forest definition. The most recent action took place on January 21, 2012, when the German environmental organization Rainforest Rescue⁴ presented the director-general of the FAO with more than 27,000 signatures in support of an initiative by 613 scientists and professionals in the natural sciences calling on FAO to amend its definition of "forest"⁵

³ Leaflet of ABRAF - Associação Brasileira de Produtores de Florestas Plantadas, available at www.abraflor.org.br/documentos/folder_Abraf.pdf. Date of access: 06.06.2012

⁴ *Rettet den Regenwald* in Germany.

⁵ See letter in wrm.org.uy/for-ests/letter_to_the_FAO.htm.



Instead of the category 'industrial tree plantations', FAO uses 'planted forests', a category broader than that of industrial monocultures. According to FAO (2010), the area of 'planted forest' in the global South increased more than 50% between 1990 and 2010, from 95 million to 153 million hectares. The total 'planted forests' area worldwide is reported to be 264 million hectares. Worldwide, 'planted forests' represent 7% of the total forest and ITP area.

Displaying how much the area under ITPs has increased in the past two decades, **Table 1** compares figures from Bazett (1993)⁶ with 2010 figures from FAO of 'planted forest with introduced species', in other words, plantations of exotic trees. While Bazett estimated the extent of industrial fast-wood plantations in the global South by the end of the 1980s as about 13 million hectares, the FAO estimated the extent of tree plantations in the global South with introduced or exotic species in 2010 as 45 million hectares, roughly a threefold increase. Once again, these figures need to be treated with caution. For example, Bazett did not include India in his calculations, while the FAO (2010) relies for its ITP figures on governments – including those of countries with extensive ITPs such as Venezuela and the Mekong countries – that do not report what proportion of their 'planted forests' are composed of exotic species. Australia, meanwhile, has industrial tree plantations of eucalyptus, but since the tree is native, they are not recorded as being made up of exotic or 'introduced' species. Nevertheless, over the past two decades a general trend of significant expansion of ITPs in most of the cited countries and regions of the global South can be noticed.

Table 1 shows that in Central America, especially in Mexico but also in Costa Rica and Guatemala, some significant areas of tree plantations exist; however, none of them reported tree plantations with exotic species in 2010.

Brazil, Chile, Argentine and Uruguay are the main ITP countries in South America. All of them, especially Brazil, increased their plantation area significantly over the past two decades. Most of the tree plantations, almost 90%, are of exotic species, mainly eucalyptus and pine. Ecuador and Colombia also have a significant area of ITPs, although Colombia did not report specifically on the area of plantations of exotic species.

In Africa, tree plantations, including those of exotic species, have expanded significantly, most notably outside traditional ITP countries like South Africa. In addition to South Africa, FAO figures show, significant ITPs can be found now in Zimbabwe, Malawi, Madagascar, Kenya, Mali, Morocco, Tunisia and Senegal.

Most of the world's tree plantations are found in Asia, especially China, which boasted over 77 million hectares of 'planted forests' in 2010. Although some 22 million hectares of these are recorded as plantations of introduced species, according to Pulp Mill Watch, China has only about 1.65 million hectares of eucalyptus plantations.⁷ Many foresters believe that China systematically

Over the past two decades the general trend of significant expansion of ITPs in countries and regions of the global South is noticeable

⁶ Cited in Carrere and Lohmann (1996).

⁷ Article about China in the [pulpmillwatch.org](http://www.pulpmillwatch.org) website, www.pulpmillwatch.org/countries/china/. Date of access: 06.06.2012.



Eucalyptus plantations – mainly located in the global South and destined for pulp and fuelwood – represent today most of the ITPs worldwide

overestimates the area it has planted, as tree planting is a high-profile government policy. All kinds of trees are planted – according to some estimates, over 70 billion over the past three decades. Plantings are of many types, but most, for example, 10-meter-wide green zones on roadsides, would not conventionally be considered ITPs. Local Chinese tend to distinguish very clearly between eucalyptus ITPs for pulp, which they do not consider tree-planting, and activities of the government tree-planting program.⁸

Other countries with significant areas of tree plantations in South and Southeast Asia are India, where the planted area has reportedly doubled, according to FAO (2010)⁹; and Indonesia and Malaysia, where no significant increase in tree plantation area is reported, but where many ITPs and conflicts exist¹⁰. In countries in the Mekong region, a huge expansion of ‘planted forests’ is reported in Laos and Vietnam, as well as an increase in Thailand. Yet governments in the region did not report to FAO on the areas under exotic tree species in spite of the fact that they are provoking a number of conflicts described later in this chapter.¹¹

Today, eucalyptus plantations – mainly located in the global South and destined for pulp and fuelwood – represent most of the ITPs worldwide. Their area grew from between 6 and 10 million hectares around 1990 (Carrere and Lohmann, 1996) to 16-19 million hectares in 2010, most of this increase concentrated in South America (Flynn, 2010). Commercial rubber plantations increased from 8 million hectares in 1990 to 10 million hectares in 2010 (FAO, 2010), with 91% of plantations located in Asia, mainly in Indonesia, followed by Thailand, Malaysia and China. Acacia plantations increased from about 3.4 million hectares around 1990 (Carrere and Lohmann, 1996) to 8.3 million hectares in 2002 and are almost entirely located in Asia (Carle et al., 2002), with most of the growth since then reported in Indonesia and Malaysia.¹² Pine plantations, mainly for timber and pulpwood, totalled about 6.5 million hectares in 2010, and are located in South America, mainly Chile; in Africa, mainly in South Africa, Swaziland and Zimbabwe; and in Australia and New Zealand (Simberloff et al., 2010).

⁸ Personal communication with Mika Koskinen, the director of the documentary Red Forest Hotel on Chinese tree planting and impacts of Stora Enso ITPs in China. See www.redforesthotelthemovie.com.

⁹ According to other sources such as Pandey (1992), cited in Carrere and Lohmann (1996), in 1990, 4.8 million hectares of eucalyptus and 3.0 million hectares of acacia plantations existed in India.

¹⁰ See www.wrm.org.uy for articles and other publications.

¹¹ See also www.wrm.org.uy for articles and other publications.

¹² See www.wrm.org.uy for articles from Indonesia and Malaysia.



Continent or region	Country	Area of 'planted forest' in 1990 (FAO) ⁽¹⁾	Area of industrial tree plantations at the end of the 1980s (Bazett) ⁽²⁾	Area of 'planted forest' in 2010 (FAO) ⁽¹⁾	Area of planted forests with introduced (exotic) species in 2010 (FAO) ⁽¹⁾
Central America (including Mexico)		445	n.a.	3,787	240
	Mexico	0	80	3,203	n.a.
	Costa Rica	295	n.a.	241	n.a.
	Guatemala	51	n.a.	173	n.a.
	Nicaragua	n.a.	n.a.	74	n.a.
South America		8,276	n.a.	13,821	12,019
	Chile	1,707	1,200	2,384	2,384
	Colombia	137	n.a.	405	n.a.
	Ecuador	n.a.	n.a.	167	167
	Uruguay	201	n.a.	978	978
	Argentina	766	640	1,394	1,366
	Brazil	4,984	3,900	7,418	7,121
	Mexico	0	80	3,203	n.a.
	Peru	263	n.a.	993	n.a.
	Venezuela	n.a.	200	n.a.	n.a.
	Other Latin America	n.a.	430	n.a.	n.a.
Africa		11,663	2,540	15,409	4,740
	Angola	140	70	128	n.a.
	Burkina Faso	7	n.a.	109	87
	Burundi	0	n.a.	69	69
	Cape Verde	58	n.a.	85	85
	Côte d'Ivoire	154	n.a.	337	n.a.
	DR of Congo	56	40	59	n.a.
	Egypt	44	n.a.	70	58
	Ethiopia	491	n.a.	511	n.a.
	Ghana	50	n.a.	260	n.a.
	Guinea	60	n.a.	93	74
	Kenya	238	170	197	197
	Madagascar	231	n.a.	415	415
	Mali	5	n.a.	530	477
	Malawi	156	n.a.	365	365
	Morocco	478	n.a.	621	205
	Mozambique	38	n.a.	62	62
	Niger	48	n.a.	148	n.a.
	Nigeria	251	n.a.	382	168
	Rwanda	248	n.a.	373	n.a.
	Senegal	205	n.a.	464	246
	South Africa	1,626	1,300	1,763	1,763
	Swaziland	160	n.a.	140	n.a.
	Sudan	5,424	n.a.	6,068	Not significant
	Tanzania	100	n.a.	240	n.a.
	Tunisia	293	n.a.	690	207
	Uganda	34	n.a.	51	51
Zimbabwe	154	n.a.	108	108	
Other Africa			880		
South and Southeast Asia		16,531	n.a.	25,552	1,735
	Thailand	2,668	n.a.	3,986	n.a.
	Vietnam	967	n.a.	3,512	n.a.
	Cambodia	67	n.a.	69	n.a.
	India	5,716	n.a.	10,211	1,327
	Laos	3	n.a.	224	n.a.
	Indonesia	3,700 ⁽³⁾	100	3,549	n.a.
	Malaysia	1,956	n.a.	1,807	n.a.
	Myanmar	394	n.a.	988	n.a.
	Pakistan	234	n.a.	341	n.a.
Sri Lanka	242	n.a.	185	n.a.	
East Asia		55,049	n.a.	90,232	22,828
	China	41,950	400	77,157	21,603
	Republic of Korea	n.a.	n.a.	1,823	1,221
	DPR of Korea	1,130	n.a.	781	n.a.
	Other Asia	n.a.	170	n.a.	n.a.
Oceania		2,583	n.a.	4,101	3,027
	New Zealand	1,261	1,200	1,812	1,812
	Australia	1,203	960	1,903	1,009
	Other Oceania	n.a.	80	n.a.	n.a.
Total		94,938	12,750	152,902	44,589

Table 1 Area of 'planted forests' in 1990 and 'industrial fast-growing tree plantations' by the end of the 1980s; and area of 'planted forests' and 'planted forests with introduced (exotic) species' in 2010, in selected countries in the global South (thousand ha)

Note: n.a. = not available. Figures do not include oil palm plantations, cited in Table 2

Sources: (1) FAO (2010) except for (3); (2) Bazett (1993) cited in Carrere and Lohmann (1996); (3) Evans (1992) cited in Carrere and Lohmann (1996)

2.2 The increase in oil palm ITPs

ITPs of oil palm, a tree native to West Africa, are not classified by the FAO as 'planted forests'. Instead they are defined as agricultural crops. In this report, however, we group them together with other ITPs, since in practice they have many of the same characteristics and cause many of the same impacts as other industrial tree plantations.

It is calculated that in 2008, worldwide, there were about 15 million hectares of ITPs of oil palm, mainly in Indonesia, where, according to the national Tree Crop Estate Statistics, the area had expanded from about 4.65 million hectares in 2000 to 7.65 million hectares in 2010/2011 (USDA, 2010). Other estimates put the figure at 9 million hectares (Colchester, 2011a). Malaysia is the country with the second biggest area of oil palm, followed by Nigeria, where, however, only about 12% of the planted acreage would be considered as ITPs¹³.



Fig 2

Oil palm plantation in Indonesia

Globally, oil palm ITPs have more than doubled in area over the past two decades

Photo credit: Isabelle Alexandra Ricq

Presenting expansion trends over the past decade, **Table 2** quantifies areas harvested per continent in 1991, 1998 and 2008, as well as areas cultivated in selected countries in 1998 and 2008, with all figures derived from the FAO (Kongsager and Reensberg 2012). The table shows that oil palm ITPs have more than doubled in area over the past two decades. While in 1991 Africa was the continent with the most oil palm plantations, Asia took the number-one spot later in the decade. By 2008, Indonesia and Malaysia accounted for 65% of the global plantation area and were producing 85% of the world's oil palm.

¹³: 'About 80% of production comes from dispersed smallholders who harvest semi-wild plants and use manual processing techniques'. The area under commercial production is estimated at between 169,000 and 310,000 hectares (Carrere, 2010a).



Table 2

Harvested areas of oil palm in the global South in 1991, 1998 and 2008 by continent, and areas cultivated in selected countries in 1998 and 2008 (thousand ha)

Source: Kongsager and Reensberg (2012) using figures from the FAO. The approximate figure of plantations in Nigeria is based on Carrere (2010a)

Continent	Country	Oil palm area in 1991	Oil palm area in 1998	Oil palm area in 2008
Asia		2,700	4,800	10,170
	Indonesia		1,800	5,000
	Malaysia		2,500	3,870
	Thailand		180	470
Africa		3,500	4,000	4,400
	Nigeria		2,900	3,100
	Ghana		160	330
	Guinea		300	300
	Côte d'Ivoire		150	210
	DR of Congo		210	180
Central/Latin America		200	250	700
	Colombia		120	170
	Ecuador		100	130
	Honduras		30	95
	Brazil		30	75
Oceania		100	100	110
	Papua N. Guinea			110
Total		6,700	9,000	15,000

2.3 How ITPs are established and how conflicts arise

Julien-François Gerber (2010), who conducted the largest existing systematic study on the distribution and types of ITP conflicts worldwide, covering 58 conflicts, defines ITP conflicts as 'physical mobilizations coming from neighboring populations and targeted at the perceived negative effects of the plantation. These effects may be economic, socio-cultural or environmental' (Gerber, 2010).

2.3.1 Before the first tree is planted

The general context

With ITPs, the stage is typically set for conflict even before the first tree is planted. Since the beginning of the 1990s, governments of all ITP countries in the global South have followed to different extents economic policies based on the neoliberal model, adopting so-called structural adjustment programs. These programs were prescribed as a 'recipe' by the International Monetary Fund (IMF) and endorsed by development banks like the World Bank. On the one hand, governments received money from the IMF in order to be able to honor their debt payments with Northern banks and governments. On the other, to get this money, they had to reduce state expenditures on, for example, health and education; promote privatization, trade liberalization; and offer incentives and subsidies for export-oriented activities – including industrial tree plantations. This is one reason why



communities complaining about ITP projects often hear from local authorities that the project they are opposed to is of ‘national importance’ and cannot be halted.

Neoliberal macro-economic policies, then, are already designed in a way that on the one hand promote export-oriented ITPs and on the other negatively affect populations in the global South. Citizens often see health and education services deteriorating while their tax money is channeled to debt payments for which they themselves are not responsible; a country like Brazil spends monthly up to 30-40% of its state budget on payments related to its debt obligations. At the same time, they have to cope with damaging export-oriented projects installed in their territories, including ITPs.

Guaranteeing a ‘secure’ investment

During the preparatory phase, ITP companies obtain guarantees that their planned investment can be made without major problems – that rules, policies, subsidies and tax incentives will be in place to ensure its smooth execution

Before the first eucalyptus, pine, acacia, rubber or oil palm sapling for an ITP is planted, a lot of preparations have to be made, often in urban governmental, industrial and financial centers. These can include seminars where the importance and benefits of ITPs are publicized in the presence of governmental representatives, consultants and investors; or closed meetings between ITP companies and the government, for example to discuss incentives, subsidies or corporate contributions to election campaigns.

This preparatory phase helps ITP companies obtain guarantees that their planned investment can be made without major problems – that rules, policies, subsidies and tax incentives will be in place to ensure its smooth execution. This is of huge importance for ITP companies given that they occupy vast territories, sometimes tens or hundreds of thousands of hectares, populated by rural residents who might ‘disturb’ their plans. State support is essential for control and, if need be, repression or eviction. Subsidies are also important given the high cost of ITP investments and, above all, of pulp mills, which can cost between USD 3 and 4 billion a piece. Without subsidies, no pulp mills of this scale could be constructed.

The preparatory phase of setting up ITPs and ITP related projects such as pulp mills and palm oil refineries already involves most of the actors that benefit from ITPs. These actors have been well described by Carrere and Lohmann (1996). First of all there are the *ITP firms themselves and their industry associations*, which lobby international institutions such as the FAO and the UN climate change and biodiversity apparatuses (the Framework Convention on Climate Change and the Convention on Biological Diversity) to get ITPs officially classified as, for example, ‘carbon sinks’ or providers of ‘ecosystem services’. ITP firms and industry associations also lobby national governments and parliaments to get laws and rules promulgated that will benefit their operations. Funding election campaigns can be another important part of this ‘lobby’ work.

National and sub-national governments, parliaments and national development banks are crucial to ITP plans. Governments are expected to pass laws and formulate policies from which ITP companies can benefit, such as tax breaks for exporting companies and flexible environmental and labor legislation. They are also supposed to create the needed infrastructure such as roads, railways and export harbors. In the bigger economies like in Brazil and China, governments



provide tax money through public banks for ITP and infrastructure projects. Sometimes, as in Brazil and China, the state is also partial or total owner of the companies.

However, many important actors are from the global North, often from countries with a strong wood-based industry, like Finland, Sweden, Germany and the US. There are *consultancy companies*, for example, that identify new markets, formulate 'forestry plans' for ITPs and make environmental impact assessments, such as the Finnish Jaakko Pöyry company active in the plantation and pulp sector in 50 countries, with sales of EUR 682 million in 2010.¹⁴ Pöyry and its international competitors increase their market share by taking over local consultancy firms, like Silviconsult in Brazil, bought by Pöyry in 2010¹⁵. *Bilateral agencies* are also important actors. Swedish SIDA, for example, is involved in ITP projects in Mozambique (see chapter 3).

Other fundamental actors are the *multilateral agencies*. Multilateral development banks include the World Bank and its private arm the International Finance Corporation (IFC), the European and Nordic Investment Banks (EIB and NIB), and also regional banks like the Asian Development Bank (ADB). All finance consultancies and projects of ITP companies as 'arbiters of quality, in which role they are implicitly recognized by the private sector', according to a report of the Center for International Forestry Research, CIFOR. Often commercial banks will agree to finance a scheme of a new pulp mill once multilateral financing is in place (Lang, 2007). One very important multilateral agency also involved in promoting ITP expansion is the FAO (see **Box 1**).

International private banks specializing in agribusiness funding have become increasingly important. According to Lang (2007), pulp and paper companies succeeded in raising USD 215.5 billion on the international capital markets between 2000 and 2006, 'much more than the USD 1.9 billion provided by development banks to the sector over the past decade'. Most of this funding comes from 'syndicated loans, bonds or equity offerings'. European banks are especially important for the pulp and paper and oil palm sectors.¹⁶ Increasingly, other national and international Investment Funds are also active in the sector, like pension funds, private equity and development aid funds.

Research institutions and big NGOs active in the field include university departments and state and private research institutes, where future foresters are trained and research is carried out in cooperation with and to the benefit of ITP companies. Also, NGOs that support and can benefit from projects carried out

Many important actors are from the global North, often from countries with a strong wood-based industry, like Finland, Sweden, Germany and the US

¹⁴ <http://en.wikipedia.org/wiki/P%C3%B6yry>, and www.poyry.com.

¹⁵ <http://www.poyry.com/news-events/news/poyry-acquires-60-brazilian-forest-based-consulting>.

¹⁶ For example, ABN-AMRO, Barclays, Credit Suisse, First Boston, Deutsche Bank, Dresdner Bank, Hypovereinsbank and Commerzbank helped funding pulp mill projects of APP and APRIL in Indonesia (Lang, 2007), and ABN-AMRO Bank, ING Bank, Rabobank, MeesPierseon, OCBC Bank, Credit Suisse, Credit Agricole, Standar Chartered, IBS, ING Bank, BCA and Fortis are involved with oil palm companies in Indonesia (WRM, 2008) (<http://www.greenthefilm.com/>).



People in ITP areas often claim that they were never asked whether they wanted the ITPs, and never requested the plantations in the first place. The most important elements in the conflict are related to land access and ownership

jointly with ITP companies have an important role in promoting ITPs. *Mass media* also often wind up supporting ITPs, not least because they can benefit financially from advertisements placed by ITP companies.

Local people are not involved, but receive many promises

Local people that will be directly affected by ITPs are generally not involved in this preparatory phase. A typical first complaint of people in ITP areas is that they were never asked whether they wanted the ITPs, and never requested the plantations in the first place. ITP implementation and expansion thus tends to be top-down, anti-democratic and non-participatory from the outset, making subsequent conflicts highly likely.

Of course, local people do learn about ITP projects through public ceremonies on television and radio during which local governments announce investments; propaganda billboards in regional towns; and sponsorship by ITP firms of public events in the region. Often, regional and national media take note of the 'development', 'progress' and 'jobs' that are promised by the ITP project.

Sometimes an ITP firm is forced to organize public hearings to obtain an environmental license, which can entail producing an environmental impact assessment and report (EIA/EIR). In most cases, these hearings permit very little space for people's participation, even less for a meaningful debate. First of all, EIA/EIRs, difficult to gain access to in advance, tend to be presented through colorful summary power point presentations that offer few openings for criticism. Second, public hearings often turn out to be mere propaganda sessions at which ITP companies mobilize their own 'armies' including employees, forest engineer associations, local commerce and pro-plantation NGOs. ITP firms, government representatives and consultancy companies responsible for the EIAs and EIRs generally chair such hearings as a united team, emphasizing the 'benefits' of the projects and the effectiveness of mitigation measures. Not surprisingly, the consultancy companies involved are usually paid by the ITP firms and can even have their own financial interest in the success of project, as was the case with Pöyry when it was contracted to make an EIA/EIR for the Veracel Celulose pulp mill in Bahia, Brazil, and later contracted again after the project was under way (Gonçalves and Overbeek, 2008). Even if an EIA/EIR is heavily contested, the 'grievances' of local people, often judged by the coordinators of the hearing as 'non-scientific' or 'emotional', do not tend to have any influence on the final decision, which has normally already been taken, to carry out the project, based on commitments made in advance between the company and authorities.

Getting control of land, much land: conflicts and human rights violations

When an ITP firm considers that sufficient other guarantees are in place to start a project, it is time to secure access to land, often tens or even hundreds of thousands of hectares. Despite corporate propaganda that ITPs occupy 'marginal', 'degraded' or 'unused' lands, ITP firms necessarily covet flat, fertile and adequately-watered lands where they can obtain satisfactory wood productivity. Such lands, however, are almost always occupied or used by local communities, who usually have not been consulted. Residents who refuse to join



the ranks of the landless can often count on violent repression. With respect to ITP developments, it is the conflict over land access and ownership that is the most important.

If lands are state-owned, as is common in Africa and Asia, ITP firms can obtain private land concessions or leases for a minimal cost and for tens of years. Conflicts occur when land concessions overlap with areas that communities live and depend on. In most countries, communities lack clear land titles, instead holding customary land rights, making eviction easier. In a study of the expansion of rubber plantations in Laos, Kham Ouane Boupha, head of the National Land Management Authority, affirmed during a Meeting on Land Use for Commercial Tree plantations in February 2007 (CRILN et al., 2009) that:

'The issuing of land concessions and leases for tree plantations over large areas and for excessive periods has (...) required both the resettlement of people and compulsory acquisition of the land which the people farm on. The people have lost their source of daily livelihood and lost their long term rights to use the land.'

Hansen (2007) comments that:

'Disagreements (and conflicts) concerning State land often involve lands used by communities for upland cultivation, mostly in shifting cultivation. Communities claim such land as village lands by user rights and (often) old traditional rights, while the State qualifies such lands as unused or degraded lands, available for land concessions.'

In Malaysia, ITP permits are issued by the Lands and Surveys Department or by the Forestry Department. Peoples' rights are violated when the permits are issued without prior notice or consent, frustrating communities who believe that the state should be committed to protecting their livelihoods. According to the Sarawak land code, the state can declare a 'Development Area' and then issue a lease for as long as 60 years. Development Areas devoted to monocultures bring about permanent and total loss of lands and forests of the people. Even if the land returns to the people after expiry of the period, future land use options will be severely limited. Profit-sharing ventures between private companies and rural villagers, in addition, often amount to unbalanced partnerships. Communities have protested land takeovers by blockading developments as well as by using their own maps to demonstrate their current use of their lands (SAM, 2011).

In Cambodia, in 2000, the Pheapimex group got hold of large concession areas, totalling more than 300,000 hectares, to convert forest to acacia and eucalyptus plantations and build a paper mill with Chinese investment. The company received the concessions from the Ministry of Agriculture, Forestry and Fisheries (CHRAC, 2009). Local villagers' protests have been violently repressed. In a 2001 statement, local villagers (Lang, 2002) complained that:

'When planning the agro-agricultural scheme, the company did not talk with the local people and didn't examine the location of people's villages and farms within the investment area. As mentioned, we would like you to solve the problem before it is too late and to demand the whole planned land for people's use and future generations' property.'



Human rights violations are common in ITPs conflicts

Many years later, in August 2008, some of the villages and communes in the area thumb-printed a letter to the Ministry of Agriculture, Forestry and Fisheries asking it to cancel the land concession and designate parts of it as community forest. No action has been taken on the petition (CHRAC, 2009).

In countries where private property regimes prevail, especially in Latin America, ITP companies try to get debt finance from banks or investment funds in order to buy or hire lands for plantations. Mostly these are large properties, which produce more efficiently from a business perspective. When the owners, usually big farmers, sell or rent their property to ITP firms, employees or landless peasants living and working on these properties are evicted. These same big farmers, who are usually extraordinarily well paid for their land by the ITP companies, can, in their turn, expel more people when they acquire new properties in other regions. ITP projects involving many land acquisitions at once in the same region inflate land prices to such an extent that access to land becomes much harder both for small-scale or landless farmers and for state agrarian reform programs. Such land concentration is the main source of conflicts between ITP firms and rural peasant movements such as La Via Campesina.

The typically huge extent of ITPs leads to problems with local communities everywhere. For example, the UK-based New Forests Company received a license from the Ugandan state in 2006 to exploit an area of 20,000 hectares, where it planted 9,300 hectares of pine and eucalyptus trees. More than 20,000 people were violently evicted. 'We were beaten by soldiers. They beat my husband and put him in jail,' said Naiki Apanabang, who claims that her land had been given to her in recognition of her grandfather having fought in the British army in Burma in the Second World War. She continued: 'The eviction was very violent. The people behind it were the Resident District Commissioner, the police, casual labourers of the New Forests Company, the army, and a private security company called Askar.' The newly-dispossessed were driven to despair, but many are now struggling to get their lands back (Grainger and Geary, 2011).

Such human rights violations are common characteristics of conflicts involving ITPs. For example, the Swedish-Finnish Stora Enso, the second largest paper company in the world, was involved at least indirectly in the death of local activists and lawyers while expanding eucalyptus plantations for its planned one-million ton pulp mill in Guangxi, Southern China, a project requiring 120,000 hectares of eucalyptus plantations. The company controlled only 90,000 hectares in 2012, and has had problems acquiring more due to conflicts, yet still announced it will build the plant (Nielsen and Ping, 2010).

The 2009 coup in Honduras set in place an authoritarian regime strongly connected to oil palm plantation expansion interests. The regime change has resulted in increased violence, according to the peasant organization of Bajo Aguán. In an open letter they reported that 42 members of *campesino* organizations were murdered between September 2009 and October 2011 and denounced the:

'... persecutions, threats and intimidation of 3,500 *campesino* families demanding their right to land and food ... who find themselves completely



defenceless when confronted with the criminal repression and plunder by the Honduran oligarchy, primarily associated with oil palm production in this region and closely linked with the political regime installed after the 2009 coup. In addition to these murders, there are legal proceedings against more than 160 *campesinos* – as of July 2011 – forced evictions, and the destruction of the homes and livelihoods of entire villages' (WRM, 2011b).

Violence and human rights violations are also common in the case of the Mapuche indigenous peoples in Chile. Most of their lands in the Araucania region were turned into ITPs in the 1970s, under the military dictatorship of Pinochet, and are now mainly owned by two ITP firms: Arauco and Florestal Mininco. The companies grabbed the Mapuche land at zero or low cost, driving the populations out and planting pine or eucalyptus.¹⁷ Since then, the Mapuche have been struggling hard to get their lands back and gain recognition for their rights as indigenous people. To prevent land 'invasions' and other protests, the Chilean state applies anti-terrorist laws to the Mapuche, persecuting them and often giving hefty prison sentences.¹⁸

What is needed, in the view of the Mapuche, is for land to be seen as more than an object serving purely economic goals. 'We want people to start to see land again as a living being – everywhere people live,' said one leader. This reorientation would help the Mapuche regain their traditional livelihoods and understanding of land as coming from Mother Earth, instead of being faced with the necessity of fleeing to cities to serve as a low-cost workforce. Thus the main Mapuche objective now is to 'reconstruct the Mapuche Nation as an autonomous territory, and to slow down the entry of transnational companies, making use of the land in their control'¹⁹.

Box 2 Outsourcing: an alternative?

ITP companies outsource some of their tree plantations to big, medium and small landowners, for example with oil palm in Indonesia and eucalyptus in Brazil. ITP companies often supply these subcontractors with saplings, fertilizers and agrotoxics. By applying this strategy, the firms can evade the accusation that they are reinforcing land concentration and causing land conflicts. They can also reduce costs and offload responsibilities for workers and plantation management onto others. Finally, using outsourcing, they can enter areas where they would never previously have bought lands due to the impossibility of mechanical tree harvesting. Thus, in Brazil, Aracruz/Fibra has actively promoted outsourcing in mountainous regions of Espírito Santo state where their harvesting machines cannot be operated. For small farmers, however, contracts with ITP companies may be problematic. Peasants need land to cultivate food and run the risk of increased indebtedness. The Asian Development Bank, which had a large smallholder fast-wood program in Laos, concluded, in 2005, that the project was a failure as '...people were driven further into poverty by having to repay loans that financed failed plantations' (Lang, 2006).

Local villagers in Cambodia question whether working on corporate ITPs, or fast-wood plantations that they own but are controlled by corporations, is development: 'We want projects like health centres and schools. But we don't want development where we become workers. We want development that we can control ourselves' (Lang, 2008).

¹⁷ Based on interview (in Helsinki, 19 October 2011) with Mijael Carbone Queipul, the political leader of the Temucuicui community, and the leader of the four-year old Alianza Territorial Mapuche – an organization that attempts to unite different Mapuche groups, and personal communication with other Mapuche leaders.

¹⁸ Documentary film from Varela, Elena (2011). *Newen Mapuche: The Strength of the People of the Earth*. Chile.

¹⁹ *ibid.*, footnote 14.

2.3.2 Clearing the area to plant the first trees: loss of biodiversity and people's homes

After ITPs acquire control of land, any vegetation present, such as tropical forests, must be cleared in order to make it possible to plant straight rows of trees. But tropical forests and other biodiverse vegetation regimes in the global South fulfill crucial ecological functions and help regulate the climate of entire regions. ITP expansion has been destroying forests and other biologically diverse biomes in several tropical forest countries across the global South.

The most severe instances of destruction of rainforests by ITP expansion can be found in Southeast Asia. In Indonesia, the two biggest pulp producers, Asian Pulp & Paper (APP) and Asia Pacific Resources International Holdings Limited (APRIL), got hold of large concession areas for ITPs, using the justification that the concessions would make it unnecessary to destroy native forests to supply their pulp mills. In reality, the two companies together wound up being accused of having deforested about 2 million hectares of forests in Riau Province of Sumatra alone.²⁰ In Malaysia and Indonesia, more than 50% of oil palm expansion since 1990 has taken place at the expense of forests (Kongsager and Reenberg, 2012). Forest Watch Indonesia (FWI) estimates that Indonesia has seen approximately 59 million hectares deforested within the last 40 years, including for large-scale pulp and oil palm projects.²¹



Fig 3

Deforestation in Indonesia for plantation expansion

Photo credit: Isabelle Alexandra Ricq

According to Indonesian activists Rivani Noor and Rully Syumanda:

'The impacts of this rapid deforestation have been widespread and various. Impacts on the environment include the loss of unique biodiversity, increasing occurrence of floods and drought, decreasing

²⁰ R. A. Butler (2011) Pulp and paper firms urged to save 1.2M ha of forest slated for clearing in Indonesia. Article available at http://news.mongabay.com/2011/0317-pulp_and_paper.html. Date of access: 06.06.2012.

²¹ Presentation by Nanang Sujana in Helsinki, SIEMENPUU INTERNATIONAL FILM FESTIVAL SIIRRETYT-DISPLACED, Helsinki, 8.10.2011.



water quality and quantity, and increasing occurrence of forest fires that pollute the air and contribute to global climate change' (WRM, 2007).

Forest destruction also affects severely the food sovereignty and local economies of forest and forest-dependent peoples. In the case of land concessions in Laos given to the Pheapimex company, local villagers opposed to the project stated that:

'We disagree with the company's plan to bulldoze the existing forest and plant paper trees for the following reasons: We all rely upon the forest to meet our livelihood needs for it supplies resin, fruit, creepers, rattan, cassava, mushrooms, and housing materials and is also used for our cattle's grassland. The wood so far has not been depleted and is still useful and profitable for us. The cutting of trees [by the company] will cripple us and also impact on people's fields throughout the planned location'.... 'The cutting, which will lead to the clearing of 130,000 hectares in Pursat Province, will affect environment that the Government have planned to protect and reforest. Instead, Pheapimex is planning to destroy the forest that is useful for protection against floods, storms, and erosion into the Tonle Sap River' (Lang, 2002).

ITP expansion has destroyed forests and other biomes in tropical forest countries across the global South, while local villagers argue:

We all rely upon the forest to meet our livelihood needs. It supplies resin, fruit, creepers, rattan, cassava, mushrooms, and housing materials

Other biomes just as important as forests, have been destroyed to set up ITPs, such as the savannas (*cerrado* in Portuguese) in Brazil and grasslands in Africa. A book on the impacts of ITPs in South Africa and Swaziland, compiled by the NGO Geosphere, states that 'The grasslands which these monoculture plantations have replaced contain an estimated 4000 plant species – none of which can survive in an exotic timber plantation compartment' (Geosphere, 2010). Traditional healers have in this case joined the struggle against ITPs due to the difficulty they face in finding medicinal plants because of the expansion of these plantations.

2.3.3 Creating jobs

Despite such conflicts, the initial phase of ITP projects is often less unpopular than later phases among local people. This is because when plantations and processing units are set up, workers are needed and are partly recruited locally. Clearing, preparing and planting the land, as well as building pulp mills, can require thousands of workers. For men but especially also for women, jobs can signify an opportunity to earn money and gain autonomy and dignity – as long as labor rights are respected, salaries are decent and jobs not merely temporary.

Many local workers' initial enthusiasm is transformed into frustration when they are dismissed: worker requirements tend to decrease significantly after a few years. Eucalyptus ITPs that have mechanized both planting and harvesting need relatively few workers, unlike oil palm and rubber plantations, where the harvest still cannot be mechanized. An NGO study from Brazil on working conditions in ITP plantations showed that Veracel Celulose created only one direct and out-sourced job per 37 hectares of ITPs, even when the number of pulp mill workers is included in the figure. On the other hand, coffee, another cash crop common in that region, is able to create one direct job for every hectare. Yet even if production is not mechanized, fewer jobs are created by ITPs than by small-scale agriculture or even agribusiness activities. On a eucalyptus plantation, there is

work only during the first 1-2 years (planting and maintaining saplings largely through irrigation and application of agrotocics). Thereafter, workers are needed again only after 7-12 years, for harvesting. In 'modern' capital-intensive pulp mills, only a few hundred relatively well-paid workers are employed, mostly recruited from outside the area (De´Nadai et al., 2005).



Fig 4

Mechanized eucalyptus harvest in Brazil

Photo credit: Winfridus Overbeek

In the ITP sector, workers are increasingly being paid by output, rather than for the number of hours worked, receiving a set amount of money:

“... for each seedling planted, each tree pruned, each cubic metre of wood cut, each kilo of oil palm fruit picked, each section of rubber tree plantation harvested, etc. Workers must achieve an extremely high level of output in order to earn at least a minimum wage-level salary by the end of the month, something that only the youngest and strongest workers are generally able to do” (WRM, 2007).

For companies, this is a far better option than regular wage-work based on hours, as it moves responsibility onto the workers and turns them into mini-entrepreneurs. Unlike entrepreneurs, however, they do not gain the rights and profits firm owners: they simply take the risk.

In addition, ITP jobs once offered to local communities – like working with chainsaws, irrigating saplings, applying agrotocics and the like – have been increasingly outsourced, reducing salaries and weakening labor rights. Outsourcing also makes the work of trade unions, if they exist, more difficult, as temporary workers are distributed among different outsourcing companies, often working in isolation from each other over the huge plantation areas. On the top of this, when global financial-economic crises such as that of 2008 erupt, outsourced workers are the first to be dismissed – the first to pay the price for the crisis.

Workers, who apply agrotocics, including women, are exposed to weed killers containing glyphosate. In a report on human rights impacts on traditional *quilombola* communities in Brazil, attention was drawn to the fact that young women, said to be on average more 'productive' than men, are special targets of recruitment for pesticides application by Aracruz/Fibra, putting their (reproductive)



health at risk (Overbeek, 2010). In a recent report, Greenpeace denounced the health risks of glyphosate (Fernandes, 2011), but it is still ITP firms' favorite weed killer. While mounting scientific and empirical evidence from Argentina to Canada and elsewhere points to significant dangers to health from glyphosate,²² in Brazil, the biggest agrottoxics consumer in the world, glyphosate is not considered harmful at all by ITP companies. The authorities, however, are increasingly concerned: glyphosate is one of the agrottoxics that is being re-evaluated for its negative impacts by Brazil's National Sanitary Inspection Control Agency. Other ailments due to toxic substances, such as leucopenia among saw chain workers, have also been reported (De´Nadai et al., 2005).

Workers directly contracted by ITP companies also have complaints – for example, the workers, often women, who do the delicate and repetitive job of preparing the millions of seedlings for planting in tree nurseries. Even the drivers of the 'modern' harvesters capable of cutting 140 trees per hour (De´Nadai et al., 2005), have complaints. Although they sit inside air-conditioned cabins, they suffer from long working days during which they need to execute constantly up to five different movements with their hands and arms, causing long-term impacts on the movements of their hands, arms, back and shoulders. And when workers are injured, they tend to be dismissed. One harvesting machine driver from Aracruz/Fibra, Brazil, who was dismissed four years ago, said:

'The love I had for the company, I worked there 24 years (...) it has hurt even the last drop of my blood. Unfortunately, in the company we are a recruit, a number. They are not interested in the fact that a worker is a human being and has a family' (Margon, 2009).

With regard to working conditions on rubber plantations, an inquiry by the NGO Save My Future Foundation (SAMFU) among workers on the Bridgestone/Firestone plantations in Liberia in 2005 also revealed worker abuse. Workers were obliged to live in single rooms with their families, as well as in overcrowded camps, without access to safe drinking water or energy. They also complained of lack of access to proper health care (WRM, 2005).

A report on working conditions on oil palm plantations in Cameroon reported the use of child labour, besides other serious misconduct:

'In May 2006, the United Nations Mission in Liberia (UNMIL) published a report that described the dire human rights situation on the [French Bolloré Group's rubber tree] plantation: child workers under the age of 14, the massive use of sub-contracting, the use of carcinogenic products, the quashing of trade unions, arbitrary dismissals, the maintenance of order through private militias, and the eviction of peasant farmers obstructing the expansion of the plantation area' (WRM, 2010a).

In many places in Africa, however, including Nigeria, oil palm is an extremely important source of work for local communities, and is planted on a totally different model (see **Box 3**).

ITP jobs once offered to local communities have been increasingly outsourced, reducing salaries and weakening labor rights

Jobs in oil palm plantations do not change existing unequal gender relations and can even aggravate the situation and lives of women

²² See for example http://www.non-gmoreport.com/articles/may10/consequences_o_widespread_glyphosate_use.php



Box 3 Palm oil in Nigeria: crucial for local economies

Source: WRM (2010d)

In Nigeria, oil palm is indigenous to the coastal plain and has migrated inland as a staple crop. Some 80% of production comes from several million smallholders spread over an area estimated to range from 1.65 million to a maximum of 3 million hectares. For millions of Nigerians, oil palm cultivation is part of their way of life – indeed it is part of their culture.

As reported by Chima Uzoma Darlington, an Ngwa man from Abia State of Nigeria, 'in Ngwa land and most parts of eastern Nigeria, the palm tree is highly valued. It contributes so much to the rural economy that we call it '*osisi na am ego*' in my dialect, which literally means 'the tree that produces money'. Apart from the oil, virtually every part of the tree contributes to rural livelihood. From the palm fronds, we get materials for making baskets and brooms. The tree is tapped for palm wine especially in Enugu State; and many young men in the rural areas earn their living as palm fruit harvesters while many women (married and unmarried) trade in the fruits.'

'In my place of origin, many of our prominent sons today were trained using proceeds from palm trees. Up until today, many community development projects are financed using proceeds from the sale of oil palm fruits. In order to protect this..., the head of the village or community places a ban on individual harvesting of oil palm fruits for a specified period. When it is time for harvesting, individual members of the village or community are mandated to pay a specified amount of money to qualify them to partake in the harvest, which takes place collectively on an agreed date. This was also how they were able to train some of our prominent sons. Even today, indigent rural dwellers pledge their palm trees to others in order to get money to take care of some needs like sending their children to school.'

As documented in Akwa Ibom State, a southeastern coastal state in Nigeria and one of the areas where oil is produced in large quantities, women play an important role in the production, storage and commercialization of red palm oil, a common ingredient in the cooking of almost every type of dish prepared in Nigeria. The processing of the fruits into vegetable oil is most commonly carried out by women. If the oil has been produced in large quantities, it may be stored in large metal drums to await buyers and transport to other towns. If the oil has been produced in smaller quantities, it is taken to local markets for sale; either way, the Akwa Ibom women earn money.

'These palm trees', Chima recounts, 'mostly occur naturally on their pockets of land and not on monoculture plantations. Most parts of eastern Nigeria bear secondary regrowth forests with the oil palm tree being the dominant tree species.'

Both the EU and the World Bank have actively tried to promote large-scale oil palm plantations over the past decades. But, as Chima warns, 'the establishment of monoculture plantations usually involves the destruction of the existing vegetation, and this will amount to the felling of the naturally-occurring oil palm trees on which the people depend for their livelihood.' He concludes: 'Grabbing land from rural people to encourage large-scale monoculture oil palm plantations will impoverish them the more and cause hardship.'

In some cases, forced labour has been used. For example, reports from Myanmar link forest land concessions and tree plantation projects (rubber and jatropha, involving large-scale Chinese investment) with forced work and *œrvée* labor (unfree labour, often unpaid, that is required of people of lower social standing and imposed on them by the state or by a superior) (Barney, 2007).

A recent study by Sawit Watch and the organization Women's Solidarity for Human Rights (Dewy et al., 2010) listened to women workers on oil palm plantations in Indonesia. While, for these women, a job could mean a way to earn a salary and gain autonomy, jobs in oil palm plantations do not change existing unequal gender relations and can even aggravate the situation and lives of women. Indonesian women oil palm plantation workers complained, for example, that they had not received protection equipment when they started working. One woman worker declared that 'we inhaled the chemicals ... and all those chemicals were poisonous ... When I asked him, 'Sir, if you could consider giving us masks because we have already inhaled the poison and into our lungs ... ', he reported this to the Assistant (manager)'.



The study also showed how women have to make a tremendous effort to shoulder their double burden of working on the oil palm plantations and performing their domestic chores. One woman worker comments:

'Working in the [company] fields is very hard, essentially it's just so hard being a labourer. You have to accept the heat and being rained on. Apart from the responsibility in the house, there's also the work outside of the house, from morning until the afternoon and once home there are still more house chores that must be done'.

A female colleague adds that:

'It's better to have your own business or work in the garden and in the fields than to work at the palm nursery company. It's dangerous working at the company, a lot of diseases or health problems. Have to leave at 4 and come home only in the afternoon. The children become neglected.'

Another worker affirms: 'People that work on oil palm (plantations) in the end have to buy rice because they don't work the (rice) fields. There are others that run into debt every month' (Dewy et al., 2010).

It has been made difficult for the workers to reclaim these conditions:

'The system itself makes it very difficult for workers to defend their rights. They are often scattered and isolated from one another both geographically and because they work on different crews employed by a variety of different subcontractors. One of the most common features of this sector is limited or non-existent labour organisation, particularly due to the fear of being 'blacklisted' by employers for joining a union or promoting unionisation. Overall, the working conditions that predominate across vast areas of plantations established in Africa, Asia and Latin America violate the most basic rights of workers' (WRM, 2007).

2.3.4 Once plantations are established: more impacts and conflicts

Once ITPs are established and local opponents literally lose their horizon (because the ITPs that surround them grow so rapidly), yet more problems arise. In the case of plantations of fast-growing trees like eucalyptus, one of the first problems has to do with water, crucial for any human being but especially for rural communities dependent on water for economic activities such as agriculture and cattle grazing.

The question of whether ITPs dry up local rivers, streams and wells has been one of the most contested issues involving local people and ITP firms. In all documented accounts of local community reactions to ITPs, without exception, people complain that their water sources have dwindled or dried up.

South Africa, a country where water is a scarce and disputed resource, has been a pioneer country in terms of concern about impacts of ITPs on water. Tree plantations have been monitored in nine catchments since 1936 and a number of impacts have been confirmed:

'Solid and fairly conclusive results on the impacts of tree plantations on water have come out, including certain rules of thumb. ... The onset of streamflow reductions was evident approximately at five years, and is

Without exception, local communities complain that their water sources have dwindled or dried up

strongly associated with plantation age, up to a peak reduction occurring at around 15 years, followed by a gentle decline in water use. ... in the case of eucalyptus [5-7 years old], the average [water use per day per tree] may range from 100 to 1000 liters depending on where the landscape is. Trees next to a stream can use twice that amount of water because they have more access to it. The conclusions of the study and documentary come in support of an urgently needed debate on the peril of large scale monoculture tree plantations, particularly regarding the issue of water in every country where they are being established' (WRM, 2010b).

In the past few years, the South African evidence has been supplemented by growing scientific support for the complaints of local communities. In 2005, a group of 10 scientists, synthesizing over 600 global observations, published a report in the journal *Science* concluding that in general, tree plantations decreased stream flow by 227 millimetres per year globally ..., with 13% of streams drying completely for at least 1 year' (Jackson et al., 2005).

Even one of the leading academic apologists for ITPs admits indirectly that where ITPs occupy more than 20% of a watershed, which is overwhelmingly the case, water availability will decline (Carrere, 2010). Walter de Paula Lima, professor at the well-known Forestry Department of Sao Paulo University (ESALQ) in Brazil, and author of several publications on the issue funded by ITP firms, states in a 2010 publication that 'some experimental studies in watersheds (...) show that there is no change in runoff if these plantations occupy only 20% of the area of the watersheds'. ITPs also affect local water in another way: local streams and rivers are contaminated by chemicals used in ITPs, affecting fisheries, drinking water availability, and bathing and swimming. Affected communities often become dependent on externally-provided clean water.



Fig 5

Dried up river in Swaziland

Photo credit: Winfridus Overbeek



Negative impacts on soils form the basis of another common complaint. As a fast-growing, frequently-harvested rotation crop, ITPs cause a constant removal of nutrients from the soil. As a result, chemical fertilizers must be constantly applied, causing in turn contamination of soils and water. Erosion is a common problem, especially in hilly areas. In the case of some grasslands, the impact on soils can be irreversible and can imperil future agricultural and other production. Carlos Cespedes-Payret, a researcher at the Uruguayan Faculty of Science, has demonstrated that eucalyptus plantations have negative effects on grassland soils, causing considerable loss of organic matter and increased acidity, together with alteration of other physicochemical properties (Cespedes-Payret et al., 2009).

Local people's lives and livelihoods can also be put at risk by forest fires, which can easily spread throughout monoculture plantations, or even to adjoining native forest areas, during dry seasons.

2.3.5 In the end, 'fenced' and 'imprisoned' by tree plantations

After several years of resistance inside an area occupied by ITPs, local communities tend to feel both 'fenced in' and 'imprisoned' by the plantations. When they go out to visit friends and relatives, they are typically monitored or even cautioned by private and/or public police forces that the plantation trees have to be 'protected' from possible 'thieves.' Hunting and fishing in remaining areas of natural vegetation – which have often been privatized by the ITP company as a basis for company 'nature protection' propaganda – is often repressed. Local people accustomed to being able to collect firewood, fruits and medicinal plants, as well as to fish and hunt, are now barred from these activities on pain of arrest and persecution:

'The Guarani have always been hunters. Boys have to learn how to hunt, and so they go with their fathers when they go out hunting.....There have been times when we've gone out and the guards from the company (Aracruz) detain us. They say we're hunting on property that belongs to them' (testimony of Werá Kwaray, in Barcellos and Ferreira, 2007).

The 'imprisonment' that local people experience makes them feel isolated. Traditional celebrations that used to involve communities and families accustomed to being able to visit each other become more difficult to organize. Residents find that they need to leave the area to find a job. And when despairing people decide to sell their property, the ITP company is only too happy to buy it. The more homogenous the landscape is made, the more efficient and secure the business can become.

From a corporate perspective, the strict control and 'security' operations applied to ITP plantations – generally coordinated with state authorities – is a fundamental part of business. For example, a modern industrial pulp mill runs 24 hours a day the whole year through, only suspending production for general maintenance once a year. Feeding such a mill – including managing harvests planned according to a

From a corporate perspective, the strict control and 'security' operations applied to ITP plantations – generally coordinated with state authorities – is a fundamental part of business

strict factory schedule – entails strict, 24-hour-a-day control over the territory from which raw material is derived.



Fig 6

Community cemetery fences by eucalyptus plantation in Brazil

Photo credit: Winfridus Overbeek

Sometimes even animals are persecuted by the companies. According to Geosphere, a South African environmental NGO, baboons are integral parts of various local environments, performing a number of vital functions. But big areas of such environments have been gradually transformed into ‘green deserts’ of ITPs. The baboons have struck back, staging group attacks on pine trees, from which they remove patches of bark. Interestingly, the attacks are not motivated by food shortage, but appear to be concrete protest against the destruction of their environment for other reasons. ITP companies have retaliated through a controversial ‘trap and shoot’ method, killing many animals.²³

2.3.6 Women are most affected

Worldwide, gender relations are unequal in many ways, for example, in the sexual division of work and power. Unsurprisingly ITPs have different effects on women and men and can reinforce existing inequalities.

In Brazil, a study by Barcellos and Ferreira (2007) of women in communities that once lived in forest areas but have now lost their lands and are surrounded by ITPs showed how the sexual division of labor had changed. According to one indigenous woman:

‘Indigenous women face more difficulties today, because in the past there was an abundance of everything. Indigenous women stayed home with their children and they grew a lot of different crops and devoted themselves to picking leaves, while their husbands were doing other things. There was an abundance of everything. Today, in addition to the fact that they don’t have a lot of crops, there’s a lot of unemployment.’

²³ http://www.geosphere.co.za/articles/fsc_baboons.htm.



Another woman observed that:

“.....now, when they [the men] go out to hunt, they don't find anything, and when they get home, you can see the sadness in them. Sometimes, the kids... sometimes their father goes out hunting, thinking he's going to bring something home. He comes back but he doesn't bring anything. And the whole family feels worried.’

This weakening of men's role has subjected women to rising rates of alcoholism among their partners as well as greater domestic violence and violence from outside workers. During an all-womens' workshop held in 2008 to discuss impacts of ITPs on women, a Brazilian peasant woman from Rio Grande do Sul commented that:

‘Those who come from outside harass the women when they walk outside and this happens every day. We are not free to walk alone anymore. For us women, eucalyptus plantations have created a situation of fear, violence and sexual harassment’ (WRM, 2009).

In December 2007, in the community of Iguobuzowa in Nigeria, the French tyre company Michelin bulldozed the forest and farmland of 20,000 people to convert them into rubber plantations. As food production in Africa is mostly a women's task, women were extremely affected by the plantations. One woman commented:

‘These people want to plant rubber and starve us to death. I had two acres of farmland in which I planted cassava, plantains, cocoyam, pepper, and pineapples. Now, the farm is gone and I don't have any source of food and livelihood anymore’ (WRM, 2009).

Women have also found that traditional medicine, which they are accustomed to looking after and which is vital to rural communities, is affected. ‘I am pregnant and ill,’ said one woman, ‘and the herbs are nowhere to be found. Before now, we used to go to the bush to get herbs to cure all sorts of ailments, but now we cannot gain access to them’ (WRM, 2009).

2.4 The irrationality behind ITPs

In the end, local communities, women and men, experience incalculable losses when ITPs arrive on their territories: lands, rivers, livelihoods, work, local economies, social life, culture, liberty, autonomy, dignity, working conditions. But huge plantations and pulp mills also create ‘winners’.

ITP companies themselves benefit, of course, but behind companies are shareholders as well as corporate buyers of, for example, cellulose used to make paper and paperboard or crude palm oil to process into refined oil, or rubber to make car tyres, and so on. Such companies, often less known by local people, are often even bigger than the ITP companies themselves, and are most often based in the global North. Moreover, they themselves often exercise direct control ITPs.

These ‘big players’ typically compete among themselves and attempt mergers with each other in order to better control producer markets, prevent risks and gain the biggest share of consumer markets. These big players are interested in bigger sales and profits, not in limiting consumption.

As food production in Africa is mostly a women's task, women were extremely affected by the plantations



2.4.1 Paper and paperboard

The most powerful group of corporations that benefits from industrial pulp plantations consists of the handful of huge firms that dominate the world paper market. **Table 3** shows where these companies are based, comparing the list of the top ten companies and their paper output and sales in 1994 and 2010. While ITPs increased significantly in this period, as shown earlier, paper production also increased more than 40%, from 264 to 375 million tons.

Top ten list of companies in 1994 ⁽¹⁾	Paper output in 1994 (mt/year)	Sales in 1994 (USDm)	Top 10 list of companies in 2010 ⁽²⁾	Paper output in 2010 (mt/year)	Sales in 2010 (USDm)
1. International Paper (US)	8.5 (est.)	16,530 (est.)	1. International Paper (US)	11.9	25,179 ⁽³⁾
2. UPM-Kymmene (Finland)	6.6 (est.)	10,638 (est.)	2. Stora Enso (Finland-Sweden)	10.8	10,300 ⁽⁴⁾
3. Stone Container (US)	6.5	5,749	3. UPM (Finland)	9.9	8,924 ⁽⁵⁾
4. Georgia-Pacific (US)	6.1	12,738	4. SCA (Sweden)	8.9	16,245 ⁽⁶⁾
5. Stora (Sweden)	5.6	6,337	5. Smurfit Kappa Group (Ireland/US)	7.6	8,618 ⁽⁷⁾
6. ENSO (Finland)	5.5	5,551	6. Nippon Paper (Japan)	7.3	13,698 ⁽⁸⁾
7. SCA (Sweden)	5.3	7,104	7. Nine Dragons Paper Holdings (China)	7.3	2,700 ⁽⁹⁾
8. Nippon Paper (Japan)	4.8	9,678	8. Sappi (South Africa)	6.9	6,600 ⁽¹⁰⁾
9. Champion International (US)	4.6	5,318	9. Oji Paper (Japan)	6.9	14,696 ⁽¹¹⁾
10. Kimberley Clark (US)	4.6	12,114	10. Smurfit Stone Container (US)	5.9	6,286 ⁽¹²⁾
Total	58.1	86,757		83.4	113,246
Total global production	265 ⁽¹³⁾			375 ⁽¹³⁾	

Table 3 Top 10 global forest, paper and packaging industry companies and their paper (and paperboard) output in million tons and sales in 1 million US in 1994 and 2010

Note.: According to RISI, every year there are companies that should be in the Top 100 that are not listed. This is because these companies are privately owned and do not make their financial results public. Two examples are Indonesia's APP and APRIL. According to some sources, APP/Sinar Mas would be number five globally in paper and board production capacity (source: Poyry, cited in Swedish Forest Industries Association, 2010).

Sources: (1) Figures based on Carere and Lohman (1996),
 (2) RISI, "The PPI Top 100", <http://www.risiinfo.com/techchannels/papermaking/The-PPI-Top-100-2010-stayed-the-course.html>, 2011,
 (3) http://en.wikipedia.org/wiki/International_Paper,
 (4) http://en.wikipedia.org/wiki/Stora_Enso,
 (5) [http://en.wikipedia.org/wiki/UPM_\(company\)](http://en.wikipedia.org/wiki/UPM_(company)),
 (6) http://en.wikipedia.org/wiki/Svenska_Cellulosa_Aktiebolaget,
 (7) <http://www.smurfitkappa.com/DropdownMenu/Investors/>,
 (8) <http://www.np-g.com/e/aboutgroup-npg.html>,
 (9) http://en.wikipedia.org/wiki/Nine_Dragons_Paper_Holdings_Limited,
 (10) http://sappi.investoreports.com/sappi_ar_2010/our-performance/performance-highlights/,
 (11) http://www.ojipaper.co.jp/english/ir/summary/pdf/summary_2011.pdf,
 (12) <http://www.answers.com/topic/smurfit-stone-container-corporation>
 (13) Figures from FAO (Forestat), cited by Forest Industries Finland, accessed at www.forestindustries.fi

Table 3 shows that all of the top 10 paper firms in 1994 were from the US and Europe. In 2010, on the other hand, while US and European firms still dominate the list, one Chinese and one South African company have joined Nippon Paper and Oji Paper among the non-US, non-European firms. European and US companies continue to dominate the overall list of 100 companies in 2010; they had respectively 34 and 32% shares, 66% in total, of the total USD 304 billion in



world sales. The table also reveals a continuing trend toward consolidation. For example, Stora (Sweden) and Enso (Finland) have now formed Stora-Enso, the new number two paper producer. The 10 biggest companies listed increased their share in global production from 34% in 1994 to 42% in 2010. The sales of the top 10 firms also increased significantly.

While most paper production still takes place in paper-consuming countries in the North (53%, according to the Swedish Forest Industries Association (2010)), China is today number one in the world in paper production. Chinese paper producers themselves do not lead this production, however, but rather big players from outside the country. As world leader International Paper explains:

'Asia, particularly China, is a driving force in global demand for pulp and paper products. International Paper is poised to meet this growing demand and we are actively looking into growth opportunities in the region to establish production bases and expand market presence to be a leader in Asia'.²⁴

In 2009, China produced 83.4 million tons of paper, significantly more than the number two paper producer, the US, which churned out 71.6 million tons.²⁵ China exported 'only' about 6 million tons of this figure, making it only the seventh largest paper exporter worldwide (Swedish Forest Industries Association, 2010). However, there is a sense in which China's paper exports are greater than this number indicates. In 2011, China accounted for 10.7% of global exports in all sectors, valued at worth USD 1.898 trillion, making it by far the biggest exporting country in the world, 25% ahead of number two, the US, and 35% ahead of number three, Germany.²⁶ This huge volume of exports requires an enormous quantity of paper packaging. Indeed, much of China's ballooning 'domestic' paper demand is in fact demand for cardboard used to package export products. Cardboard production was estimated to reach 34 million tons by 2010, close to 50% of all paper consumption in the country and equal to 24% of global demand for cardboard.²⁷

While in 1991, the proportion of paper used for packaging and wrapping was over 40%, or about 100 million tons (Carrere and Lohmann, 1996), by 2009 this figure had dimbed to 52%, or 195 million tons, of the worlds' total paper production (Kuusi et al., 2010).

Pulp production

Where does the pulp come from that is used for this growing production of paper? Both pulp production and the ITPs that feed it have increasingly moved, proportionally speaking, to the global South, where ITP productivity is greater and

The big ITP players – European and US companies – are interested in bigger sales and profits, not in limiting consumption

While in 1991, the proportion of paper used for packaging and wrapping was over 40% of the worlds' total paper production (about 100 million tons) by 2009 this figure had climbed to 52% (195 million tons)

In 2009, the average European consumed almost four times more paper than the world average

²⁴ <http://www.internationalpaper.com/CHINA/EN/index.html>.

²⁵ Source: RISI, cited by BRACELPA, Brazilian Pulp and Paper Industry, march 2011-, presentati on power point (<http://www.bracelpa.org.br/eng/estatisticas/pdf/booklet/booklet.pdf>).

²⁶ http://en.wikipedia.org/wiki/List_of_countries_by_exports.

²⁷ www.icmrindia.org/casestudies/catalogue/Leadership%20and%20Entrepreneurship/Zhang%20Yin-Leading%20Woman%20Entrepreneur-Case%20Studies.htm.



wood cheaper to grow. While in 1994, 20%, or 34 million tons, of the global pulp production of 172 million tons was located in the global South²⁸, in 2007, 45%, or 86 million tons out of a global production of 192 million tons, were being produced there.

To a lesser extent, world paper production has also shifted toward the global South, especially China. However, a more significant accompaniment of the move of pulp production to the South has been a rise in the proportion of pulp that is internationally marketed instead of being used to produce paper close to ITPs. While in 1991, only 17%, or approximately 22 million tons, of global pulp production was exported, mainly by Canada, the US and Sweden (Carrere and Lohmann, 1996), by 2007 the figure had increased to 22%, or 43 million tons of pulp, a nearly 100% increase by volume. While the 2007 list of pulp exporters is still headed by Canada, Brazil, Chile and Indonesia have moved up to numbers 2, 4 and 5, exporting together about 13 million tons per year, with the US demoted to third place²⁹. Half of the pulp produced in the global South is exported,³⁰ mainly to China, for which Brazil is the main source of foreign pulp.

Another group of big players that profit from increasing pulp and paper production in the global South are technology and machinery suppliers, most often European firms. For example, in 2011 the Finnish Metso Corporation, specializing in a range of pulp-making processes and present in over 50 countries worldwide, enjoyed sales of EUR 6.6 billion, an 8% increase over 2010, with 36% of its total sales in 2011 coming from its business with the pulp and paper sector. Another example is Andritz AG (Austria), also specializing in pulp-making machinery, whose sales increased from EUR 1.7 billion in 2005³¹ to EUR 4.6 billion in 2011. Some 30-35% of its sales come from business with the pulp and paper sector.³²

Such machinery suppliers are also undergoing a bout of mergers. Metso, for example, acquired Kvaerner Pulp in 2007,³³ and, together with Andritz, now dominates the pulp machinery supply market. With fewer and fewer competitors,³⁴ Metso and Andritz enjoy a huge potential for profits given that machinery for one single new pulp mill amounts to an investment of hundreds of millions of US dollars. Mergers are therefore strategic in the sense that they can result in an increased market share with bigger contracts and an enhanced ability to 'survive'

²⁸ See <http://www.fao.org/docrep/w4345e/w4345e05.htm>.

²⁹ The Swedish Forest Industries, *Facts and Figures 2009*.

³⁰ The Swedish Forest Industries, facts and figures 2009.

³¹ <http://www.enlizandoalternativas.org/IMG/pdf/agr4ifullcasseen.pdf>.

³² http://atl.g.andritz.com/c/com2011/00/02/11/21122/1/1/0/-1047681028/gr-andritz_company_presentation_march_2012.pdf.

³³ http://www.metso.com/corporation/about_eng.nsf/WebWID/WTB-041026-2256F-55957?OpenDocument.

³⁴ According to Metso itself, Andritz and GLV are its only principal competitors in the pulp production machinery sector and Andritz and Voith the only serious competitors in the paper and paperboard production machinery sector (http://www.metso.com/corporation/about_eng.nsf/WebWID/WTB-090527-2256F-EE62A?OpenDocument).



the regular crises in the pulp production sector. Such crises typically occur after a period of rise of global pulp prices and, consequently, a rise in new pulp mill projects and contracts for suppliers. When the new pulp mills start up and global pulp production increases, oversupply results and new projects get suspended. For similar defensive reasons, there is also a tendency for paper producers to seek mergers over time.

Closely linked to machinery suppliers are *state investment and export credit agencies*. In addition to subsidizing the expansion of ITPs, export credit agencies offer guarantees to machinery exporters that they will not lose money in case of problems with pulp mill projects they sell to the South. At the same time, contracts with ECAs are an important condition for companies to get loans from commercial banks.

Export credit agencies in Northern countries are state initiatives and in principle provide loans out of the tax money received from citizens in the exporting country. However, ECAs also often require a so-called sovereign counter-guarantee from the host country where the project will be sited. This means that if the project for some reason fails, the host country is liable to replace the funds provided to the company by the ECA, affecting negatively tax-payers in the host countries as well while guaranteeing the profits of the private corporations and ECAs. An example is Indonesia's largest pulp and paper company APP, which, until 2004, received guarantees and loans from 10 ECAs from the US, Japan and European countries. With the economic crisis of 1997, APP was unable to pay its debts. The Indonesian Bank Restructuring Agency (IBRA), after a long negotiation process that included the ECAs, assumed USD 6.6 billion of the total USD 13.9 billion debt of APP (Fried and Sontoro, 2004).

Paper consumption

Has the huge increase in plantation wood, pulp and paper production in the global South also changed consumption patterns there? Has paper consumption increased, and if so to what extent? And how do these numbers compare with those of Northern countries, where the biggest paper companies are based?

Table 4 shows that per capita consumption has indeed increased in ITP countries, but continues to be dwarfed by that of Northern countries.

Although in the period 1990-2005, average world paper consumption increased 12.5%, and consumption levels in most of the ITP countries listed also increased, consumption levels in ITP countries are still far below levels in Northern countries. In 2005, Chile consumed still three times less paper per capita than Sweden, while India still consumed 65 times less paper per capita than Finland.

More recently, in 2009, the average North American, even coping with the financial-economic crisis, still consumed five times more paper than the world average and 30 times more than an average African, while the average European consumed almost four times more paper than the world average in 2009 (Environmental Paper Network, 2011).

If a project fails, the host country is liable to replace the funds provided to the company by the export credit agency (ECA), affecting negatively tax-payers in the host countries as well while guaranteeing the profits of the private corporations

Country	Paper consumption in 1990	Paper consumption in 2005
USA	306	297
Finland	293	324
Sweden	250	220
Germany	202	232
Japan	228	233
China	16	47
Brazil	28	39
Chile	31	65
Indonesia	8	21
India	3	5
Vietnam	1	15
South Africa	53	69
Average world paper consumption	48	54

Table 4

Paper consumption in 1990 and 2005 for selected ITP countries and Northern Paper Industry countries (in kg per capita)

Source: World Resources Institute, "Resource consumption: paper and paperboard consumption per capita", http://earthtrends.wri.org/searchable_db/index.php?theme=9&variable_ID=573&action=select_countries

2.4.2 Rubber

More than 90% of global production of natural rubber is located in Asia, mainly in Indonesia (3.4 million hectares), Thailand (2.8 million hectares) and Malaysia (1.0 million hectares). Most latex processing industries are also located there. Most of the plantations in these countries are smallholder operations.

Products made from natural rubber include footwear, gloves and condoms, but tyres absorb 60% of global production (Gerber, 2010). Since 1986, rubber production has increased rapidly, alongside growing sales of motor vehicles.³⁵

In 2010, the total world consumption of rubber was 24.2 million tons, of which 10.3 million tons were natural rubber and 13.9 million tons synthetic. Asia consumed 15.2 million tons, including 7.4 million tons of natural rubber and 7.7 million tons of synthetic rubber, showing the relative importance of natural rubber in Asia's consumption. Counting both natural and synthetic rubber, Asia had a 63% share of the world's rubber consumption. As an Asian rubber consumer, China led the way with its massive production of automobile tyres and non-tyre rubber products, followed by India.³⁶

The prominence of China has proved no obstacle for the top five tyre companies in the world, which remain Northern: all are active in the country (see **Table 5**).

³⁵ http://rubberasia.com/v2/index.php?option=com_content&view=article&id=555&catid=5.

³⁶ *Ibid.*



Table 5
Top five tyre manufacturing companies and sales in 2010⁽¹⁾

Source: (1) www.ranker.com/list/world_s-top-10-tire-manufacturers-by-2010-revenue/micks garage,
(2) Bridgestone purchased Firestone (with rubber plantations in Liberia) in 1988

Name	Sales (2010) in 1m USD
Bridgestone Corporation ⁽²⁾ (Japan)	35.300
Michelin (France)	23.650
Goodyear (US)	18.800
Continental (Germany)	10.100
Sumitomo Rubber Industries (Japan)	7.900

The most important final destination of the tyre production of these companies is motorized vehicles, especially cars. **Table 6** shows car production and car consumption per country, including the countries boasting the main tyre companies as well as the main tyre producing countries like China, India and South Korea and the principal commercial rubber plantation countries such as Indonesia, Thailand and Malaysia. Tyre-producing and plantation countries, especially China, have a much lower per capita car consumption. The car consumption list per 1,000 people of the population is led by the US, Japan and European countries. In spite of China's impressive car production and consumption figures, the country still consumes almost 22 times fewer cars per capita than the US, 18 fewer than Italy, and 16 times fewer than Japan.

Table 6
Car production and consumption per country in 2010 (in thousands) and number of motor vehicles per 1,000 people in 2006/2011.

Source:
(1) www.nationmaster.com/graph/ind_car_pro-industry-car-production,
(2) www.cnbc.com/id/44481705/World_s_10_Largest_Auto_Markets?slide=2,
(3) Figure from 2009 from www.globaltimes.cn/business/world/2010-05/532956.html,
(4) Figures from several years depending on the country (between 2006 and 2011) http://en.wikipedia.org/wiki/List_of_countries_by_vehicles_per_capita,
(5) <http://trade.gov/static/ASEAN%20Automotive%20Market%20Final.pdf>

Country	Car production, ⁽¹⁾	Car consumption, ⁽²⁾	Motor vehicles per 1,000 people ⁽⁴⁾
US	2,371	11,500	808 (in 2009)
Italy	573	2,100	690 (in 2010)
Japan	8,307	4,800	593 (in 2008)
France	1,922	2,600	575 (in 2007)
Germany	5,552	3,100	534 (in 2008)
UK	1,270	2,200	525 (in 2008)
South Korea	3,866	1,460 ⁽³⁾	346 (in 2008)
Malaysia	489	0,536	334 (in 2008)
Russia	1,208	1,900	263 (in 2011)
Brazil	2,822	3,300	249 (in 2011)
Thailand	999 ⁽⁵⁾	0,549 ⁽⁵⁾	165 (in 2011)
Indonesia	528	0,486	77 (in 2008)
China	13,897	17,200	37 (in 2008)
India	2,814	2,700	15 (in 2006)

2.4.3 Oil Palm

The oil palm sector is much more difficult to analyze than the pulp and paper sector. This has to do partly with the huge number of products obtained from oil palm fruit and kernels, which include food and food-related products such as cooking oil, margarine, cookies, ice cream and animal feed as well as non-food products such as soaps, cosmetics, lubricants and also, increasingly, biofuels (see



chapter 3). Another difficulty is the larger number of players. Besides the oil palm plantation companies themselves, there are traders, palm oil refiners, direct buyers and retailers. Sometimes a company assumes several different roles at the same time. Further confusing the picture is, again, the trend toward mergers aimed at increasing control over the market.

Table 7 shows the sales figures of some of the main palm oil buyers in 2009. The UK/Dutch Unilever is the biggest palm oil buyer in the world, with soap and margarine products for sale in almost all consumer markets worldwide. This corporation alone bought 1.4 million tons of palm oil in 2009, 4.2% of the world production. The table also shows the top five palm oil producing companies, listed in 2009 by a corporate website reporting on the palm oil market.

Some principal palm oil-buying companies	Sales in bn USD	In 1,000 tons	Top five palm oil-producing companies in 2009 ⁽¹⁾	Sales in bn USD	Plantation area under control
Unilever (Netherlands)	57.4	1,600 ⁽²⁾	Wilmar (Singapore/US)	20.8	573,400
Nestlé (Switzerland)	118.2	320 ⁽³⁾	Sime Darby (Malaysia)	12	560,000
Procter&Gamble (US)	88.7	300 ⁽²⁾	IOI Corp (Malaysia)	8.3	220,593
Cargill (US)	116.6 ⁽⁴⁾	300 ⁽⁵⁾	Astra Agro (Malaysia)	3.6	258,900
Kraft Foods (US)	40.3	190 ⁽²⁾	KL Kepong (Singapore)	3.3	360,000

Table 7 Some principal palm oil buying companies and sales, and the top five palm oil-producing companies in 2009

Sources: (1) <http://www.palmoilhq.com/PalmOilNews/the-worlds-top-15-listed-palm-oil-planter>, (2) <http://www.independent.co.uk/environment/green-living/big-brands-palm-oil-policy-1677480.html>, (3) <http://en.wikipedia.org/wiki/Nestle>, (4) <http://en.wikipedia.org/wiki/Cargill>; (5) http://ran.org/sites/default/files/cargills_problems_with_palm_oil_low.pdf. While Cargill is a purchaser of oil palm on the American market, it is also an oil palm supplier, and through subsidiaries is a key player in managing oil palm plantations and in the production, refining and trade in palm oil

Although the main producers in the right column are Southeast Asian companies from Malaysia and Singapore, their main customers – which enjoy significantly higher sales figures – are European and US companies. The table also shows that some very big US companies like Cargill and Kraft Foods are actively involved in the palm oil business, although, as demonstrated in **Table 8**, the country itself imports relatively little palm oil. Europe as a continent leads the list of world importers, with Western Europe accounting for half of European imports.

More recent data from 2010/2011³⁷ suggest that the main global importer of palm oil is now India (with 6.7 million tons), followed by China (5.7 million tons) and the European Union countries (4.9 million tons). The main consumer countries are India (7.1 million tons), Indonesia (6.7 million tons), China (5.8 million tons), followed by the European Union (5 million tons).

³⁷ <http://lipidlibrary.aocs.org/market/palmoil.htm>.



Table 8

Palm oil imports from Malaysia and Indonesia for selected countries/continents in 2009

Source: Kongsager and Reenberg (2012)

Country/continent	Imports (%)
Europe	23
China	19
India	18
Pakistan	15
Northern Africa	4
Southern Africa	4
North America	3
Western Africa	1
Central America	1
South America	1
Oceania	1
Internal trade Malaysia/Indonesia	7
Rest of the World	3
Total	100

Such figures need to be interpreted carefully. First, it is not that Indian, Indonesian and Chinese people have become bigger vegetable oil consumers per capita than Europeans. Second, palm oil constitutes a higher proportion of total vegetable oils consumed in countries like Indonesia, generally going toward basic food preparation, while in the European Union, other oils such as rapeseed oil and soybean oil are also consumed, the latter with great quantities imported from Brazil and Argentina as biofuels as well as in packaged foods, leading to a much higher overall consumption level. Finally, palm oil is still not much used in cooking by Europeans. It only became appreciated by British traders when its usefulness as a lubricant for machinery was discovered during the industrial revolution, and afterwards its usefulness as a raw material for soap³⁸, and later still for other non-food and food products.

Country/region	2004	2005	2006	2007	2008	2009	2010	Increase 2004-2010 (%)
India	11.2	11.6	11.9	12.4	12.9	13.4	13.9	24
Indonesia	18.6	19.1	19.8	21.2	23.5	24.4	25.2	35
China	19.0	20.0	20.8	21.9	22.4	23.2	24.1	27
European Union	46.4	49.9	54.7	57.0	58.5	60.6	62.8	35

Table 9 Vegetable oil consumption in selected regions and countries, and relative increase (in %) over the period 2004-2010

Source: figures from Oil World, World Bank, FAO-USDA, adjusted by Janurianto, Ambono, "Challenges on environmental and social issues on palm oil supply and demand", 2012, http://www.gapkiconference.org/2011/images/stories/presentation/session-3/Ambono%20for%20POC%207th_1-2Dec2011f.pdf

³⁸ http://en.wikipedia.org/wiki/Palm_oil.



Vegetable oil consumption in Europe in 2010 was 2.5 times higher than in Indonesia, 2.6 times higher than in China, and 4.5 times higher than in India

Alternatives to this unsustainable production / consumption system have increasingly been disregarded and discarded

Table 9 shows that the vegetable oil consumption increase in the period 2004-2009 in the compared countries was highest in Europe and Indonesia, with a 35% increase in per capita consumption. But absolute vegetable oil consumption in Europe in 2010 was still 2.5 times higher than in Indonesia, 2.6 times higher than in China, and 4.5 times higher than in India.

2.5 Final remarks

This chapter has shown how over the past few decades, both Northern and Southern tax money has been used to expand industrial tree plantations and increase the production of paper, rubber and palm oil, causing severe impacts, violations and conflicts – especially over land – in the global South. This unsustainable pattern mainly benefits a select group of Northern-based corporations, as well as, to some extent, Northern consumers. The result is dramatic in terms of social and environmental injustice.

Alternatives to this unsustainable production/consumption system have increasingly been disregarded and discarded. This indifference may appear irrational from the perspective of many local people in the global South for the simple reason that such alternatives could provide more benefits to people and their environment in the global South, and in the world as a whole, than a centralized corporate-driven model, and at the same time prevent many deleterious impacts, violations and conflicts. Industrial tree plantations are now invading Africa, for example, affecting traditional economies based on oil palm that are crucial for local people's work and well-being. Similarly, in China, today the biggest paper producer worldwide, predominantly non-wood, decentralized production of paper based on fibres such as straw, bagasse and bamboo has been increasingly supplanted by ITP-based products within two decades (Carrere and Lohmann, 1996). By 2007, more than half of China's pulp came from wood fibre (Lang, 2007), with an increase in centralized huge pulp mills fed with homogenized raw material.



3

Country case studies

3.1 Brazil: the 'success' country

In the 1960s and 1970s, the Brazilian military dictatorship gave generous fiscal incentives and state subsidies for ITP expansion, which led to the first plantation boom in Brazil, resulting in an ITP area of about five million hectares by the end of the 1980s concentrated in the South and Southeast of the country. The aim of these plantations was in the first place to produce export pulpwood. Brazil's pulp production increased from 0.8 million tons in 1970 to 4.4 million tons in 1990.³⁹ ITPs in Brazil were also planted for charcoal production, as an energy source for the pig iron industry that mainly supplies the car industry.

As described by Carrere and Lohmann (1996), as a result of this first ITP expansion boom, thousands of indigenous and traditional *geraizeiro*⁴⁰ and *quilombola*⁴¹ populations were expelled from their lands. Those who resisted became fenced in between eucalyptus plantations and their economies and livelihoods were severely affected. Tens of thousands of hectares of Atlantic rainforest and Brazilian savannah (*cerrado*) vegetation got destroyed. Rivers and streams dried up.

But this did not prevent a new expansion boom that started in 2000 and continues today. It has much to do with Brazil's relative advantage, from a corporate perspective, in producing export pulpwood. This has to do with the fact that since the 1970s, Brazil developed into one of the world leaders of 'tree plantation

³⁹ BRACELPA, Brazilian Pulp and Paper Industry, march 2011-, presentation power point (<http://www.bracelpa.org.br/eng/estatisticas/pdf/booklet/booklet.pdf>).

⁴⁰ *Geraizeiros* are traditional populations living in the Brazilian savannah, called *cerrado*.

⁴¹ *Quilombolas* are descendants of African people, captured and brought to Brazil to work under a slavery regime on export-oriented plantations such as sugar cane. They set up free and autonomous communities, often in forest areas in the past and nowadays have territorial rights under Brazilian legislation.



technology'. The Brazilian cellulose and paper industry association, BRACELPA, has proudly announced that the wood productivity per hectare in the country is the highest in the world. Productivity of hardwood plantations of eucalyptus increased from 14 m³/ha in the 1970s, to 27 m³/ha in the 1980s,⁴² reaching today 44 m³/ha, leaving other countries with hardwood tree plantations in the Global South such as Chile (25 m³/ha), Uruguay (25 m³/ha) and Indonesia (20 m³/ha) far behind, and ITP countries in the Global North even further, for example, Portugal (12 m³/ha), Sweden (6 m³/ha) and Finland (4 m³/ha)⁴³. BRACELPA foresees a potential productivity for eucalyptus plantations in Brazil of 70 m³/ha.

Riding this boom, Brazilian companies have transformed themselves into landholding giants, as shown in **Table 10**.

Company	Total area	Area with ITPs	Trees	State(s) with ITPs
Aracruz/Fibria	1,070,000	609,000	eucalyptus	Espirito Santo, Bahia, Minas Gerais, São Paulo, Mato Grosso do Sul, Rio Grande do Sul
Suzano/Bahia Sul cellulose	803,000	346,000	eucalyptus	São Paulo, Bahia, Espirito Santo, Minas Gerais, Piauí, Tocantins, Maranhão
Veracel Celulose	200,000	90,000	eucalyptus	Bahia
Eldorado Celulose e Papel	?	80,000	eucalyptus	Mato Grosso do Sul

Table 10 Some of the main ITP pulpwood companies active in Brazil, total area owned (in ha), planted area with ITPs (in ha), trees and state

Sources: www.fibria.com; www.suzano.com.br; www.veracel.com.br; <http://www.risiinfo.com.br/pulpandpaper/news/Eldorado-pretende-se-lancar-como-5-maior-produtora-de-celulose-de-eucalipto-do-mundo.html>

The high productivity has attracted foreign investors and guaranteed profits. In 2008, Veracel Celulose, for example, had a EUR 123 million profit, equivalent to 43% of its turnover that year (Lyytinen and Nieminen, 2009). For this reason, one of the owners of Veracel, the Swedish-Finnish Stora Enso corporation, with a 50% share, is shutting down its pulp capacity in the North (Kröger, 2010). The other 50% of Veracel is owned by Aracruz/Fibria.

3.1.1 The current ITP boom in Brazil

The 'success story' of Brazil's wood productivity contributed to a continuation of the tree monoculture boom in the country, which was under way by the end of the 1990s by which Brazil strengthened its position as number one exporter in the world of bleached eucalyptus cellulose and the main supplier for Europe of this type of cellulose.

⁴² http://www.abraflor.org.br/documentos/folder_Abrafl.pdf.

⁴³ Figures from Pöyry, cited in BRACELPA, "power point presentation, march 2011", <http://www.bracelapa.org.br/eng/estatisticas/pdf/booklet/booklet.pdf>.



The latest phase of expansion was launched by Aracruz Celulose, nowadays called Fibria (the company is called Aracruz/Fibria in this report). In 2000, Aracruz/Fibria announced an investment of USD 1 billion in an expansion of its pulp mill complex in Espírito Santo state, in order to increase production from 1.2 to more than 2 million tons of export pulp per year. The mill was inaugurated in 2002.

But it was when Luiz Inácio Lula da Silva rose to power in January 2003 that the boom really took off. One of the first industry delegations he received as the new President of Brazil was from the big ITP companies, requesting support from the Brazilian state to expand the industrial tree monoculture area from 5 to 11 million ha in a 10-year period. Lula responded positively: his government was from the start keen to increase significantly state investments in those sectors in which Brazil is a competitive global player, for example the pulp and paper sector.

In 2003, the Lula government established the National Forests Council,⁴⁴ which elaborated a National Forest Plan.⁴⁵ According to this plan, the government would subsidize, during the period 2003-2007, new pulp mills as well as the expansion of the country's ITP plantation area by another 2 million hectares. Some 1.2 million hectares were to be planted by the companies themselves and 800,000 hectares by outsourced farmers, with funding from the public National Social and Economic Development Bank, BNDES (Fanzeres, 2005). In the period 2003-2009, the BNDES invested BRL 4.3 billion (USD 1.95 billion) in new pulp mills, and BRL 1.3 billion (USD 0.67 billion) in expanding ITPs.⁴⁶ Important investments approved were: BRL 1.4 billion (USD 0.72 billion) in 2004 for Veracel Celulose's pulp mill in Bahia (Gonçalves and Overbeek, 2008); BRL 2.6 billion (USD 1.33 billion) in 2006 for expansion of the Suzano Bahia Sul Celulose pulp and paper mill, also in in Bahia⁴⁷; BRL 2.7 billion (USD 1.38 billion) in 2010 for Suzano's new pulp mill in Maranhão (ONG Reporter Brasil and CMA, 2011); and BRL 2.7 billion (USD 1.38 billion) for Eldorado Celulose e Papel's pulp mill in Mato Grosso do Sul in 2011.⁴⁸ Between 2000 and 2010, Brazil's plantation area increased from about 5 to 7.1 million hectares and pulp production in the country almost doubled, from 7.0 to 13.7 million tons per year.⁴⁹

The BNDES, already a shareholder of some of the main companies, also increased its participation in the ITP sector in other ways. By purchasing shares in the new companies that resulted, it supported company mergers as a way of helping make Brazilian actors competitive with the biggest world players in pulp (Kröger, 2012b). Fibria, for example, was created through the 2009 merger of

⁴⁴ Conselho Nacional de Florestas

⁴⁵ Plano Nacional de Florestas.

⁴⁶ www.risiinfo.com.br/pulpandpaper/news/BNDES-projeta-deseMBOLSO-de-US-6-bi-para-projetos-de-celulose-e-papel-no-Brasil-valor-financiara-50-do-crescimento-mundial-entre-2011-2014.html.

⁴⁷ www.sbs.org.br/detalhes_dia.php?ok=3&i d=1147.

⁴⁸ www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Institucional/Sala_de_Imprensa/Noticias/2011/todas/20110606_eldorado.html

⁴⁹ www.bracelpa.com.br



Votorantim Celulose e Papel, VCP, and Aracruz Celulose. Fibria is capable of producing 5.25 million tons of bleached eucalyptus cellulose per year, 90% of which is exported. It is the biggest producer and exporter of this type of cellulose in the world. Through the BNDES, the Brazilian state became the leading shareholder of the new form, with a 30.4% stake.⁵⁰

3.1.2 Increasing resistance and conflicts around land

A resistance network demanded that ITP firms give back the lands to indigenous, *quilombola* and *geraizeira* communities and that the government prioritise agrarian land reform and small-scale agriculture instead of ITP expansion

In 2000 Aracruz' expansion plans in Espírito Santo state motivated the creation of the Alert against the Green Desert Network and Movement. This network included the people most affected by the ITPs set up by Aracruz/Fibria in the 1960s and 1970s: six indigenous Tupinikim and Guarani communities in the north of the state as well as tens of *quilombola* communities in the extreme north of the state. Also participating were segments of the Via Campesina movement, such as the landless rural workers movement *Movimento dos Trabalhadores Rurais Sem Terra* (MST), which struggles for agrarian land reform. By 2005, the National Meeting of the Alert against the Green Desert Movement included representatives from five different states with ITPs: Espírito Santo, Bahia, Minas Gerais, Rio de Janeiro and Rio Grande do Sul.

The land issue was at the center of the debate: the Movement demanded that ITP firms give back the lands they had taken from indigenous, *quilombola* and *geraizeira* communities and that the government give priority to agrarian land reform and small-scale agriculture instead of ITP expansion aimed at producing export products. The Movement also denounced the government's 2000 decision to lavish BRL 1 billion (USD 0.51 billion) of public money on Aracruz/Fibria's expansion project, more than that year's total budget for small-scale agricultural investments benefiting millions of peasants, which came to only BRL 600 million (USD 0.31 billion).⁵¹ Corporate land takeovers, the Movement added, had resulted in severely inflated land prices that made agrarian land reform even more difficult than it already was. For example, in Bahia in the region where Veracel Celulose, Suzano and Fibria are active, land prices rose from BRL 200 (USD 103) to BRL 6000 (USD 3,100) per hectare in pulp project areas in the ten years to 2006 (Kröger, 2010). As MST leader Valdemar dos Anjos explains:

'The major obstacle to carrying out agrarian land reform in the extreme south of Bahia is the super-valorization of the Veracel lands, once it pays a price higher than the market value. It buys the best lands and makes the purchase of lands for other purposes impossible... Many families are living in tent camps, in this terrible heat along the roads, claiming their rights, their dignity' (Gonçalves and Overbeek, 2008).

The extreme south of Bahia, a region of 3 million hectares, already has 450,000 hectares of its best agricultural lands occupied by eucalyptus (INEMA, 2008). One result of this increasing takeover of lands by ITP companies, as well as by sugar

⁵⁰ www.fibria.com

⁵¹ Letter of the Alert against the Green Desert Movement, available at <http://www.wrm.org.uy/boletin/56/Brasil2.html>



cane and soy interests, is an increase in rural exodus. In 1985, agriculture employed about 23.4 million Brazilians, but by 2006, only 16.5 million.⁵²

It was only in 2004 that the Ministry of Environment reacted formally to the charges leveled by the Alert Movement, by contracting a consultant to make an inventory of ITP conflicts in Brazil and requesting a set of recommendations on how to minimize the conflicts. The consultant wrote a 261-page report with detailed descriptions of a large number of ITP conflicts in almost all the regions where such plantations had been established. However, the consultant declined to formulate mitigation proposals, observing that:

‘...it is fundamental that a participative process of identification of the problems and proposals of alternatives is proposed..... the title of this consultancy announces a the search for ways of ‘minimizing’ the conflicts, [but] the historical experience in this area shows that the adoption of palliative measures only leads to the future recrudescence of the problems’ (Fanzeres, 2005).

The report only circulated for a brief period before it was suppressed by the government without any official explanation.

More conflicts

While the government was evading its responsibility to undertake follow-up action on the report, the conflicts continued and even increased. In Bahia, in 2004, a group of 3,000 families occupied eucalyptus area of Veracel Celulose for almost a week (Kröger, 2010 and 2011). They cut 25 hectares of eucalyptus trees to construct their tent camp, and urged the government to settle about 10,000 families that were living in tent camps in the region, blaming Veracel for the situation.

In the neighboring state of Espírito Santo, the Tupinikim and Guarani Indigenous peoples also took action. They had been struggling since the 1970s to get their lands back following Aracruz/Fibria's invasion of their territory in the 1960s. By the end of the 1990s, they had retaken about 7,000 hectares, but they still claimed an additional area of 11,000 hectares, identified in governmental studies from 1994 as indigenous lands but, due to pressure from Aracruz/Fibria, not yet demarcated by the government. In 2005, the Tupinikim and Guarani themselves demarcated these 11,000 hectares (which were all filled with eucalyptus) and reconstructed two villages, Olho d'Água and Corrego d'Ouro, which had been destroyed in the past for Aracruz/Fibria's plantations. After this action, and after the Tupinikim and Guarani also carried out occupations of the company's pulp mill complex and export harbor, the Minister of Justice, Tarso Genro, finally signed, in August 2007, demarcation decrees for the 11,000 hectares in dispute (Villas, 2011), a historic victory, that motivated other traditional communities, including *quilombolas* and *geraizeiros*, to reoccupy their lands as well.

In Rio Grande do Sul, in 2008, the MST won another important land battle against Aracruz/Fibria, after years of protests, lawsuits and pressure. They succeeded in

The historical experience shows that the adoption of palliative measures only leads to the future recrudescence of the problems

⁵² <http://www.ibge.gov.br/home/estatistica/economia/agropecuaria/censoagro/default.shtm>

settling almost 250 landless families on a cattle farm of 5,000 hectares, a property which had been designated for Aracruz/Fibra eucalyptus plantations (Kröger, 2010 and 2011).



Fig 7

Outdoor in Aracruz town in 2006: 'Aracruz brought progress, FUNAI [state institution for indigenous affairs] brought the Indians'

Photo credit: Winfridus Overbeek

In the resistance movements after 2004, women not only started to become more visible actors in the different community and movement struggles; they also organized their own actions. On March, 8, 2006, International Women Day, 2,000 women from the Via Campesina occupied the tree nursery of Aracruz/Fibra in Rio Grande do Sul state, and destroyed millions of eucalyptus saplings in only a couple of minutes. One spokeswoman explained the action:

'Here are millions and millions of saplings, and there is millions and millions of public money in this type of business, and we ask how it is that if there is no money to produce crops, to produce our food, to continue with our peasant agriculture and way of life, how is it possible that there is so much money to produce eucalyptus, to produce pine, acacia, merely to produce cellulose' (MST/FASE-ES, 2006).



Fig 8

Action of the women of the Via Campesina in Brazil against industrial tree plantations

Women not only started to become more visible actors in the different community and movement struggles; they also organized their own actions

Photo credit: La Via Campesina



In Bahia, in 2011, 1,500 women of the MST occupied an area used by Veracel, cut down 120 hectares of eucalyptus and planted food crops in its place, and set up a tent camp for hundreds of families. Today they supply the food market in the nearby town of Eunápolis. MST claims that the land was illegally grabbed in the past and that Veracel does not have legal land title. Another remarkable experience comes from one of the many affected communities in the north of the state of Minas Gerais: the community of Vereda Funda (see **Box 4**).

Box 4 Vereda Funda: a story of resistance and of a community-driven alternative to ITPs

Source: Overbeek (2010b)

Over 30 years ago, an area over one million hectares in the northern region of Minas Gerais was taken over by companies exploiting monoculture eucalyptus plantations for charcoal, an energy source for pig iron industries. The companies were mainly interested in the tablelands, flat areas known as *chapadas*. These lands were used by the traditional communities of the region, called *geraizeiras*, to graze their cattle and to gather innumerable fruits and medicinal plants from the *cerrado* (savannah). As a result the communities were trapped in the valleys and their streams and springs dried up. They were deprived of their freedom to come and go over their own territory and were even criminalized every time they tried to gather firewood in the *chapadas*.

Motivated by the networking and meetings promoted over the last 10 years by the Alert against the Green Desert Network, various communities from the north of Minas Gerais, including the 130 families of the community of Vereda Funda, started to organize themselves to recover their territory, which had been rented out by the state government to the Flor Estaminas Company. Following the expiry of the contract and inspired by other struggles like that of the Tupinikim and Guarani indigenous people, the community went to battle in 2005 and, with the support of friends from the *Via Campesina*, reoccupied their traditional territory of about 5,000 hectares.

After much struggle, confrontation and persecution, the community achieved control of the area, and by doing so put pressure on the state of Minas Gerais to transfer the area to INCRA – the federal institution for agrarian reform – in order to set up an agro-extractivist settlement. Within the settlement, each family will have its own area to plant and there will also be collective areas for agro-extractivist production and for cattle-grazing. The community, with the support of the Rio Pardo de Minas rural workers' trade union and the Centre for Alternative Agriculture of Minas Gerais, drew up a plan for reoccupation of the territory and a map, indicating where the cerrado vegetation was to be rehabilitated and where crops would be grown. A state institution, Embrapa Cerrados, is contributing studies towards this purpose. Regaining their territory gave new encouragement to the community, particularly to the older members as, after the eucalyptus plantations were removed, the springs are flowing again and wildlife is returning. Not the least of the community's reconquests was that of its freedom.

Today Vereda Funda community members practice agro-forestry systems and again grow their food – corn, bean, cassava and other crops – themselves. They aim to expand food production in an agro-ecological way, replacing the chemically-dependent monoculture eucalyptus plantations. The community's women, who actively participated in the struggle, have started up a jam-making industry, generating income and providing jobs for themselves and their families.

The Vereda Funda community, inspired by previous struggles, has now itself become an inspiration for other expropriated communities. In the municipality of Rio Pardo alone, there are currently at least 18 disputes involving communities that lost their lands in a similar way to Vereda Funda and eucalyptus companies! Exchange visits with communities from other states carried out through the Alert against the Green Desert Network have not only strengthened the wider struggle, particularly in communities where eucalyptus encroachment has just started, but also made exchange possible about reforestation and agro-ecological practices.

Social movements and organizations have also started to gain increased sympathy from some within the judiciary who have questioned the impacts (Kröger, 2010 and 2011). Public Defender Wagner Giron de la Torre from the state of São Paulo, who forced Aracruz/Fibra to carry out an environmental impact assessment and report in the municipality of São Luis de Paratinga in São Paulo, has argued that pulp corporations:

“do not respect any environmental norms whatsoever. They plant the trees on mountains, in native forests, encroaching on springs and drying up waterways. There have already been cases of poisoning of human beings and deaths of fish and animals here, all as a result of this violation of environmental norms” (Radioagência NP, 2008).

3.1.3 The reaction of the ITP companies during the second ITP expansion boom

Violence, criminalization and cooptation

In cooperation with many actors in the Brazilian state, including the police and the judiciary, ITP companies have tried to quell protests and criminalize activists. They have been able to count on the full support of the main media companies, who are eager to portray activists as malcreants and ITP companies as victims.

In Rio Grande do Sul, about 40 women of the Via Campesina were criminalized for allegedly having participated in the 2006 action in the Aracruz tree nursery, and police violence was practiced against women who participated in an action on 8 March 2008 against Stora Enso plantations in Rio Grande do Sul state.



Fig 9

Aracruz tractor destroying indigenous village Olho d'Água, 2006

Photo credit: Vanessa Vilarinho

In early 2006 in Espírito Santo, indigenous leaders were wounded, some heavily, in a violent Federal Police action to expel them from the two reconstructed villages of Olho d'Água and Corrego d'Ouro.



Fig 10

Violent eviction of indigenous Tupinikim village Olho d'Água, 2006

Photo credit: Vanessa Vilarinho



This action, coordinated from Aracruz/Fibria's guesthouse, saw police 'hunting' indigenous people throughout the plantations, while the company destroyed the indigenous villages with its tractors. Afterwards, the Tupinikim also became victims of a racist campaign promoted by Aracruz, and endorsed by its subsidiaries, claiming that the Tupinikim were 'fake' Indians, leading to a wave of discrimination against them in the region. Individual activists supporting the indigenous struggle meanwhile suffered from criminalization and lawsuits aiming to restrict their participation in protests and circulation around Aracruz/Fibria properties.

Quilombola communities in Espírito Santo, literally surrounded by eucalyptus, have been heavily persecuted for collecting eucalyptus wood from the plantations, one of the few survival alternatives inside the Aracruz/Fibria 'green desert'. About 60 have been subject to legal processes. In 2006, 82 *quilombolas* were arrested in the municipality of Espírito Santo, accused by Aracruz/Fibria of "stealing" eucalyptus. Joelton Serafim Blandino, one *quilombola*, recounts that 'it was really difficult, because I didn't have work to support my family when we were attacked in Linhares. I'm not a thief, I'm just struggling to survive and for my family to survive.'

On the morning of 11 November 2009, in the *quilombola* community of São Domingos, 130 military police arrived with high-calibre weapons, dogs and horses and arrested 39 people, including a blind man and an 83-year-old man who died three months later (Overbeek, 2010). Meanwhile, Fibria continues to occupy tens of thousands of *quilombola* lands, despite the fact that these lands have been identified over the past 6-7 years by the state agency INCRA as lands that belong to these communities and should be demarcated as such according to Brazilian law.

Similar conflicts between local communities and ITP companies over the supposed 'stealing' of wood led to the death of Joaquim dos Santos, killed by two security guards of V&M Florestal in the state of Minas Gerais⁵³ and Henrique de Souza Pereira, killed by security guards of Aracruz/Fibria in the state of Bahia in 2010.⁵⁴

Faced with growing resistance struggles, the companies continue to try to coopt as well as to repress communities. Investments are greatest in communities where conflicts are most severe, provoking discord. One indigenous woman leader, Marlene, from the Pataxó people, explains (Gonçalves and Overbeek, 2008):

'We were born here, we grew up here, and we lived here long before the existence of this company. They arrived (...), invaded our territory and planted eucalyptus, even close to the river Caraíva, next to the Barra Velha village where I live with my husband and children... This company [Veracel] is causing discord among our people; there are chiefs receiving money to oppose us. These chiefs are selling the right of our children, grandchildren, and great-grandchildren, and this is not fair. Veracel for us represents the force of evil.'

Faced with growing resistance struggles, the companies continue to try to coopt as well as to repress communities

⁵³ http://www.cartamaior.com.br/templates/materialImprimir.cfm?materia_id=13619.

⁵⁴ <http://www.mst.org.br/node/9371>



Local regulations approved in the past restricting eucalyptus plantations have been attacked by ITP companies, for whom restrictions on access to land are unacceptable

‘Behind the scenes’

ITP companies such as Aracruz/Fibria, are part of the agribusiness sector in Brazil, a sector coordinated by the National Confederation of Agriculture (CNA).⁵⁵ In 2001, CNA, on behalf of Aracruz/Fibria, demanded that the Federal Supreme Court declare unconstitutional a state law in Espírito Santo that forbade eucalyptus expansion pending an agro-ecological zoning exercise (Gomes and Overbeek, 2010). The Federal Court decided in favor of the CNA, arguing that the law would ‘discriminate’ against eucalyptus. The court's decision effectively suspended a process that had already seen 10 public hearings throughout the state and where for the first time state representatives were consulting local people about land use planning for their region. Similar laws approved in the past decade at the municipal level to restrict eucalyptus plantations have also been attacked by ITP companies, for whom restrictions on access to land are unacceptable.

The CNA also coordinates a group of parliamentarians that defend agribusiness interests. In one tactic, the CNA parliamentarians are attempting to secure approval for an amendment to the Brazilian constitution (PEC215), which would transfer the power to decide on the demarcation of indigenous and *quilombola* lands from the Ministry of Justice to Parliament, where only a minority supports traditional people’s rights. Through the political party of its chairwoman (herself a Member of Parliament), the CNA has also, brought a lawsuit in the Federal Supreme Court aiming to cancel Decree 4.887/2003, which currently regulates the land demarcation procedure for *quilombola* communities (Barcellos, 2010).

Flexibilization of environmental legislation

ITP companies consistently attempt to make environmental legislation more ‘flexible’ and less of an obstacle for their plans. For example, Resolution 1 of the National Council for Environment (CONAMA), passed in 1986, requires that an EIA/EIR be carried out for any project that modifies the environment, or any (agro-industrial wood production venture of more than 100 hectares⁵⁶. ITP firms have lobbied both federal and state governments to exempt their plantations from the requirement, arguing that trees be treated as a simple agricultural crop, for which no EIA/EIR is required. In several states, the ITP lobby succeeded in simplifying the procedures required to obtain an environmental permit, although in others EIA/EIR is still obligatory.

Not that an EIA/EIR requirement is necessarily much of an obstacle to an ITP company getting what it wants. Final decisions to implement plantation projects do not necessarily depend on the result or technical assessment of EIAs, owing to state authorities’ interest in promoting ‘development’ and ITP companies’ generous contributions to politicians’ election campaigns.

⁵⁵ Confederação Nacional de Agricultura.

⁵⁶ www.rrconsultoria.srv.br/ambiente/res1.html.



Box 5 Private funding of election campaigns

Brazilian ITP companies are accustomed to financing political candidates, and even helped to underwrite the last campaigns of Lula. In 2006, Aracruz/Fibra gave BRL 5,523,353 (USD 2.8 million) to various candidates, Votorantim Celulose e Papel S/A BRL 1,657,379 (USD 0.85 million), and Stora Enso BRL 1,006,604 (USD 0.52 million) (Kröger, 2010 and 2012b). The ITP companies generally finance any candidate with a real chance of being elected. And if elected, the candidate typically supports the contributing company in its expansion plans (Gonçalves and Overbeek, 2008). A study by Claessens et al. (2007) found that such election contributions 'help shape policy on a corporate-specific basis', in particular by ensuring that politicians' influence is brought to bear on the financing decisions of state or other banks. (Politicians are often to be found on the boards not only of BNDES but also many other banks, both public and private.)

Governor Jaques Wagner of Bahia state, for example, received BRL 100,000 from Veracel for his successful 2006 campaign (Gonçalves and Overbeek, 2010). Afterwards, when he was in power, his state government issued a preliminary permit to Veracel⁵⁷, which the firm needed in order to double the capacity of its plantations and the pulp mill. The document was issued in spite of fundamental problems with the EIA/EIR and the overall approval procedure detected by the state public prosecution service (MPE)⁵⁸, which requested that the licensing process be suspended, citing a large number of illegalities committed by Veracel, including environmental crimes, documented in several lawsuits brought by the MPE itself. The MPE claimed that the terms of previous agreements between the MPE and Veracel to settle these lawsuits⁵⁹ had to be followed up before any permit for further expansion could be granted.

Severe critiques of the EIA/EIR were also made by a multidisciplinary team of four technicians from Wagner's own state Institute of Environment and Water Resources in Bahia (INEMA), directly responsible for assessing the licensing procedure. But their report, published in October 2011, also failed to stop the state government from granting the license. Some of the main issues highlighted by the 80-page INEMA report written by the technicians were:

- The impossibility of assessing the environmental viability and risks of a project that does not identify where in the 17 municipalities it will establish its additional 100,000 hectares of plantations. Issuing a license for such a project, the report found, would amount to giving a 'blank cheque' to the company.

⁵⁷ In March 2012 by Decree 2,253/2012 (<http://ceas.com.br/?p=860>).

⁵⁸ Ministério Público Estadual

⁵⁹ Veracel was the defendant in more than 1,000 lawsuits by fall 2011. Almost 800 of these cases involved different types of labour law infringements. The rest were criminal and civil suits. According to the prosecutors, the most serious lawsuits (in the sense of the gravity of the charges and the potential severity of the sentences) are corruption and criminal lawsuits, for example accusations of money-laundering and organized crime (due to corruption schemes involving politicians, for example). Company directors, in addition, are the defendants in an impressive and varied list of lawsuits brought by various prosecutors, state offices, and Attorneys General. Some of the charges concern procedural matters, which could have been avoided if licenses had been acquired in legally correct ways; others concern direct infringements such as illicit timber deals and logging. (See <http://maattomienliike.files.wordpress.com/2011/04/lawsuitsveracel2011.pdf> for more information).



- The lack of instruments for territorial planning in the state of Bahia that could guarantee enough food and agricultural employment to allow the rural population to remain. The Veracel expansion project would occupy 16% of the agricultural lands of the 17 municipalities where it intends to establish additional plantations, and between 34 and 39% in the case of three municipalities, leading to more land concentration.
- The fact that areas where the Atlantic forest is in its initial stage of recovery are classified by Veracel as 'agricultural lands' – in other words, areas where, according to Veracel, the recovering vegetation can be destroyed, in spite of the fact that the 17 municipalities where eucalyptus would be planted are Priority Areas for the Conservation of the Atlantic forest, according to Decree 5,902/2004 of the Ministry of Environment, and thus areas where recovery should be given priority.
- The fact that the EIA/EIR does not assess the issue of water consumption by ITPs in a region where rainfall, historically averaging 887 mm per year, is at the lower limit at which ITPs are viable (INEMA, 2011).

After the INEMA report was released, one of its authors lost her job.⁶⁰

An escape to regions 'without conflict': Mato Grosso do Sul

In the past few years, the western state of Mato Grosso do Sul, in particular the micro-region of Três Lagoas, has become the most important expansion site for ITPs. Besides its fertile and flat lands, the region offers another temptation to companies like Aracruz/Fibria: the relative paucity of social movements. The region is dominated by large farmers with landholdings of thousands of hectares that they are willing to sell or rent to ITP companies. Of a total of four million hectares, only 30,000 are occupied with small-scale production; estates of more than 1,000 hectares occupy 77% of the area. There are no significant land claims by traditional populations in the micro-region of Três Lagoas.

Besides Mato Grosso do Sul's fertile and flat lands, the region offers another temptation to companies like Aracruz / Fibria: the relative paucity of social movements

Aracruz/Fibria has already one pulp mill in Mato Grosso do Sul, producing 1.5 million tons of cellulose per year and integrated with a paper mill owned by the US's International Paper, the world leader in paper production. Aracruz/Fibria intends to invest BRL 3.6 billion (USD 1.84 billion) in an expansion of this operation, including a doubling of its current 150,000 hectares of eucalyptus plantations. The other main company on the scene, Eldorado Brasil Celulose e Papel, holds about 80,000 hectares of ITPs.⁶¹ Eldorado Brasil is 58.6% owned by the Batista family, proprietors of the biggest meat processing company in the world, JBS. Mega-magnate Mario Celso Lopes holds another 25% of Eldorado, and Petrobras's pension fund Petros Funcef, a part of the state bank Caixa

⁶⁰ Diário Oficial do estado da Bahia, "decree 2,040/2012; exonerar Maria Auxiliadora Borges Ribeiro do cargo de coordenador", 08/02/2012.

⁶¹ <http://www.risiinfo.com.br/pulpandpaper/news/Eldorado-pretende-se-lancar-como-5-maior-produtora-de-celulose-de-eucalipto-do-mundo.html>.



Econômico Federal, hold a further 8.2% each.⁶² Eldorado Brasil is currently constructing a pulp mill near its plantations. Foreign companies like the Chilean Arauco firm and the Portuguese Portucel are also interested in investing in the region (WRM, 2011d). The aim of the state government is to have 1 million hectares of ITPs in place by 2030.⁶³

The presence of new actors in the tree plantations business is no surprise. According to BRACELPA, among Brazilian agribusiness investments, pulp and plantations pay the best returns – USD 2,223 per hectare, compared with USD 2,202/hectare for coffee, USD 1,123/hectare for sugar/ethanol and USD 777 for soy.⁶⁴

As elsewhere, ITP expansion in Mato Grosso is reinforcing land concentration. Ten rural agrarian land reform settlements with 1,147 families are finding themselves increasingly fenced in by eucalyptus. Food sovereignty is at risk and the settlers fear that their food crops are being contaminated by the agrotoxins applied by plane (WRM, 2011d).

Construction workers at the Eldorado Brasil pulp mill are also finding themselves at a disadvantage, and strikes have paralyzed construction. Demonstrations have been violently repressed by police forces, blacklists of offending workers drawn up, and trade union leaders threatened with death. Webergton Sudário da Silva, chairman of the Federation of Workers in the Industries of Construction and Housing in Mato Grosso do Sul, FETRICOM, affirms (Severo, 2012) that:

‘the treatment given to the workers is that of modern slaves. We demand that the government acts, inspects and fines. We are not going to accept such truculence and inhumanity’.

3.1.4 A final remark: a ‘threat’ called China

In spite of the impacts and conflicts described above, the Brazilian ITP industry insists that its path is ‘successful’. On this view, only China, Brazil’s main export destination, appears to be a major threat. The fear is that if China decides to expand its plantations significantly, it might no longer need Brazil for raw material to supply its paper industry. A recent report on the wood-based industry in China shows that the country has already expanded its eucalyptus plantations considerably in recent years, from 1.7 million hectares in 2006 to 3.13 million hectares in 2010⁶⁵. Probably concerned about a further increase, CNA’s chairman Katia Abreu met with Chinese ITP sector representatives in Beijing on April 24, 2012 to suggest a ‘proposal of cooperation’ according to which Chinese

⁶² <http://centrodeestudosambientais.wordpress.com/tag/frigorifico-jbs/>.

⁶³ www.noticias.ms.gov.br/index.php?templat=vis&site=136&id_comp=1068&id_reg=164591&voltar=home&site_reg=136&id_comp_orig=1068

⁶⁴ BRACELPA, “power point presentation, march 2011”, <http://www.bracelpa.org.br/eng/estatisticas/pdf/booklet/booklet.pdf>.

⁶⁵ www.globalwood.org/market/timber_prices_2009/aaw20110201d.htm

companies would invest in further ITPs in Brazil instead of setting up such plantations in their own country.⁶⁶

3.2 Mozambique: a new plantation frontier in Africa on peasants' land

'We don't like eucalyptus very much. We hoe and plant. This eucalyptus is something for people in Sweden.'

Local peasant in Niassa Province, on a Swedish-backed plantation project

Mozambique's industrial tree plantation area – 68,000 hectares – is small compared to those of countries like Brazil and Indonesia (2010). However, the acreage is increasing fast, driven by Northern and South African investment, 'development aid' and the government's conviction that ITPs can help attract private investment to the provinces, generating jobs and supporting regional development.

Pioneered by foreign companies, ITPs began to gain a foothold in several provinces of Mozambique, mainly in the center and north, around 2005. A report on land-grabbing in Mozambique from the National Union of Peasants (UNAC) (a Via Campesina member) and the NGO Justiça Ambiental (Lemos, 2011), points out that, according to Article 110 of the Mozambique constitution and related legislation, a company that wants to plant tree monocultures needs a so-called DUAT, a declaration granting the right to use and profit from the land. Article 11 of the 1997 Land Law declares that: 'Foreign individuals or groups may be subject to DUAT,...'.



Fig 11

Pine tree plantation in Niassa Province

Photo credit: Winfridus Overbeek

⁶⁶ www.ojornal.net/horaemhora/index.php/noticias/33040-katia-abreu-propoe-cooperacao-entre-brasil-e-china-para-ampliacao-de-florestas.html.



Table 11 shows information on companies active in promoting ITPs of eucalyptus, pine, teak and oil palm in the central and northern region of Mozambique, as well as on their owners. The table lists the companies in order of the size of the land areas which they intend to occupy. A total of 1.4 million hectares is slated for plantations, mostly eucalyptus and pine.

Company	Area (ha)	Trees	Province	Owners of the company
Sappi	260,000	Eucalyptus	Zambézia	n.a.
Portucel	183,000 ⁽⁴⁾	Eucalyptus	Manica	Grupo Portucel/Soporcel (Portugal)
Portucel	173,000	Eucalyptus	Zambézia	Grupo Portucel/Soporcel (Portugal)
Chikweti	140,000	Eucalyptus and indigenous species	Niassa	Niassa, Diversity Timber Holding Intere (DTHI), Global Solidary Forest Fund (GSFF) (Norway and Sweden), Fundação Universitária, Sociedade de Móveis de Licungo, Diocese de Niassa e a CODACO, Sweden, Norway, Mozambique and the US
Lurio Green Resources	126,000 ⁽³⁾	Eucalyptus and pine	Nampula	Green Resources and Norfound
Ifloma Manica ⁽²⁾	98,000	Pine and Eucalyptus	Sofala and Manica	Industria Florestal de Manica e Empresa Florestal Sul Africana (Africa do Sul)
Ntacia Florestas de Zambézia	70,000	Eucalyptus and pine	Zambézia	GSFF (Norway and Sweden)
Tectona Forests of Zambézia	66,000	Teak	Zambézia	GSFF (Norway and Sweden)
Malonda Tree Farm	60,000	Eucalyptus and pine	Niassa	Green Resources (Norway) and Fundação Niassa (Norway and Sweden)
Madal	57,000	Palm trees and others	Zambézia	Grupo Madal Sarl
MoFlor	50,000	Eucalyptus	Manica	Mozambique Florestal, SARL-Entrepoto
New Forests Malonda	40,000	Eucalyptus and pine	Niassa	New Forests Company (UK)
Florestas de Niassa	40,000	Eucalyptus and pine	Niassa	n.a.
Florestal de Messangulo	34,000		Niassa	GSSF (Norway and Sweden)
Medenergy	10,000	Palm	Cabo Delgado	Medenergy (Italy)
Fundação Malonda	89	Eucalyptus and pine	Niassa	SIDA (Sweden)
TOTAL	1,407,089			

Table 11 ITP companies active in Mozambique, areas occupied or scheduled to be occupied, province, owners of the company⁽¹⁾

Sources: (1) Basic source is Lemos (2011) (2) The company plans 25,000 ha of pine/eucalyptus in Manica and 73,000 ha in Sofala to supply a proposed pulp mill (http://macua.blogs.com/moambique_para_todos/2012/02/manica-ifloma-projecta-plantar-73-mil-hectares-de-pinheiros-em-muanza.html) (3) Green Resources intends additionally to plant 54,000 hectares with so-called smallholders. (<http://www.greenresources.no/Plantations.aspx#Lurio>). (4) <http://www.portucelsoporcel.com/pt/group/news/870.html>

Note: The listed companies have different ideas of what to do with the wood produced. Sappi and the Portucel company from Portugal are typical pulp-producing companies. In Niassa, the Malonda Foundation's goal is to establish a plywood factory and to process wood in a local sawmill. Green Resources in Nampula have declared their interest in producing paper, sawn wood, a sawmill and charcoal. And in the view of the Finnish consultant Jaakko Pöyry, Africa is potentially an important future source of biomass for the European bioenergy sector, as well as ideally placed to supply the Asian log and pulpwood markets. Carbon sink projects and the need for 'certification' (see **Chapter 3**) are mentioned by investors like the GSFF and Green Resources

3.2.1 ITP expansion in Niassa Province

Niassa province is the site of some of the most recent tree plantation initiatives and one of the main expansion and conflict areas in the country, according to WRM (Overbeek, 2010b). Located in the far North, it is the largest of the country's 10 provinces, covering 12.9 million hectares, and, with a population of only one million, has seen few outside investments.

Locals relate that the original idea to establish tree plantations in Niassa came from an Anglican priest, who went abroad looking for investors. Today, the governmental agency Fundação Malonda has taken up the task, having already helped establish four companies: New Forests Malonda, Malonda Tree Farms, Florestas de Niassa and Chikweti Forests of Niassa. The latter is the biggest, with some 68,500 hectares of plantations in the works. Finnish consulting companies Indufor and Savoom have identified an area of 264,000 hectares with a high potential for tree plantations on the Lichinga Plateau, specifically in the districts of Ngauma, Sanga, Muembe and Lichinga, all relatively close to the capital, Lichinga. According to UNAC, the companies active in the province have already obtained concessions to plant 250,000 ha of ITPs in the province, and permission to occupy 40% of the area, concentrated in districts closer to the state capital Lichinga. (Overbeek, 2010b).

Main investors in the Niassa province include the bilateral agency SIDA (Sweden); the Global Solidarity Forest Fund (GSFF), a 'forest' investment fund also based in Sweden and founded by the Swedish Diocese of Vasteras; the Lutheran Church of Sweden; and the Norwegian Lutheran Church Endowment (OVF). The GSFF also includes ABP, a Dutch pension fund and one of the biggest in the world (Overbeek, 2010b).



Fig 12

Area of Chikweti in Niassa Province

Photo credit: Winfridus Overbeek

Conflicts over land

Since pine and eucalyptus ITPs started to arrive in Niassa, the main impact has been the appropriation of community lands by companies (Overbeek, 2010b).



Local traditional community leaders called *régulos* complain that they are powerless to contest land concessions given at the national level.

More than 90% of the rural residents interviewed by Justiça Ambiental and UNAC (Lemos, 2011) had been living in their respective communities for more than 10 years, with the majority of them occupying lands belonging to their families. Only about 20% had registered their lands in accordance with the Land Law of 1997. In general, land is registered in the name of associations, but sometimes in the names of individual men or women. Even if communities have not registered their lands, however, they are entitled to veto any attempt by a private company to occupy them. Article 13 of the 1997 Land Law states that:

'The process of DUAT titling includes the feedback of local administrative authorities, preceded by consultations with the respective communities for the purpose of confirming that the area is free and has no occupants'.

The study conducted by UNAC and Justiça Ambiental (Lemos, 2011) indicates that such consultations have not been satisfactorily carried out, violating communities' rights to information and public participation. In addition, investors have made false promises and attempted to manipulate local power structures. Moreover, junior officials from governmental institutions, who are supposed to give feedback on DUAT titling, are uninformed about the negative effects caused by large-scale tree plantations.

Box 6 Women most affected

As in most African countries, in Mozambique women play a key role in agriculture and in guaranteeing the food security of their families. Yet land is never registered in the name of women only. Furthermore, although women participate when a public consultation about the implementation of an ITP project takes place:

'... in discussions that involve the interests of family and community the role of women is neglected, subjugating them to the voice and opinion of the men. However, it is the women upon whom fall the main negative impacts of the decisions taken on the use and destination of resources taken without their knowledge' (Lemos, 2011).

In Niassa, the conflicts really got under way when the companies arrived in the area to seize land and plant trees. In the investors' propaganda, for example that of the Dutch ABP pension fund, it is affirmed that 'the land used for planting [the trees] is exhausted farmland'. But community members affirm that this is not the case. ITP companies prefer precisely those lands, closest to the road, where farmers are accustomed to setting up their *machambas* (food crop fields in the local language) to produce maize, sorghum, vegetables, beans, peanuts, rice, potato and cassava, to feed their families and the regional population. Even if such lands are periodically allowed to lie fallow for five or six years – as is a common agricultural practice in rural African communities – this does not mean that they are permanently 'exhausted'.

ITP companies pay little attention to any of these realities. According to a Deputy Registrar in Cavago community, Sanga District, Niassa:

'Malonda Tree Farm arrived in 2007 and first occupied farms abandoned in principle, but then began to invade our cultivated fields, surrounded the entire community, and occupied all the land. When Malonda Tree Farm came, they held no community consultations but simply made contact with



We are now in jail, surrounded and without means of subsistence and survival. When someone enters an area that Chikweti claims to be part of their concession, they are taken to prison, but Chikweti invades our community, occupies our land and farms, destroys our crops, and yet they do not go to jail

**Testimony from
Micoco, Niassa**

leaders and the Government and there was much confusion that ended with bringing awareness only to some organizations. We have also seen white people from Sweden visiting the communities. The first visit was when a conflict arose between the community and Malonda Tree Farms because of the company's invasion of our land. But it seems that the meetings resulted in nothing because Malonda is relentlessly continuing to expand' (Lemos, 2011).

In Maniambe community, Lago District, people complained that the Chikweti company used 'a bigger piece of land than agreed upon'. When the community protested, one leader relates, the company representative responded: 'How can we leave that area now? We have already planted the trees and you are not able to repay us the money that we have already spent'. One community member reacted: 'it seems that they don't come to ask permission any more, they just come to give us orders' (Overbeek, 2010b). Another community member complained:

'What we know is only that Chikweti Forest occupied large areas of our land. In the meetings we have had with the company we have requested they give us maps and show us the boundaries of their plantations, but they have never provided them.'

According to Lemos (2011), Chikweti is illegally occupying 32,000 ha of land in Niassa province, and dense native forests have been cut down in order to plant pine and eucalyptus. In Sanga District, the *massuku* fruit tree, widely used by local communities, was a victim of 'felling on a large scale'. Local people are also losing access to forest goods such as firewood, medicinal plants and grazing, according to testimony from Micoco community in Niassa:

'We are now in jail, surrounded and without means of subsistence and survival. When someone enters an area that Chikweti claims to be part of their concession, they are taken to prison, but Chikweti invades our community, occupies our land and farms, destroys our crops, and yet they do not go to jail. So what is more important to the government, Chikweti or the people? The government invited the Chikweti company to invade our farms and lands and now they are sending many delegations to this community to appease us, but we think this is a strategy to take more lands from us.'

With the arrival of plantation schemes, moreover, some communities now have to travel great distances in search of drinking water. Chikweti for example, closed off rights of way used by several communities to gain access to water (Lemos, 2011).

Food sovereignty at risk

With the growth of ITPs, food sovereignty is severely at risk in a region where people need to cultivate the land to feed their families and supply the regional population. As several traditional leaders affirm, 'Nobody can eat eucalyptus'. According to UNAC and Justiça Ambiental, 64% of the Mozambican population is rural and 55% live beneath the so-called poverty line. Close to 35% of Mozambican families find themselves in a situation of chronic food insecurity, adds the Technical Secretariat for Food Security (SETSAN). The traditional leader of the Bairro Qavago in Sanga District affirms that 'the problem of the community is hunger' in a region where, with a minimum of governmental support, people are



still struggling to rebuild their lives in the wake of the 15-year civil war that ended in 1992 (Overbeek, 2010b).

In Mussa community, 27 peasant families saw their plots occupied by pine and eucalyptus plantations from Sweden's Malonda Foundation. They complained that the productivity of the compensation land that Malonda arranged for them was inferior to that of their own land, where they had never needed outside inputs to get satisfactory yields. In putting pressure on Malonda to provide them with seeds and fertilizer, they were supported by the Union of Associates and Peasants of Lichinga (UCA), as well as by UNAC.

Insecure jobs

Both the government and the companies typically argue that ITPs create jobs. But labor disputes are rife. While probably between 1,000 and 3,000 people – including some traditional leaders – are employed by the different companies in Niassa province, many have complained that they were fired after less than a year. There are also complaints about three-month delays in payment of wages; about wages being cut when workers become ill; and about lack of safety equipment. In addition, wages are very low: after taxes, monthly incomes are only about USD43, which leaves workers little money to buy the food for their families that they can no longer grow due to lack of time.

Transport is also a problem. While white supervisors travel by car to work sites, local supervisors from the communities are not offered transport. One black employee from a local community complained that he had to travel 50 kilometers to get to work. (The white manager's racist response was that 'the black can endure this'.)

As in plantation labor disputes elsewhere in the world, disgruntled workers sometimes resort to arson (Lemos, 2011). Fires are also set by community members, according to this testimony from a member of Niassa's Maniamba community:

'In the beginning, when the company began working, there were not many problems, but now things are changing. Chikweti has already brought many bosses from outside the Maniamba community who no longer take my opinion and that of the community into account. Many workers are dismissed arbitrarily. Above all, Chikweti is invading our fertile land. It just keeps getting closer to the rivers and lowlands. I'm afraid that the company won't take care of the rivers and water. There are more and more wildfires caused by disgruntled workers fired without just cause and fair compensation. I'm afraid that people will have to travel long distances in search of new fertile land and water and along the way suffer attacks from wildlife. We also see double standards. When a community member causes a fire in a plantation he is arrested immediately and taken to jail, but when a Chikwetii worker does so nothing happens to the worker and much less the company.'

3.2.2 Land grabbing

In Mozambique, ITP expansion is occurring within a context of increasing land grabbing generally – referred to in Mozambican Portuguese as *usurpação de*

'Nobody can eat eucalyptus'

With the growth of ITPs, food sovereignty is at risk in a region where people need to cultivate the land to feed their families and supply the regional population

terras. According to Lemos (2011), *Usurpação*, or usurpation, refers to crafty or violent appropriation of something which is legitimately owned by someone else and is therefore taken without right, acquired by fraud, or illegally possessed.

Land-grabbing, of course, is widespread across the global South today, with many global investors taking refuge in land and commodities in the wake of the near-collapse of the world financial system in 2008. Oxfam reports that since 2001, as much as 227 million hectares of land has been sold or leased in countries of the global South, the bulk of it in the last two years, mostly to international investors. In Africa, land grabs by China, the EU, the United States, and Brazil have been documented. According to the World Bank, 47 million hectares of farmland were leased or sold off worldwide in 2009 alone. Even FAO, while treating the issue with kid gloves, admits that there have recently been land acquisition deals 'of unprecedented scale' (WRM, 2012).



Fig 13 Niassa Province : rural community (left) and pine plantation coming close to the community (right)

Photo credits: Winfridus Overbeek

In Mozambique, the World Bank analyzed all concessions of more than 1,000 hectares granted by the Mozambican government between 2004 and 2009 for agriculture, livestock, plantations and game farms. The total came to 2.7 million hectares. Recent land-grabs on the part of foreign interests pursuing agribusiness, tourism, and mining projects have:

'... created more conflicts and aggravated the poverty, deficits and vulnerability of rural communities. Investors from Nordic countries, despite upholding elevated standards of respect for human rights and processes of public participation in initiatives which cause potential social and environmental impacts in their own countries, do not behave similarly or uphold the same standards in Mozambique. Their practices feed a corrupt local system and they benefit from existing failures in the implementation of current laws and in this way aggravate the already precarious living conditions of rural communities' (Lemos, 2011).

An additional concern in the Mozambican context is related to what Lohmann (2002) pointed out in an article on the process surrounding land titling programs in



the Mekong region, where the World Bank has long pushed governments to 'create and extend markets in land rights'. In the case of Mozambique, while the registration of land can in principle benefit communities by guaranteeing their ownership and access to land, it also implies in a step towards privatization of and trade in land, which can facilitate further land grabbing by international investors.

The study on land grabbing in Mozambique conducted by Justiça Ambiental and UNAC indicated the following factors that facilitated the process of land grabbing in this particular country and what this process, on its turn, can again result in, giving a hint of the complexity of the whole process:

'the communities' poor knowledge of their rights and Land Law, the institutional weakness of local governments, the corruption of authorities and community leaders, and the lack of awareness of the benefits of the formal process of land tenure. The most aggravating factor of this phenomenon is the vulnerability resulting from the numerous deficits characteristic of the poverty these communities are subjected to and which makes these people even more easily deceived by promises of better basic living conditions' (Lemos, 2011).

But different from Mozambique, the reality of many African and also Asian countries is still the lack of legal mechanisms of private land titling. This does not mean, however, that these countries are protected against land grabbing, on the contrary. It are exactly these countries that are most affected by the process. The database of GRAIN, an NGO that investigates the phenomenon, shows that countries where land rights are not secured seem to be actually the most attractive to the key players in the process (agribusiness and investment funds). The database that based itself on field visits in the period October 2008-August 2009 found that 48% or 39.7 million hectares of the land grabbing projects were taking place in sub-saharan Africa, a region where most countries are characterized by the lack of well-defined property rights. Being also countries with weak governance indicators, for example, social and environmental impact assessments were not conducted either in most cases. (Bolin, 2011)

3.2.3 Final remarks: increasing resistance and the response of an exposed investor

A whopping 99.6% of all agricultural establishments in Mozambique are small-scale properties, and 95.19% are controlled by peasant families (Lemos, 2011). Most people are extremely dependent on their land to feed their families, which they do with hardly any outside support. A typical district in Niassa, for example, can count on only about USD 230,000 per year of agricultural investment for a population of 200,000 – about USD 1.15 per person (Overbeek, 2010b). The Dutch Pension Fund (ABP), by contrast, has invested about USD 60 million in ITPs.

The rapid expansion of ITPs is igniting revolt among the peasant population, According to a villager from Micoco community in Niassa, which has been affected by the plantations of the Chikweti company:



‘Whoever takes away land, takes away everything: our life, our future and that of our children. Now we won’t have access to our mangoes, bananas, nor grass to cover our houses. Just to walk we need authorization from the company and it is for this reason that we are afraid of Chikweti and don’t want it here. We are afraid and we often ask ourselves how our lives will turn out. They are knocking down trees and everything else that is on our land. When our women and children go to collect firewood they are prohibited. In the end is this land not ours? In this country will Cahora Bassa [a big lake in Mozambique] be the only resource that is ours? But we are prepared to do anything to safeguard our rights. The people are not free; they are suffering because of Chikweti. We fought for independence during the 16-year war. We are veterans but don’t receive any pay – and now we are having our land taken away. What did we fight all those years for? We want and demand that the Chikweti project be cancelled and that they leave our farms and land’ (Lemos, 2011).

Following an expose of the Niassa conflicts in a Dutch national newspaper, the Dutch Pension Fund (ABP), which is involved in the Global Solidarity Forest Fund (GSFF), was forced to reply to its critics. It began by admitting its motivation for moving into the area: ‘We have made this investment [in GSFF] because of the potential for attractive investment returns.’ It then confirmed the importance of Forestry Stewardship Council certification (see **Chapter 3**) in legitimizing its operations: ‘All forestry investments of ABP outside North America must comply with the FSC standard (in America there is another standard)’. But it also admits that ‘forestry projects in Mozambique did not meet the requirements of our responsible investment policy’.⁶⁷

ABP’s proposed solution is ‘new management’ of its ITP projects.⁶⁸ But the question remains whether the fundamental problems of ITP expansion in Mozambique, and the consequent suffering of the peasant population, can be solved by merely a few personnel changes.

3.3 Indonesia: the country with the most ITP conflicts in the world⁶⁹

3.3.1 A brief history of Indonesian tree plantations

The colonization of Indonesia started in 1830, when the Dutch set up a bureaucratic and centralized government in Java. Prior to that, the Dutch East India Company had gradually come to control most of the productive parts of the island. Between 1830 and 1870, the colonial government intensified the exploitation of the territory by introducing the ‘Cultivation System’, which aimed at increasing the production of certain cash crops, especially coffee and sugar. Under this system, Javanese peasants were forced to grow export crops on their own land.

⁶⁷ <http://dc428.4shared.com/doc/a1EZR9dm/preview.html>.

⁶⁸ <http://dc428.4shared.com/doc/a1EZR9dm/preview.html>.

⁶⁹ By Julien-François Gerber (julienfrancoisgerber@gmail.com)



The Agrarian Laws of 1870 mark a transition from the Cultivation System to the 'Liberal System', which aimed at encouraging private enterprise by replacing the authoritarian control with a market economy. This period is sometimes also referred to as the 'Corporate Plantation System', as it marks the beginning of the development of large-scale monocultures of sugar, coffee, tea, rubber, tobacco in Java and Sumatra. All land that could not be proved to be 'private' was appropriated by the state and leased on a long-term basis to companies.

Fifteen years after the independence of Indonesia (1949), the country entered a long period of corruption and brutality – the 'New Order' regime (1965-1998) led by General Suharto. His regime was very favourable to plantation expansion and it introduced 'green revolution' technologies to smallholders using state-sponsored credit, bringing about mounting social and ecological damage. Facing huge debts, the government resorted to aggressive extractive activities and large-scale planting. As two pro-Suharto Indonesian economists wrote in 1989, 'the viability and expansion of the Indonesian export sector depends crucially on (...) the expansion of the tree crop sector' (Woo and Nasution, 1989: 118).

The promotion of industrial tree plantations – which have helped to service debt – remains a key policy today. Between 1967 and 2007, the area under oil palm monocultures has increased about 50 times. This expansion has sped up since the 1990s. Indonesia is now the world's top producer of oil palm and the no. 2 producer of rubber.

Fig 14

Oil palm saplings in Indonesia

Between 1967 and 2007, the area under oil palm monocultures has increased about 50 times

Photo credit: Isabelle Alexandra Ricq



In Indonesia, industrial plantation expansion follows an island-by-island progression. Commercial plantations were first introduced in Java. Large-scale monocultures expanded to Sumatra – which was much less densely populated than Java and still largely covered by rainforests – by the second half of the 19th century. Today, Kalimantan and Sulawesi are the hotspots of plantation development, with West Papua also swiftly becoming a 'commodity frontier'. Tree



plantations are becoming a major driver of deforestation in West Papua, which hosts the world's third largest block of continuous rainforest.

3.3.2 Conflicts over tree plantations

Indonesian ITP expansion has resulted in a massive conversion of customary (*adat*) land and forests to oil palm and pulpwood industrial monocultures.⁷⁰ Both types of tree plantations are vigorously expanding at a time when rubber plantations remain largely controlled by smaller holders. Pulpwood plantations, usually of *Acacia*, now cover an area of about three million hectares. As of 2001, approximately half of Indonesia's pulpwood plantations were situated on lands that had previously held native forests (Cossalter and Pye-Smith, 2003). Oil palm plantations, meanwhile, cover an estimated nine million hectares. Approximately 600,000 hectares of forest are cleared each year for oil palm. Expansion is relentless in Sumatra, Kalimantan, Sulawesi and, more recently, West Papua, as well as on small islands such as Siberut, Halmahera and Yamdena (Colchester, 2011a).

The resulting conflicts are numerous and far from being exhaustively documented. The Consortium for Agrarian Reform (KPA) reports plantation-related social conflicts account for over a third of land conflicts in the country. According to the Bogor-based NGO SawitWatch, in 2010 more than 663 communities were in conflict with more than 172 oil palm companies throughout Indonesia, with 106 arrests reported as a result. The National Land Bureau (*Badan Pertanahan Nasional*) has registered in 2009 some 3,500 on-going land conflicts related to oil palm plantations (Colchester, 2011a). Several of these cases have witnessed police or military intimidation and sometimes fatal physical attacks and shootings. Worldwide, Sumatra has been the region most heavily impacted by deadly repression related to tree plantation conflicts (Gerber, 2011).

In 2011, the Sajogyo Institute (Bogor) compiled a preliminary databank containing details of 545 cases of conflicts over industrial plantations from 1942 to 2010. Of these, 50% have occurred in Sumatra, 20% in Java, 15% in Kalimantan, 10% in Sulawesi, and the rest (5%) in Papua, Bali, the Bangka-Belitung islands, Nusa Tenggara Barat/Timur, and North Maluku. Fully one-third of the conflicts were reported from the year 2010 alone. Of the remaining two-thirds, the databank reveals, about 20% started between 2000 and 2007; 25% between 1990 and 1999; 30% between 1960 and 1989 (mostly during the 1980s); while about 25% of the cases have unspecified dates. Javanese conflicts are generally older, while the bulk of the recent ones have erupted in Kalimantan, Sulawesi and Sumatra.

In 2009, the National Land Bureau (*Badan Pertanahan Nasional*) registered some 3,500 land conflicts related to oil palm plantations

Several of these cases have witnessed police or military intimidation and sometimes fatal physical attacks and shootings

⁷⁰ In Indonesia, customary rights to land are recognized by the Constitution but are ineffectively protected by other laws and regulations. The Basic Forestry Law of 1967 and the revised Forestry Law of 1999 claim state ownership over all forests in Indonesia without sufficient consideration of customary rights and local institutions.



Of the cases documented in the Sajogyo databank, 359 have also been documented by the KPA, which has provided some information about their outcomes. According to the KPA, one third of the conflicts are on-going, about 10% have resulted in a lost case for the local community, and only 4% have resulted in a local victory. The status of more than half of the conflicts remains unclear. Although KPA does not specify its criteria for victory or defeat, most of the outcomes probably reflect the decisions of law courts regarding property disputes.

3.3.3 Dissecting a plantation conflict

In rural Indonesia (as elsewhere in the world), many conflicts over industrial tree plantations have followed the following phases.

In the first phase, the company and the government try to convince local people that the project is either not going to affect them negatively or that they will benefit from it. Neighbouring populations often become divided. Outside Java, the establishment of plantations has often been carried out through so-called 'transmigration programmes', namely state programmes aimed at colonising areas with landless settlers from Java, Madura, and later Bali. 'Nucleus estates' (i.e. the companies' core monocultures) were set up with smallholder schemes alongside, and provided with both workers and smallholders from the migrants. Since this led to resentment from local populations, who lost both lands and employment opportunities to incomers, later versions of these schemes were established that involved native smallholders. In either case, smallholders are contractually tied to the company, which holds their land titles until they have paid off their debts (loans are compulsory for land improvements and plantings). Many smallholders complain of being trapped in a cycle of debt to the companies that they are obliged to service.⁷¹

A second phase is characterized by a growing awareness of impacts, as well as reactions to those impacts. People who have stayed in the area following the establishment of the plantation, or who have taken jobs on the plantation, begin to experience, for example, loss of land, income, biotic resources or water; and often

⁷¹ Since 2005, a new 'partnership' model has been adopted. Under this model, local peoples surrender their lands to concessionaires in exchange for signing a promissory note. Such documents supposedly assure them a share of the profits and nominally assure them a smallholding, which is, however, managed by a cooperative, not by the smallholder her/himself. However, the signed agreements are not left with the landowners, as the company needs them as collateral to raise loans. Although further investigation is needed, it appears, in addition, that the promissory notes are often flawed (with information about the extent and boundaries of the surrendered land sometimes being left blank), and that participant landowners are left uncertain about what they have relinquished or what they are promised in return, as they are not provided with a contract. There are also unanswered questions about what would happen to the landowners' share if the company was sold, transferred, or had to close – 'an issue that is likely to be extremely problematic as there appear to be no clear records of who has given up what land' (Colchester, 2011a).



try to take some action in response. Affected villagers usually hold community meetings and send protest letters. However, in many cases they can do little beyond that other than deploy 'weapons of the weak' (Scott, 1985) such as pulling up stakes put down by survey teams; tearing down company signs; refusing to cooperate; staging arson attacks; or stealing company goods such as wood, oil palm fruits, and even vehicles. If resistance goes beyond such measures, national-level NGOs may enter into the conflict – whether on local peoples' initiative or not – usually by providing legal advice and other resources. Such NGOs may become allied with local organizations, as in the late 1980s when the Indonesian Environmental Forum (WALHI), a leading Jakarta-based NGO, began working with Sumatran grassroots NGOs in surveying abuses by companies. WALHI, together with SawitWatch and other, smaller NGOs, remains today at the forefront of the struggles against the impacts of industrial tree plantations in Indonesia.

During the third phase, villagers (and NGOs) are confronted with the authorities' inactivity or hesitant actions and decide to pursue the conflict further. Inhabitants are told by officials that the land is not their land, that contracts have been signed, that compensation will come, or that there is no 'scientific evidence' for alleged impacts on, for instance, water quality. The affected communities then often get together to carry out a number of actions to defend their rights. Demonstrations, occupations of company buildings, petitions, and road blockades have often been reported. Protesters are sometimes able to hold meetings with government officials and company managers, but they are more frequently faced by police forces.

In the fourth phase, resistance meets reaction. Authorities have often resorted to physical violence (often armed), the destruction of people's belongings (homes, gardens), or accusations of 'communism' – which can have tragic consequences.⁷² Activism critical of the nation's industrial sector can carry many risks. Fifteen years ago, official backlash against villager-NGO alliances was common, and international campaigns ran the risk of increasing government intolerance of local groups. Yet alliances can also bring empowerment, and apparently powerless villagers can find new strength once they organize. In the mid-1990s, lawsuits initiated by WALHI helped catalyse coordination among Sumatran NGOs on broader environmental issues, and laid the foundation for further united actions. The lesson for protesters was that by presenting their demands as coming from forums rather than from individuals or organizations, villagers and NGOs could be protected to some extent from corporate or official retribution. Generally speaking, popular struggles have been successful in interrupting plantation projects through two broad mechanisms: (1) winning lawsuits and (2) massive social unrest.

By presenting demands as coming from forums rather than from individuals or organizations, villagers and NGOs could be protected to some extent from corporate or official retribution

⁷² In 1966, hundreds of thousands of suspected communists were killed by military and anti-communist paramilitary groups, and hundreds of thousands of others were jailed without trial.



3.3.4 The example of APP

One of the most infamous examples of an aggressive tree plantation company is Asia Pulp and Paper (APP), Indonesia's largest paper producer. The group is controlled by Sinar Mas, one of the country's major conglomerates, which is also involved in oil palm. APP is responsible for more natural forest clearance in Sumatra than any other company. While it is estimated that APP's activities have resulted in one million hectares of rainforests being lost since the beginning of its operations in the 1980s, the company continues today to rely heavily on wood harvested from natural forests – often prior to converting them into pulp plantations. APP is also known for violating the rights of local villages. About 60,000 hectares of its plantations are subject to claim by neighbouring communities. Since Suharto was forced from office in 1998, many members of previously powerless communities have begun to protest more openly the loss of their customary land and livelihoods, sometimes resulting in violent conflicts.

In Riau province of Sumatra, for example, villagers have protested against one of APP's plantation subsidiaries by setting up roadblocks, charging 'tolls' for use of community roads, and seizing company vehicles and equipment (Noor and Syumanda, 2006; Marti, 2008). Such actions have been met with violent attacks by the plantation's private militia, who are sometimes accompanied by state police. In 1999, 2000 and 2001, club-wielding company enforcers attacked three villages, beating and abducting residents (HRW, 2003). Since then, violence has been escalating. In 2008, policemen and paramilitaries attacked a local village with teargas and a helicopter dropped an incendiary bomb on a protesting village. Two inhabitants were killed and many people were injured, while others were arrested (WALHI, 2008).

APP's heavy borrowing has been based on the assumption that repayment will be possible because of its access to an unlimited supply of cheap wood from natural forests and plantations – something that was indeed possible under Suharto through brutal military backing. With the weakening of the repression, however, APP has been obliged to recognize that its operations in Indonesia have reached a point at which they are no longer able to expand significantly. APP has therefore shifted its expansion plans to another country, China. Corrupted oligarchic power and the practices of international creditors are both important roots of the problem.



4

Drivers of ITP expansion

Will paper, rubber and palm oil demand, and thus ITPs, grow further?

If demand depends on the actors that benefit from ITP expansion, the answer is of course yes. Consultants, industry associations and multilateral agencies like FAO and the World Bank are in the business of predicting, and planning for, continuous growth in demand, often floating figures that turn out to be hugely inflated. For example, the World Bank reported in 1994 that Brazil had launched a program that would lead to 12 million hectares of tree plantations by 2000 (Carrere and Lohmann, 1996), but in 2000 the country still had only about 5 million hectares.

Specialists' declarations that paper, rubber or palm oil demand will increase by such-and-such an amount justify plans for plantation expansion – and with them policies mandating more subsidies, research, tax incentives, and public investment in infrastructure. The alternative to growth in demand signifies 'recession' – fewer subsidies, fewer sales and fewer profits for private industries, and perhaps even a threat to their survival.

In this connection, the exhortation that David Clark of the Confederation of European Paper Industries delivered to his colleagues in 1994 remains instructive:

'... our industry can no longer afford to take long-term growth for granted. More and more we shall have to fight for our future and create our own growth. In this respect paper itself becomes increasingly a consumer product where total demand must be stimulated. The alternative, to do nothing, could produce a state of declining demand with serious implications for the industry, its reputation, its technology and the quality of the people it attracts...' (Carrere and Lohmann, 1996).

Joining in the spirit of Clark's exhortation, FAO (2009) expects paper and paperboard consumption to increase from about 400 million tons in 2010 to about 740 million tons in 2030, with the main increase expected in Asia (100%), although in Europe demand is also expected to go up by half. Correspondingly, FAO foresaw 'planted forests' increasing 15-35% in area by 2030 – an expansion of 40 to 90 million hectares. According to FAO, the extent will depend on different factors such as productivity increases, access to land and real growth in demand.

Specialists' declarations that paper, rubber or palm oil demand will increase by such-and-such an amount justify plans for plantation expansion



Most of this increase, again, is expected to happen in the Asian region. The relative importance of ITPs compared with native forests, which have been until now the main pulpwood source in Indonesia, tends to increase as deforestation as a means of obtaining pulpwood becomes increasingly difficult. Thus in Indonesia, the government planning to expand ITPs to 25 million hectares by 2025 up from an NGO-estimated area of nine million hectares today.⁷³ In Brazil, meanwhile, according to the Brazilian Ministry of Agriculture, industrial tree plantations will increase from more than 7 million hectares in 2010 to 12 to 15 million hectares in 2020.⁷⁴

Kongsager and Reenberg (2012) note that the demand for palm oil in 2050 was estimated by different sources to be at least 93 million tons, and more likely between 120 and 156 million tons, compared to 45 million tons in 2009, a two- to almost fourfold increase. Regarding the two main oil palm producing countries, expansion in Malaysia has become more difficult for lack of lands, and even in Indonesia it will become more difficult due to increased production costs. For that reason, it is expected that oil palm plantations will expand more in Africa and Latin America (Kongsager and Reenberg, 2012). However other sources still predict a huge expansion for Indonesia, between 20-35 million hectares.⁷⁵ In Africa, companies from Asia are expanding in, for example, Liberia, Sierra Leone and Gabon, and are also on the rise in Latin America.

As for industrial rubber tree plantations, estimates also point to an increase, from 9.6 million hectares in 2008, to 13.8 million hectares in 2018, a 3.7% growth per year. Again, expansion is expected to occur mainly in Asia. Companies from China, Vietnam, Malaysia and Thailand are investing heavily now in Laos, Cambodia and Birmá (Myanmar), as well as in traditional areas of rubber cultivation in their own countries such as the northwest of Vietnam and northeast Thailand. In Laos, where 140,000 hectares were planted over the past decade, another 300,000 hectares is expected to be planted in the next. The Cambodian government plans to expand the present 100,000 hectares to 800,000 hectares by 2015 (Castella et al., 2011).

4.1 Carbon sink plantations

Since the end of the 1990s, ITP companies have attempted to show that their plantations also provide ecosystem services. Anyone walking through a eucalyptus plantation would have to wonder what kind of 'service' is being provided by an area that is filled with only one type of tree, with no other plants or animals, and featuring the intensive use of agrotoxics and chemical fertilizers.

⁷³ Based on interview by Markus Kröger with Rivani Noor from CAPP by Nanang Sujana.

⁷⁴ www.agricultura.gov.br/arq_editor/file/camaras_setoriais/Florestas_plantadas/12RO/App_SAE.pdf.

⁷⁵ Presentation by Nanang Sujana in Helsinki, Seminar on Displacement, 8.10.2011; Lang (2008) and <http://www.greenthefilm.com/>.

ITP firms have been pretty successful in making money from at least one 'ecosystem service': the capacity of trees to absorb carbon

But carbon sink plantation projects increase carbon emissions

But ITP firms have been pretty successful in making money from at least one 'ecosystem service': the capacity of trees to absorb carbon, for which they are often called 'carbon sinks'. In 2000, the ITP company Plantar in Brazil set up, in collaboration with the Prototype Carbon Fund, (PCF) of the World Bank, a 'pioneer' Clean Development Mechanism (CDM)⁷⁶ project selling carbon credits from eucalyptus plantations in the state of Minas Gerais. Investors in the PCF were European governments, companies and private banks, for example the Dutch government and the private Rabobank, the Norsk Hydro company from Norway, as well as the Belgium energy company Electrabel.⁷⁷

Over the past 10 years, social movements and NGOs from Brazil and outside have published letters protesting that this project, in addition to causing the problems ITPs always provoke, is also actually *increasing* carbon emissions.⁷⁸ (The eucalyptus trees damage soils, replace a diversity of plant life, and are ultimately transformed into charcoal burned in pig iron ovens producing raw material for cars.) In one letter to the Executive Board of the CDM dated September 2010, social movements argued that: 'it is unacceptable that the carbon stored in the eucalyptus trees justifies the emission of an equivalent quantity of carbon from the burning of fossil fuels by polluting European companies'. Indeed, the Executive Board of the CDM resisted approving the Plantar project for several years. But by changing its 'methodology' for calculating carbon 'savings' several times, Plantar was finally able to obtain registration of its project as an official CDM project in 2010 (WRM, 2011c), setting an important precedent for other companies in the sector.



Fig 15

Drying up lake close to eucalyptus plantation, a Plantar project in Felixlândia, Minas Gerais

Photo credit: Winfridus Overbeek

⁷⁶ According to the United Nations Framework Convention on Climate Change: 'The CDM allows emission-reduction projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tonne of CO₂. These CERs can be traded and sold, and used by industrialized countries to meet a part of their emission reduction targets under the Kyoto Protocol.' <http://cdm.unfccc.int/about/index.html>.

⁷⁷ http://wbcarbonfinance.org/docs/AR_CFU_2006/Prototype_Carbon_Fund_AR_2006.pdf.

⁷⁸ See articles and publications at www.wrm.org.uy.



Box 7 Do carbon sink ITPs reduce carbon emissions?

Carbon sink plantation projects increase carbon emissions. Although the carbon dioxide molecules stored in the eucalyptus trees of Plantar in Brazil might be chemically identical to the CO₂ molecules emitted by a polluter in the North that 'buys' this stored CO₂ as carbon credits, from a climate point of view the two CO₂s are radically different. The carbon stored from the atmosphere in the Plantar tree is released again when the tree is felled and burned for charcoal. Yet the polluting company in the North, by burning fossil fuels, throws a 'new' quantity of carbon into the atmosphere, increasing the total amount of carbon that is being exchanged all the time between the atmosphere and biosphere:

'Carbon released from deforestation does not increase the total amount of carbon being exchanged among the atmosphere, the oceans, soils, forests, and so on. Carbon released from fossil fuels, on the other hand, does increase this above-ground carbon pool – adding to the difficulty of keeping excess carbon dioxide out of the atmosphere.' (WRM, 2007)

Land use changes associated with plantations also typically result in more emissions. According to Ricardo Carrere (2005), Ecuador "carbon sink" plantations established under a Dutch program might actually be increasing carbon emissions, as they release the stored carbon in the *paramo* biome where they are sited. The same calculation and claim could apply to many other "carbon sinks" based on ITPs:

"Given that the plantation in a *paramo* ecosystem may be drying and, at the same time, oxidizing soil organic matter, it can be seen that the net carbon balance in [the] plantations may become negative. We are facing a lose-lose case, in which those who will most lose are future generations that will have to face climate change problems."

Many companies are interested in selling 'carbon sinks' even if it is not their major aim, as was also the case for Plantar. For example, in Brazil, the main pulpwood eucalyptus plantation companies have 'negotiated carbon' for several years through the Chicago Climate Exchange (CCX). In Uganda, the UK New Forests company, mentioned in Chapter 1, which expelled over 20,000 people to establish plantations aimed to produce timber for the local economy, also had the 'trade of carbon' as a secondary aim.

The Norwegian Green Resources company, financed by Norwegian public funds, is setting up ITP plantations in Tanzania, replacing thousands of hectares of natural grasslands, and gaining CDM credits for doing so that will be sold to the Norwegian oil company Statoil if the Executive Board of the CDM approves the project. Norway seeks 400,000 carbon credits from the Tanzanian project, forming a part of the 6 million carbon credits the country wishes to acquire as part of its commitment to reduce overall carbon emissions under the Kyoto Protocol. Yet the project, as well as the other examples given here, carry all the potential dangers of ITP plantations. According to the Tanzanian NGO, Envirocare, cited by Timberwatch, 'The end result is likely to be extreme poverty and a distortion of remaining moral values in the community.' (Karumbidza and Menne, 2011). In Mozambique, Green Resources, as well as the Malonda Foundation and GSFF, also have the idea of using plantations as 'carbon sinks', the potential for which a Dutch consultancy firm, Silvestrum, has already carried out an assessment (Overbeek, 2010b).

As Carrere and Lohmann (1996) observed, the idea of carbon plantations has: 'enough superficial plausibility to distract attention from alternatives to a system whose logic dictates a never-ending spiral in which ever-greater carbon emissions necessitate an ever more desperate search for carbon sinks'. Indeed, carbon emissions increased greatly between 1996 and 2010, in spite of the Kyoto Protocol and other 'climate mitigation' efforts, from about 23 billion tons of CO₂ in 1996 to about 33 billion tons in 2010 (Olivier et al., 2011), adding to pressures to seek a cheap if ultimately counterproductive 'fix' in carbon plantations.



India and Indonesia, for example, have now plans for millions of hectares of carbon sink plantations. India is already the second largest producer of CDM carbon credits and its government intends to become number one through, among other measures, planting 6 million hectares of eucalyptus monoculture plantations as CDM projects on 'community farm land'. Activists and locals see great problems with this policy, partly because it is oligarchs who stand to benefit (Ghosh and Das, 2011):

'Large Indian corporations control most of these projects irrespective of sector and geographical location, and instead of cleaning up the atmosphere the projects almost uniformly pollute people's lives and the environment'.

Meanwhile, Indonesia's Forestry Minister revealed in 2010 that the government's objective for meeting its emissions target was 21 million hectares of "new forest" – in other words, carbon plantations (Lang, 2010).

Box 8 Trade in other 'ecosystem services'

In the past few years, the UN, together with corporations, financial institutions and, increasingly, governments have promoted the idea of building a 'green economy', as the newest magic 'solution' for the financial-economic and environmental crises. ITP companies and research institutions are already staking out a piece of this territory by arguing that their large-scale monoculture plantations also offer 'ecosystem services'. They have at least one thing in their favor: FAO continues to use a definition of the word "forest" that allows industrial plantations to be classified as such (see **Box 1**). In order to capitalize on this advantage, studies are being carried out, e.g. by corporations and research institutions, to demonstrate that monoculture tree plantations, if they are "well designed", can also provide other "ecosystem goods and services" such as clean water, habitat for animals and firewood as a source of energy. Ways to price these "services" provided by plantations are also being developed (WRM, 2012b).

4.2 ITPs as 'renewable' energy producers

Biofuels and biomass today constitute two-thirds of the so-called 'renewable energy' consumed in the European Union (EU), with the remainder accounted for by solar, wind and hydroelectric power. The target of the European Commission is to generate, by 2020, 14% of all of the EU's energy from biomass, and to fuel 10% of all road transport with plant products. Most of the raw material needed to meet these targets will not come from waste – as is frequently claimed – but rather wood, crops and animals. The biomass and biofuel industries have already succeeded in persuading governments to bestow 75% of their subsidies for 'renewable energies' on biomass and biofuels, with the remainder divided between solar and wind energy (Rodriguez, 2011).

4.2.1 Biofuel from palm oil

One of the reasons behind increasing demand for palm oil is its use as a substitute for fossil fuels, especially in the EU. According to the United States Department of Agriculture (USDA),⁷⁹ while in 1998/99, 17% of palm oil production was used for non-food purposes, by 2010/11 the figure had climbed to 27%. In

⁷⁹ United States Department of Agriculture.



absolute terms, four and a half times more palm oil was used for non-food purposes in 2010/11 than in 1998/99 (Kongsager and Reenberg, 2012). In 2010/11, total biodiesel production from oil palm was 2.6 million tons, equal to 5.4% of the world production of palm oil that year, corresponding to an estimated 867,000 hectares of oil palm plantations. The production was mainly for the European Union (1.9 million tons), with the remainder divided between Thailand (0.5 million tons), Malaysia (0.12 million tons) and Indonesia (0.09 million tons) (Kongsager and Reenberg, 2012).

According to Biofuelwatch⁸⁰, in Germany and Italy a large number of power plants are already run on biofuels – and almost always on palm oil, the cheapest oil available. In the UK, new subsidy policies have led to 15 new biofuel power stations being proposed. Four power plants already granted permission to operate list palm oil as a feedstock. The biggest would receive £53 million of tax money in subsidies per year.

The aviation sector – responsible for about 5% of man-made climate change – is also turning to biofuels. Milieudefensie, Friends of the Earth Netherlands, estimates that the contribution of the aviation sector alone to CO₂ emissions in Europe is 7% (Milieudefensie, 2012). According to Friends of the Earth Europe, the International Air Transport Association (IATA) airline fuel to be 6% biofuel by 2020. The European aviation industry plans to have 2 million tons of bio-kerosene available per year by 2020. The main aviation biofuel feedstocks are palm oil and jatropha, and test flights have already been carried out already by several airlines (FOE Europe, 2011).

In aviation as well, taxpayers are subsidizing the shift to biofuels. The German airline Lufthansa, for example, received a 2.5 million Euro subsidy from the German government for trials with biofuels in one engine of an airplane for six months (FoE Europe, 2011). In July 2011, Lufthansa announced the first commercial flight ever on jet biofuels, purchased from the Finnish Neste oil. (FoE Europe organized a protest, pointing out that the oil used contains jatropha from Mozambique, including from Energem, the company that, as recounted in chapter 2, grabbed 60,000 hectares of lands used by communities for food production and cattle grazing.)

According to FOE Europe (2011), the aviation sector, by using biofuels, intends to reduce its emissions by half between 2005 and 2050. Implausibly, this reduction is supposed to occur at a time of enormous expansion in the sector. According to a Milieudefensie, aviation grew 80% in Europe between 1990 and 2012 and is expected to increase another 80% before 2020 (Milieudefensie, 2012). The same report states that, applying a comprehensive approach and calculation of the impacts of aviation on global warming, the result is that even with the use of nearly 100% of agrofuels in the near future and considering a scenario of growth in the aviation sector, emissions would increase by 180% between 2010 and 2050.

Governments have been persuaded to bestow 75% of their subsidies for 'renewable energies' on biomass and biofuel

In Germany and Italy a large number of power plants are already run on biofuels, generally using palm oil, the cheapest oil available

In the UK, new subsidy policies have led to 15 new biofuel power stations

⁸⁰ <http://www.biofuelwatch.org.uk/uk-campaign/>.



Biofuels do pose a severe threat to climate

Deforestation, the draining of peatlands in Indonesia, carbon releases from plantation soils, mechanized production, transport of palm oil – all add to the carbon emissions associated with biofuels

Indeed, in the aviation sector, biofuels appear to function more as a license for expansion than as a technique for actually reducing emissions. For example, the European Union Emissions Trading Scheme (EU ETS), which includes the aviation sector in from 2012 onward, officially (and falsely) classifies aviation biofuels as 'carbon neutral'. That not only encourages the increased use of biofuels in the sector, but also carries the implication that insofar as biofuels are capable of replacing fossil fuels in aviation, climatic limits on the sector's expansion could in theory be relaxed indefinitely.

In reality, of course, because of the amount of land that would be required, biofuels will never make up more than a small fraction of the fuel that airplanes use. Relatively low-percentage EU targets for biofuel consumption by airlines by 2020 already require setting aside an area of 3.3 million hectares for feedstocks, almost the size of Belgium (FOE Europe, 2011). An estimated 35% of Germany's arable land would be necessary to grow jatropha to achieve the 2025 biofuel target for Lufthansa alone (Halper, 2011). But even if limits on land-grabbing for aviation fuels were recognized, the EU ETS claim of 'carbon-neutrality' would be dangerous precisely because biofuels *do* pose such a severe threat to climate. Deforestation, the draining of peatlands in Indonesia, carbon releases from plantation soils, mechanized production, transport of palm oil – all add to the carbon emissions associated with biofuels. According to FOE-Europe, 'scientific studies consistently show that most of the currently used biofuels are worse for the climate than fossil fuels' (FoE Europe, 2011).

4.2.2 Wood-based biomass energy

Tree biomass has been used as an energy source for untold ages by both rural and urban communities. Today, however, tree biomass is being recruited for a new role: that of a substitute for fossil fuels in industrial processes.

That immediately gives rise to a problem: a lot of wood, and therefore a lot of land, is needed to substitute for only a small amount of fossil fuels. Today, coal, oil and gas supply the equivalent of phytomass from well over 1.25 billion hectares, while using a land area of only 3 million hectares (the territory taken up by the global extraction, processing and transportation of fossil fuels, together with the generation and transmission of thermal electricity) (Smil, 2010). Replacing fossil fuels with biomass would require taking over continent-sized land masses for the purpose.

The social and environmental consequences are already evident in countries like Brazil, where, since the 1970s, a million hectares of ITPs have been planted to produce charcoal, largely for iron manufacture. But the problems are about to get a great deal worse, due plans in Europe and elsewhere to use wood as a supposedly 'renewable' replacement for some of the fossil fuels used to generate heat and power. The volume of wood used for energy generation each year in the EU, it is estimated, is set to increase from 346 million cubic meters in 2010 to 573 million in 2020 and about 752 million in 2030 (Mantau et al., 2010). Global production of wood pellets, about 10 million tons in 2008, was expected to double



in the following 4-5 years. In the next decade, an annual increase of 25-30% can be expected, according to Biofuelwatch (Rodríguez, 2011). In the UK, the state-subsidized power facilities planned to be completed over the next ten years would burn up to 60 million tons of wood per year, six times more than the annual UK production at present. Germany and Sweden are also witnessing unprecedented development in large-scale biomass energy production. According to Rodríguez (2011), production of timber products (for example, furniture) and pulp and paper already requires 500 million cubic meters of wood annually. This has led FAO to predict that by 2020, Europe will face a shortfall of some 400 million cubic meters of wood annually.

So far, most wood imported for energy production comes from the EU, Russia, Canada and the US. The US and Canada are particular beneficiaries of the increasing demand for wood pellets, having doubled their exports of pellets to the EU from 0.8 million tons in 2008 to 1.6 million tons in 2010. However, Hakan Ekstrom, spokesman of Wood Resources International, foresees that 'as demand increases over the next 10 years, they can't get all the volumes locally, so they'll have to go elsewhere, including Australia, Africa, South America and Asia'.⁸¹

One supplier is sure to be Brazil. There, the Suzano pulp and paper company, through a new subsidiary called Suzano Renewable Energy, intends to invest USD 1.3 billion in dedicated biomass plantations in the Baixo Parnaíba region in Maranhão. Densely-planted eucalyptus trees will be harvested in short rotations of 2-3 years.⁸² Ultimately, five wood pellet production units with a total production capacity of five million tons of biomass will be set up to receive the output of 150,000 hectares of plantations. The first phase of the project's development includes land acquisitions and the construction of three wood pellet production units, capable of producing one million tons each and scheduled for startup in 2013. Suzano expects a liquid income of USD 500 million in 2014, and already has guaranteed sales contracts for 2.7 million tons of pellets. A non-binding memorandum of understanding was signed between Suzano and the UK company MGT Power Ltd. in August 2010 (Overbeek, 2011). According to Aldir Dantas, a member of the Pastoral Land Commission, Suzano's ITPs already occupy more than 70,000 hectares in the region and have evicted tenant farmers and resulted in deforestation, igniting conflicts.⁸³

Another supplier is Liberia. The Swedish company Vattenfall announced in 2010 that it would purchase and import one million tons of rubber wood chips from the Liberian firm Buchanan Renewables for its new biomass power plant in Berlin. Buchanan Renewables was founded in 2008 by North American investors, among them Canadian billionaire John McCall MacBain. The company began by harvesting trees that villagers had planted to 'fence' their landholdings, provoking

Replacing fossil fuels with biomass would require taking over continent-sized land masses for the purpose

As demand increases over the next 10 years, users can't get all the volumes locally, so they'll have to go elsewhere, including Australia, Africa, South America and Asia

⁸¹ www.renewableenergyworld.com/rea/news/article/2011/03/eus-renewable-goals-driving-wood-pellet-growth.

⁸² <http://territorioslivresdobai.xoparnaiba.blogspot.com/2011/10/em-encontro-coma-suzano-deputado-magno.html>

⁸³ 'A Verdade sobre a Suzano no Baixo Parnaíba' em <http://www.forumcarajas.com.br>



discontent when it failed to pay them for the trees and destroyed neighboring crops. The company then moved to the commercial Bridgestone/Firestone plantations for its supplies. Its plans for shipping fuel to a power station in Germany include no provisions to supply electricity to Liberia, where electric power is scarce (Schenk, 2011).

Other countries in the global South are also being lined up as suppliers of wood energy for industrialized countries. According to Guadalupe Rodriguez from Save the Forest,⁸⁴ MagForest, a Canadian company operating in the Republic of Congo, will soon be shipping 500,000 tons of wood chips annually to Europe. IBIC Ghana Limited claims it can supply 1.2 million tons of tropical hardwood and softwood annually from Ghana for bioenergy production. In Indonesia, a South Korean company has applied for a 200,000- hectare concession in Central Kalimantan to produce wood pellets for 'green energy' in Korea. Carbon Positive, a UK company, has entered into a joint venture to develop 160,000 hectares of tree plantations for bioenergy in Indonesia, including West Papua; Conservation International is helping the Indonesian company Medco develop plantations for wood pellets in the same province. Medco Group is reportedly planning up to 300,000 hectares of such plantations. Overall, FAO (2009) expects an increase in global biomass energy production from 720 million tons oil equivalent (MTOE) in 2005 to 1,075 MTOE in 2030, almost a 50% increase. According to the International Energy Agency (IEA), biomass could represent about 21 percent of the world's energy supply by 2050 and has more growth potential than any other renewable power source (Bakewell, 2012).

The results of the new bioenergy boom include both increased negative impacts in the global South and new revenues for traditional ITP companies in countries like Finland and for well-subsidized Northern energy companies such as the UK's Drax. According to Rodriguez (2011):

'What is presented to the public as a benign and beneficial shift from fossil fuel to renewable energy is in fact a global plunder of the South's natural resources for the benefit of the North, which will further deepen injustice and worsen poverty and hunger'.

In order to be able to pursue a path of aggravating both the climate crisis and the plight of rural communities in the South, ITP companies increasingly require mechanisms to legitimize industrial tree monocultures as 'sustainable' or 'well-managed', so that investors, governments and consumers can remain convinced that ITPs are the way forward. Certification has been one of the most important of these mechanisms.

The results of the new bioenergy boom include both increased negative impacts in the global South and new revenues for traditional ITP companies

⁸⁴ Presentation on biofuels held at 20/09/2011 in Montevideo.



4.2.3 Certification schemes and 'Dialogue' initiatives: other drivers of expansion?

Many of the ITP companies cited in this report as violating communities' rights or damaging their environments have received various international seals of approval for their social and environmental responsibility, or are about to. For example, Brazil's Veracel has been certified for its good practice by the Forest Stewardship Council (FSC), as has Plantar, has the UK's New Forests firm, implicated in the eviction of 20,000 people from their homes in Uganda. All big players in the palm oil sector enjoy the legitimacy gained from having (part of) the palm oil they produce certified by the Roundtable on Sustainable Palm Oil (RSPO), and investors in Mozambique like the GSFF and Green Resources are also pursuing certification.

In Europe in the 1980s, concerns about the destruction of tropical forests led to campaigns to ban or boycott tropical timber. Such campaigns, insofar as they said 'no' to consumption, were deeply antagonistic to the fundamental imperative driving business: growth fuelled by increasing demand.

In the 1990s, more business-friendly environmental initiatives were launched with support of institutions like the FAO. Refraining from challenging even indirectly the imperative of continued or increased consumption, such initiatives included proposals for 'sustainable forest management' as a solution to deforestation. According to these proposals, guarantees could be put in place making continued exploitation of forests socially and ecologically benign. Soon there were many types of voluntary 'certification schemes' for both native and (to use the FAO jargon) 'planted' forests. A large group of Northern international environmental NGOs involved itself actively in certification, leaving the boycott actions of the 1980s further and further behind.

While certification could in theory be a useful tool enabling local cooperatives and associations in the global South to charge high prices for limited quantities of wood and wood products produced in a sustainable way, instead it was transformed into a mechanism allowing corporations to 'greenwash' unsustainable practices. Today, for example, hundreds of thousands of hectares of patently destructive industrial tree monocultures are officially certified as 'sustainable' and their products marketed in industrialized countries as 'responsible'. On a more general level, certification has spread a message opposed to that of the boycott campaigns of the 1980s: continued consumption of almost anything can be good, as long as the commodities in question have received a 'green' stamp of approval.

The Forestry Stewardship Council

According to the FAO (2009), more than 300 million hectares of natural and 'planted' forests had been certified by 2008. For pulpwood and fuelwood ITPs, the Forest Stewardship Council (FSC), created in 1993, has been for many years considered as the most 'credible' certification scheme by big environmental NGOs such as WWF and Greenpeace, who cite NGO participation in the organization, as well as the supposed transparency and credibility of the certification process.

A large group of Northern international environmental NGOs involved itself actively in certification, leaving the boycott actions of the 1980s further and further behind

Today hundreds of thousands of hectares of patently destructive industrial tree monocultures are officially certified as 'sustainable' and their products marketed in industrialized countries as 'responsible'



The Forest Stewardship Council does not question the need for countless disposable products manufactured with trees from certified plantations

However, FSC has been heavily criticized by local communities and NGOs such as WRM for having certified around eight million hectares of ITPs – none of them 'sustainable' by any standard. While certification may 'mitigate' some of the negative impacts of some ITPs, its fundamental function has been to 'license' the indefinite expansion of ITPs at the cost of local communities.

FSC certification of the new plantation wave in Mozambique is an especially topical concern. In that country, Justiça Ambiental and UNAC (2011) have condemned the trend of investors seeking FSC certification for their plantations, noting the projects' devastating effects on peasant communities and their failure to prevent deforestation, the problem for which FSC was set up in the first place. According to the two organizations, FSC:

'...restricts the replacement of native forests by plantations. But this has created a devastating effect in Niassa, putting further pressure on the agricultural system. To obtain land without forests in order to plant pine and eucalyptus, companies use the agricultural land of farmers when this land is fallow. Farmers, in turn, are forced to seek land for agriculture in remote areas, often cutting native trees. In this context, the FSC certification promotes indirect deforestation.'

In spite of such criticisms, and in spite of several important Northern forest-related NGOs leaving the FSC, including Robin Wood and FERN, FSC continues certifying ITPs as 'socially just, environmentally adequate and economically viable'.

The FSC, WRM points out, also lends support to a broader pattern of forest destruction in that it: '...does not question the need for countless disposable products manufactured with trees from certified plantations. (...) And the certified companies are of course even less likely to question it, since they are primarily concerned with increasing their sales and profits' (WRM, 2011e).

FSC calculates that its certified operations sold USD 20 billion in 2008 in certified products (FAO, 2009). Other actors that directly benefit from certification are the consultants and consulting companies that are contracted by the ITP companies that wish to be certified. All are accredited by the FSC. The Société Générale de Surveillance (SGS) and , head-quartered in Geneva, and Scientific Certification Systems (SCS), based in California, are two of the biggest. SGS had sales of USD 5.3 billion in 2011 and a network of more than 1,350 offices and laboratories all over the world. Certification is one of four categories of services that it provides and is conceptualized by the company as enabling other firms 'to demonstrate that your products, processes, systems or services are compliant with either national or international standards and regulations or customer-defined standards'.⁸⁵

The Roundtable on Sustainable Palm Oil

The palm oil industry response to the conflicts around oil palm plantations was to set up, in 2001, the "Roundtable on Sustainable Palm Oil" (RSPO) a multi-stakeholder body initiated through a partnership between industry and the WWF.

⁸⁵ www.sgs.com/en/Our-Company/About-SGS/SGS-in-Brief.aspx



Like the FSC, the RSPO issues certificates to palm oil producers via accredited certification bodies that apply a set of principles and criteria approved by RSPO members in 2007⁸⁶. The RSPO seeks on the one hand to improve company practices, but on the other hand to legitimise continued oil palm expansion. While it has generated some positive outcomes, RSPO has also been denounced for its relatively weak standards, many of which, moreover, are routinely violated by RSPO members themselves.

For example, RSPO members are often in breach of its requirement to help secure land rights for local peoples. One notorious case involves PT Asiatic Persada, an Indonesian subsidiary of the Singapore-based company Wilmar, the biggest oil palm company in the world and a member of the Executive Board of the RSPO. Asiatic Persada is documented as having evicted people from their communities at gunpoint and then destroying the homes of men, women and children without warning or a court order, actions that constitute what Andiko, Executive Director of the Indonesian community rights NGO, HuMa, calls with some understatement 'serious abuses of human rights...' (Colchester, 2011b). Another case involves IOI Pelita, a subsidiary of IOI, a Malaysian oil palm producer and a founding member of the RSPO. IOI Pelita did not plan to provide any compensation at all to a Kayan community in Sarawak whose land it had leased from the state government; nor did this stance affect in any way the stamp of approval RSPO provided to the firm's practices. After 12 years, however, the community won a legal case against both IOI Pelita and the Sarawak government in the course of which IOI's land leases were declared 'null and void' because they had been conceded in an illegal and unconstitutional way (WRM, 2010c). The contrast between RSPO's stated aims and the reality on the ground was again stark.

According to FOE Europe (2011), certification schemes like that of the RSPO – which cannot guarantee sustainability and are easily open to abuse – are also acting as a smokescreen for the aviation industry. The RSPO allows airlines to claim that the biofuels they use are "sustainable", encouraging the unsustainable expansion of biofuel use in the industry.

Like the FSC, moreover, RSPO tends to undermine rather than promote forest conservation:

[It] legalizes past, present and future destruction of all types of forests, with the exception of those defined as "primary forests" or as "high conservation value habitats". All the others can be "sustainably" bulldozed, planted to oil palm, and certified by RSPO – in spite of the fact that the only palm oil that can truly claim to be ecologically sustainable is the one produced by local communities in Western Africa –where oil palm is a native species' (WRM, 2010c)

The Roundtable on Sustainable Palm Oil seeks on the one hand to improve company practices, but on the other hand to legitimise continued oil palm expansion

While it has generated some positive outcomes, RSPO has also been denounced for its relatively weak standards, many of which, moreover, are routinely violated

⁸⁶ www.rspo.org



Although producing many meetings and documents, none of these initiatives have resulted in any major change in the large-scale monoculture model, nor in any check on the expansion of ITPs or the demand for ITP-based products

‘Dialogue’ initiatives

In addition to certification, both ITP firms and NGOs also pursue a number of other NGO-industry partnerships ostensibly aimed at ‘mitigating’ problems with ITPs. One example is a recent initiative of WWF called ‘New Generation Plantations’ that aims to improve plantation ‘performance’ and counts as supporters companies such as Veracel and Stora Enso.⁸⁷

Many so-called ‘Dialogues’ between ITP companies and NGOs have also been initiated at the local, regional and international level. Although producing many meetings and documents, none of these initiatives have resulted in any major change in the large-scale monoculture model, nor in any check on the expansion of ITPs or the demand for ITP-based products. One example is an international program called the Forest Dialogue,⁸⁸ which boasts the participation of companies like Aracruz/Fibria and Stora Enso. Friends of the Earth Brazil has this to say about the Forest Dialogue's activities in Brazil:

‘Friends of the Earth / Brazil (NAT) is not participating and has no interest in participating in the initiative Forest Dialogue (...). Companies in the sector, working through the Forest Dialogue, have interfered in the functioning of the State as a whole, changing parameters of the performance of environmental agencies, destroying management tools such as the proposed environmental zoning, (...) We believe that the projects and methods of these companies will result in grave and unavoidable environmental impacts, considering the form of the monocultural plantation: in more poverty in terms of quality of life for the inhabitants of the region, and ultimately in the dismantling of democratic institutions and those that provide equal opportunities of participation for civil society. Forest Dialogue is undermining the status of spaces that provide legitimate opportunities for NGOs to discuss and work on the definition of criteria for the implementation of projects, such as the State and Municipal Councils for Environment.’

4.2.4 Second generation wood-based biofuels and biotechnology

Second-generation or ‘advanced’ wood-based biofuel is, like paper, made from cellulose. However, the process by which it is manufactured is quite different: first, the long cellulose molecules need to be broken into glucose and other sugars; then, the sugars must be fermented to produce ethanol. Ethanol production can either be independent from, or integrated with, cellulose production for paper (WRM, 2008b).

Big actors from the paper industry are already moving into this new business – or preparing to. International Paper is reportedly doing research with the State University of New York on ways of becoming involved, and Stora Enso and Neste are obtaining ethanol already by gasifying wood residues (WRM, 2008b). UPM, the third biggest paper producer in the world, has invested EUR 50 million to build

⁸⁷ See <http://www.newgenerationplantations.com/index.php>.

⁸⁸ See <http://environment.yale.edu/tfd/about/steering-committee/>.



the first biofuel biorefinery in the world that will use tall oil – a residue of chemical paper pulp production – as its raw material. The biorefinery will have a production capacity of 100,000 tons or 120 million liters of biofuels a year, with its main product being so-called advanced biodiesel. The refinery is scheduled to go into operation in 2014 in Finland. Paper companies are thus turning more and more into energy companies.

Reflecting the close connection between biofuels and the fossil fuel economy, some of paper companies' main partners in biofuel ventures are oil companies. In 2008, for example, the paper corporation Weyerhaeuser went into partnership with Chevron to found Catchlight Energy to produce 'economical and low-carbon biofuels' from cellulose-based biomass (WRM, 2008b).

This type of collaboration is one example of a more general shift in research and development within the paper industry toward new, more value-added products – including those involving biotechnology. Biomass-based fuels, together with different nanotechnology applications, are considered to add more value to raw wood than mere pulp or even paper. Examples include nanocellulose fibres used to create industrial materials with special penetrative, reflective or other qualities. Cellulose nanofibres are potentially much stronger than synthetic fibres, and have much smaller diameters, opening up potential for new pulp products such as stronger papers and new medical and electronic commodities.⁸⁹

Recently, for instance, Stora Enso opened a new global office in Brazil to work on 'biomaterials' and is already projecting sales of 1.1 billion euros in 2013, about 10% of the corporation's total sales and more than 10% of its profits. According to Otavio Pontes, vice-director of Stora Enso Latin America (Fontes, 2012): 'We have already started to produce micro-cellulose, which is used in the cosmetics industry, in Finland, for example'.

According to Biofuelwatch, bioenergy is also being used to promote the development of genetically-engineered (GE) trees. One idea is that GE trees will make it easier to produce ethanol from wood (WRM, 2008b). The UK-based genetic engineering research company FuturaGene, bought by Suzano in 2010, says that by inserting new genes in trees, companies can increase yields of biomass and pulpwood plantations, boosting the productivity of electricity generators and pulp and paper manufacturers. Recently, FuturaGene has been authorized to do advanced field trials in Brazil with genetically-modified eucalyptus. It expects that by 2015-2016, the trials will be finished and commercialization can start. According to FuturaGene Chief Executive Officer Stanley Hirsch: 'Genetic-modified technology, if you look at it scientifically, is a vital sustainability tool that allows you to do more with less resource' (Bakewell, 2012). Of course, it also implies in new problems for people and their environment.

Biomass-based fuels, together with different nanotechnology applications, are considered to add more value to raw wood than mere pulp or even paper

⁸⁹ Coughlin D. (no date) Nanotechnology and the paper/forest product industry, SAPPI. For more information, see: <http://www.nanotechforest.org/Scopi/Group/nano/scp01nan.nsf>.



Genetically engineered (GE) trees

Conflicts around genetically-engineered trees are about to become a major issue: Brazil is soon to legalize commercial plantations of GE eucalyptus, for example, and test sites have sprung up around the world (Kuusi et al., 2010).

So far, the main focus of genetic manipulation research has been on forcing some naturally-occurring genes to be overactive, silencing others, or inserting genes from one species into another. The objectives are many. There has been discussion about genetically modifying trees so that they produce new products, such as chemicals. An especially fast-growing area is the engineering of trees to maximize production of wood biomass-based ethanol. ITP corporations are especially interested in increasing trees' pest resistance or changing their growth rates or the qualities of the wood they produce. Pulp producers look forward to GE techniques that create eucalyptus and pine varieties with a lower lignin content, making them more malleable in pulping processes. They are also anticipating GE tree varieties that grow faster or are more tolerant to adverse soil and climate conditions. And ITP companies such as Aracruz/Fibria and Suzano are not only waiting for GE-based improvements to trees to be developed elsewhere, but are themselves investing in the technology, always focusing their efforts on making the raw material they produce even more homogenized and the characteristics of the trees they grow even more narrowly tailored to the needs of their machines. The justification, in the words of Aracruz/Fibria, is that 'genetic engineering of forest species can bring benefits to society through sustainable development.'⁹⁰

According to a 2003 FAO study, *Populus* was the most common tree genus manipulated (47%), followed by *Pinus* (17%) and *Eucalyptus* (7%). Glyphosate-resistant *Eucalyptus grandis* and *Pinus radiata* have already been created. Genes from the naturally-occurring bacterium *Bacillus thuringiensis*, spliced into plant species in order to make them produce their own pesticides, have been used to modify not only to potatoes, cotton and corn but also to *Pinus radiata* and *Picea alba*. As of 2009, however, these new GE trees were not yet in commercial use; only virus-resistant GE *Papaya* had been approved for commercial use in Hawaii, and insect-resistant GE *Populus* in China. Finland has been a world leader in research into genetic modification of non-flowering trees.

Pesticide-resistant trees are perhaps the most problematic GE tree development. glyphosate-resistant tree monocultures would effectively prevent any other species from surviving under eucalyptus or pine, creating an even emptier green desert than the current monocultures, with far more damaging environmental and health impacts. Eventually, however, resistance to Glyphosate develops among pests and other species alike, necessitating ever-increasing chemical applications. While pesticide applications are increasing in any case, the use of Monsanto's

⁹⁰ See http://www.banktrack.org/show/dodgydeals/aracruz_pulp_mills_and_plantations



Roundup Ready apparently increased even more after glyphosate-resistant soybeans were introduced in Brazil.⁹¹

Biological contamination is a particular problem with GE trees that pollinate, since pollination allows genetically modified organisms (GMOs) to spread over long distances via air. Pine trees can spread their seeds 10 km by wind, and those seeds can germinate even after three years. This and other qualities of pine make its genetic manipulation a great risk to natural forests. According to published research, 'it would be difficult to contain the pollen from GE loblolly pine trees.'⁹² The fact that trees live much longer than food crops adds to the contamination dangers; as the same research concluded, 'The long life span of pine trees makes it difficult to evaluate the environmental impacts of GE varieties.'

One of the biggest problems is the unreliable science of genetic manipulation itself: our current understanding of what genes do and how life is formed, as well as of how genes behave when transplanted to other species, is very limited. A safer option would be a clear ban on GE trees until they have been studied for decades. An even better, cheaper alternative, particularly in view of the risks and high costs of GE research, would be to steer away from this technology altogether. Local forest and forest-dependent populations could give guidance on what kind of research would be preferable, and should participate in any decisions made on what research should be done and how it should be implemented, working together with (other) researchers on issues such as agriculture, agroforestry and agroecology. This type of collaboration between local agroecology/forestry practicing communities and researchers already exists in some places in, for example, Latin America and India (Altieri and Toledo, 2011).

⁹¹ For example, 'According to Federal state Environmental Agency IBAMA, between 2000 and 2004, the use of glyphosate, an agrotoxic used widely for transgenic soy, increased by 95 percent in Brazil, as the area of soy grown jumped by over 71 percent. In the state of Rio Grande do Sul, home to the country's largest area of transgenic soy, glyphosate use increased 162 percent and the area grown by 38 percent.' (Martins, 2008)

⁹² See www.sciencecodex.com/gone_with_the_wind_farflung_pine_pollen_still_potent_miles_from_the_tree.



5 Final considerations

To introduce the final part of this report, it may be useful to describe an exchange that occurred during the third national meeting of Brazil's Alert against the Green Desert Movement, in 2004.

A representative of the Brazilian government was invited to speak to more than 200 people representing a diversity of local communities adversely affected by industrial tree plantations. He started his speech by trying to justify the need for still more plantations. 'We need paper,' he said. 'Every Brazilian consumes 40 kg of paper per year.'

The audience listened patiently, waiting for him to finish. As he spoke, however, many were wondering: where was this 40 kg of paper per person hidden in their homes? All they could think of was the school and exercise books of their children. But then, the school books often had to be given back to the school at the end of the year, so that another pupil could use them the following year. That was the way of the economy: the state had reduced expenditures on education in order to maintain or increase incentives and subsidies for other purposes ... such as for industrial tree plantations.

Yet, taken all in all, the school books did their job. In Brazil, literacy rates are similar to those of the EU, even though paper consumption is about five times less, and in rural communities even less than that. Clearly, people didn't need to consume even 40 kg of paper a year just to be literate, much less the 200 or more kg consumed per capita in some European countries.

People didn't need to consume even 40 kg of paper a year just to be literate, much less the 200 or more kg consumed per capita in some European countries

After the state representative's speech, people stood up one by one to explain that they were not responsible for the bulk of the paper consumption in Brazil, and certainly not responsible for the even bigger consumption of the North, the destination of most of the paper goods produced from the plantations disrupting their lives and threatening their livelihoods. They reminded the representative that the price for paper consumption elsewhere was in fact paid for in the social and



environmental damage to their own communities. They emphasized that they produced food, a job harder and harder to do without public support in the face of intensified flood and drought conditions, whereas 'nobody eats eucalyptus'. At the end, the representative of the government, unable to respond to any of these interventions, quickly left the room. But the meeting continued and the people, encouraged by being together and united, joined hands to make plans to help each other further their struggles and undertake concrete actions to reconquer their territories.

This story can perhaps help sum up this report's reflections on industrial tree plantations and the impacts and conflicts they cause:

In the global South, the neoliberal policies of the past two decades have been triply disastrous for ordinary people. First, people have suffered from cuts in budgets for public goods, as services like education have gone into decline. Second, they have had to squander hard-earned tax money on public banks and public policies that support private projects such as the expansion of ITPs – whose proprietors, on the other hand, are often relieved, as exporters, of the tax burdens ordinary people have to shoulder. Third, ordinary people have been dispossessed and their lives, livelihoods, well-being and environment menaced by the very projects for which they have sacrificed.

Rural people in the global South have simultaneously had to suffer twice from climate change. First, their agriculture has been damaged and made less reliable. Second, the false solutions for the climate crisis propounded by global elites have themselves had deleterious effects on their lives and territories, as carbon sink projects and biomass and oil palm biofuel plantations have moved in, exacerbating a process of land-grabbing that has particularly affected the African continent.

People are still not being asked whether they want ITPs in their territories or not. All they hear from their governments is that ITPs have arrived and that 'we' need more of them because 'we' need paper and other ITP-based products. But who this 'we' is is seldom defined, nor why this 'we' needs so many cheap products while those who are not 'we' wind up having increasing difficulty in making ends meet.

Yet this silence is perhaps not surprising. In reality, ITPs are expanding not because everybody needs huge quantities of paper and other plantation-based goods, but primarily because a small group of actors, still disproportionately concentrated in Northern countries, many in the EU, have huge interests in a continuous increase in consumption of traditional ITP-based products such as car tyres, paper, paperboard and palm oil, as well as biofuels, wood-based energy new biotechnological pulp products.

ITPs are expanding faster in the global South than in the global North. According to the logic of accumulation, Northern corporations need to go South because it is cheaper and means more profits. Rather than being a reason to reduce the size of plantations and take over less land, moreover, increasing wood productivity appears to stimulate corporate ambitions to take over even more land, just as, in the 19th century, the rise in productivity associated with fossil fuel-powered

ITPs are expanding not because everybody needs huge quantities of paper and other plantation-based goods, but primarily because a small group of actors, still disproportionately concentrated in Northern countries, many in the EU, have huge interests in a continuous increase in consumption of traditional ITP-based products



machinery was associated with an increase, not a decrease, in the exploitation of labor. At the same time, economic crisis is pushing ITP companies to diversify into carbon sinks, new paper products, biomass and biofuel plantations, as well as to 'go financial' by engaging in speculation.⁹³

ITP expansion in the global South is offering opportunities to new groups of Northern actors such as investment funds, which are moving into a more dominant position in the land and forest market, as well as financial institutions interested in trading the carbon produced by plantations; fossil fuel companies craving a piece of the rising biofuel market; consultancies profiting from certifying carbon and ecosystem services; transnational companies active in fields like biotechnology; and even the biggest meat processing company in the world, eager to turn to its advantage the 'success' story of ITPs in Brazil. Mergers and acquisitions among 'big players' will continue not only within the pulp and paper sector, but also between, say, the paper sector and the oil industry. The result will be even bigger corporate players.

Northern companies and governments, although they have earned many billions of euros and dollars through promoting industrial tree plantations in the global South, still do not recognize the ecological debt of the North to the South – a debt that is rooted in, among other phenomena, the ecological damage caused by export-oriented ITPs. As the Jubilee South movement as well as Environmental Justice Organizations, Liabilities and Trade (EJOLT) have argued, processes such as those through which ITPs expand into 'low cost' regions are possible only because these 'low costs' do not include the violence and regressive redistribution involved in this production, which is often in fact incalculable: contamination and depletion of water resources, deforestation, etc.

Among many environmentalists, especially in the North, awareness is lacking that solving conflicts and preventing the grabbing of more community lands needs to go hand-in-hand with tackling structural problems that affect people and their environment. Certification schemes and initiatives to 'improve' industrial tree plantations help ITP companies to legitimize the further expansion of their business. In the words of the consultant who studied ITP conflicts in Brazil: 'the adoption of palliative measures only leads to the future recrudescence of the

Northern companies and governments, although they have earned many billions of euros and dollars through promoting industrial tree plantations in the global South, still do not recognize the ecological debt of the North to the South

⁹³ During the financial crisis of 2008, the Brazilian press reported that Aracruz/Fibria had lost BRL 2.13 billion (USD 1.12 billion) by speculating with future sales of its already highly productive plantations through so-called 'toxic derivatives'. The proximate cause of the loss, of course, was the financial crisis in the US (Magnabosco, 2008). To solve this 'problem', Aracruz/Fibria renegotiated its debt with the banks, and afterwards, the BNDES financed the merger of Votorantim Celulose and Papel (VCP) and Aracruz to become Fibria. The President of the BNDES, questioned afterwards about the wisdom of rescuing companies heavily involved in speculative activities, answered: "To allow companies as big and important for our exports and for jobs as these to plunge into severe difficulty and eventually go bankrupt? Of course not" (Warth and Freitas, 2009). The BNDES' stake in the deal was BRL 2.4 billion (www.risiinfo.com.br/pulpandpaper/news/BNDES-projeta-desembolso-de-US-6-bi-para-projetos-de-celulose-e-papel-no-Brasil-valor-financiara-50-dobro-crescimento-mundial-entre-2011-2014.html).



problems. And in Brazil, even in regions considered without conflicts, problems have arisen' (Fanzeres, 2005).

Reducing excessive consumption in the global North is an important step in the right direction, as is recycling more paper. But in spite of consumption reduction campaigns and significant fiber recycling rates, for example in the EU, world paper consumption has increased 50% over the past two decades. And according to forecasts, further increases are on the way. In general, consumption increases are deeply structural and Northern-driven, despite China now being number one in paper and paperboard production worldwide. Therefore, it is urgently necessary to think beyond consumption reduction campaigns: social movements need to force governments to undertake radical, structural changes in the current unsustainable production and consumption model as a whole. This is the only way to tackle the unsustainable social metabolism surrounding, for example, ITP projects and also the only realistic way of coping with the climate crisis.

From the perspective of local people affected by ITPs, a first policy shift could be a halt to subsidies to the ITP sector and a shift toward public policies that attend to ordinary peoples' demands, for example, for proper education, health facilities, agrarian reform, recognition and demarcation of indigenous and traditional peoples lands, and small-scale food production.

Such policy shifts are often dismissed as 'unrealistic' by those who defend, for example, certification schemes. However, as the story at the beginning of this final chapter suggests, it would be unwise to underestimate the potential and the power of peoples' struggles for such changes. Over the past two decades, communities in many different countries and contexts have carried out incredible, inspiring campaigns against industrial tree plantations. In Brazil, for example, rural people decided to unite and build alliances through an informal and horizontally-organized network around a common goal: halting the plantations and reconquering their lands. They have built alliances and carried out activities in solidarity not only with each other, but also with allies elsewhere in the global South, including in Mozambique, as well as in Northern countries such as Finland, Sweden and Germany. They have decided not to wait for the government to solve their problems; indigenous, *quilombola*, *geraizeiro* and landless movements have unilaterally carried out land occupations in spite of sometimes violent repression. Without the struggles of so many people, villages, communities, women and men, social movements and others in the global South, together with many other allies in the North, plantations would expand much faster than they actually do.

In Brazil and elsewhere, too, women are increasing their participation in such struggles, organizing their own actions with support of men, and thus strengthening the overall movement. People have not only reoccupied their lands, but have also started straight away to produce food, to recover the environment by planting their own trees, to build houses, and to reconstruct a free community life. This is the 'alternative' that people in many places are demonstrating in everyday practice and that is what they will continue to struggle for, in spite of the many problems they face.

From the perspective of local people affected by ITPs, a first policy shift could be halting subsidies to the ITP sector and moving toward public policies that attend to ordinary peoples' demands

Such policy shifts are often dismissed as 'unrealistic'. However it would be unwise to underestimate the potential and the power of peoples' struggles for such changes



Excessive paper consumption is not necessary for a good life, and that therefore no more lands in the global South need be transformed into 'green deserts'

The daily practice of such movements and such communities as Brazil's Vereda Funda teach us that excessive paper consumption is not necessary for a good life, and that therefore no more lands in the global South need be transformed into 'green deserts'. They expose graphically the irrationality of Northern paper consumption and the suffering it is associated with.

This report, although in some respects filled with bad news, has been written to encourage, not discourage. It is intended to help all those involved or interested better understand what is behind ITPs and their problems, so that they can better join together to take action. It looks forward to a movement – part of the huge global majority of the dispossessed, disenfranchised and unjustly repressed – that will be better equipped to achieve the goal of putting an end to the irrational policies that promote the further expansion of industrial tree plantations.



Acknowledgments

The authors of the study would like to thank Larry Lohmann, Teresa Perez, Beatriz Rodríguez-Labajos, Leah Temper, Joan Martínez-Alier, Andreas Mayer, Simron Jit Singh and Nick Maynen.

References

- Aghalino, S.O., 2000. British Colonial Policies and the Oil Palm Industry in the Niger Delta Region of Nigeria. *African Study Monographs*, 21(1), 19-33.
- Altieri, A., Toledo, V., 2011. The agroecological revolution in Latin America: rescuing nature, ensuring food sovereignty and empowering peasants. *Journal of Peasant Studies*, 38 (3), 587-612 (www.agroeco.org/socla/pdfs/Altieri_Toledo_JPS_38_03_2011.pdf).
- Bakewell, S., 2012. Suzano unit gets Brazil approval to trial GM forest for biomass. *Business Week* (www.businessweek.com/news/2012-05-02/suzano-unit-gets-brazil-approval-to-trial-gm-forest-for-biomass).
- Barcellos, G. (coord.), 2010. Estudo e Relatório de Impactos em Direitos Humanos de grandes projetos (EIDH/RIDH): o caso do monocultivo de eucalipto em larga escala no Norte do Espírito Santo. MNDH/CDDH, Serra (www.cddh.com.br).
- Barcellos, G. and Ferreira, S., 2005. Women and Eucalyptus: stories of life and resistance. WRM series on tree plantations, 11. World Rainforest Movement, Montevideo.
- Barney, K., 2007. A Note on Forest Land Concessions, Social Conflicts, and Poverty in the Mekong Region. Proceedings: International Conference on Poverty Reduction and Forests, Bangkok (<http://lib.icimod.org/record/13134/files/4945.pdf>).
- Bolin, A., 2011. The Global Land-Grab Phenomenon. DTE 89-90. Special Papua Edition.
- Cambodian Human Rights Action Committee, (The) (CHRAC), 2009. Losing Ground: Forced Evictions and Intimidation in Cambodia. CHRAC, Phnom Penh (www.forestcarbonasia.org/other-publications/losing-ground-forced-evictions-and-intimidation-in-cambodia).
- Carle, J., et al., 2002. Status and trends in global forest plantation development. *Journal Forest Products* (www.fao.org/forestry/5010-0c773a78823b8b936c7f6c323919bd706.pdf).
- Carrere, R., 2010a. Oil palm in Africa: past, present and future scenarios. WRM series on tree plantations, 15. World Rainforest Movement, Montevideo.
- Carrere, R., 2010b. Análise crítica do trabalho "A silvicultura e a água: Ciência, Dogmas, Desafios" (Walter de Paula Lima, 2010). WRM bulletin 159 (www.wrm.org.uy).



Carrere, R., Lohmann, L., 1996. *Pulping the South: Industrial Tree Plantations and the Global Paper Economy*. Zed Books. London.

Castella, J-C., Fox, C., Ziegler, A. Swidden, 2011. Rubber and carbon: can REDD+ work for people and the environment in Montane Mainland Southeast Asia? Working Paper 9. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), Copenhagen (<http://ccaafs.cgiar.org/sites/default/files/assets/docs/ccaafs-wp-09-swidden-rubber-and-carbon.pdf>).

Centre for Research and information on Land and Natural Resources (CRILN), National Land Management Authority (NLMA), Office of Prime Minister, Lao PDR; Faculty of Social Sciences, Chiang Mai University and Foundation for Ecological Recovery (FER), 2009. Research evaluation of economic, social and ecological implications of the programme for commercial tree plantations: case study of rubber in the south of Laos PDR. CRILN, NLMA, Office of Prime Minister Lao PDR, Faculty of Social Sciences, Chiang Mai University and FER, Bangkok.

Céspedes-Payret, C., Pineiro G., Achkar, M., Gutierrez, O. and Panario, D., 2009. The irruption of new agro-industrial technologies in Uruguay and their environmental impacts on soil, water supply and biodiversity: a review. *International Journal of Environment and Health*, 3, 175-97.

Claessens, S., Feijen, E., Laeven, L., 2007. Political connections and preferential access to finance: The

role of campaign contributions. *Journal of Financial Economics*, 88, 554-80.

Colchester, M., 2011a. Palm oil and indigenous peoples in South East Asia. Moreton-in-Marsh: FPP; International Land Coalition.

Colchester, M., 2011b. Human rights crisis in palm oil estates in Indonesia. *WRM Bulletin* 173 (www.wrm.org.uy).

Cossalter, C. and C. Pye-Smith, 2003. *Fastwood forestry: Myths and realities*. Bogor: CIFOR.

De'Nadai, A., Overbeek, W., Soares, L., 2005. Promises of Jobs and Destruction of Work: The case of Aracruz Celulose in Brazil. WRM series on tree plantations, 2. World Rainforest Movement, Montevideo

Dewy, P. et al, 2010. Research report: The oil palm plantation weakens the situation of women. Sawit Watch and Women's Solidarity for Human Rights, Bogor.

Environmental Paper Network, 2011. *The state of the paper industry 2011*, EPN, (www.greenbiz.com/sites/default/files/state-of-the-paper-industry-2011-full.pdf).

Fanzeres, A., 2005. *Temas Conflituosos Relacionados à Expansão da Base Florestal Plantada e Definição de Estratégias para Minimização dos Conflitos Identificados*. Programa Nacional de Florestas, Secretaria de Biodiversidade e Florestas, Ministério do Meio Ambiente, Brasília.

FAO, 2009. *State of the World's Forests 2009*. Food and Agriculture



Organization of the United Nations, Rome

(www.fao.org/docrep/011/i0350e/i0350e00.htm).

FAO, 2010. Global Forest Resources Assessment. FAO Forestry Paper 163

(www.fao.org/docrep/013/i1757e/i1757e.pdf).

Fernandes, V., 2011. Problemas de saúde são causados por herbicida glifosato, aponta Greenpeace. Radioagencia NP (www.radioagenciaNP.com.br/10083-problemas-de-saude-sao-causados-por-herbicida-glifosato-aponta-greenpeace).

Flynn, B., 2010. Eucalyptus: having an impact on the global solid wood industry. WRI (www.wri-ltd.com/).

FOE Europe, 2011. Flying in the face of the facts: greenwashing the aviation industry with biofuels. FOE Europe, Brussels (www.foeeurope.org/sites/default/files/press_releases/FoEE_Flying_in_the_face_of_facts_0611_0.pdf).

Fontes, S., 2012. Stora Enso põe sede global no Brasil. Jornal Valor Econômico (<https://conteudoclippingmp.planejamento.gov.br/cadastros/noticias/2012/2/8/stora-enso-poe-sede-global-no-brasil>).

Freitas, T. and Warth, A., 2009. BNDES ainda analisa participação em oferta de ações da BRF. Jornal O Estado de São Paulo (www.estadao.com.br/noticias/economia,bn-des-ainda-analisa-participacao-em-oferta-de-acoes-da-brf,376739,0.htm?reload=y).

Fried, S. and Soentoro, T., 2004. A brief overview of export credit agencies in the Asia-Pacific Region. Environmental Defense and NADI, World Social Forum, Mumbai (www.eca-watch.org/problems/asia_pacific/documents/NADIEnvDef_WSFregionsummary_Jan04.pdf).

Geosphere, 2010. Compilation of articles. Geosphere, South Africa (www.geosphere.co.za/downloadable_docs/geosphere_ebook_2011.pdf).

Gerber, J.-F., 2011. Conflicts over industrial tree plantations in the South: Who, how and why? Global Environmental Change, 21(1), 165–176.

Ghosh, S., Das, M., 2011. India: Ravaged Landscape, Devastated People - Tales of Hydro Power CDM projects in Himachal Pradesh. WRM bulletin 165 (www.wrm.org.uy).

Gomes, H. and Overbeek, W. (org.), 2011. Aracruz Credo: 40 anos de violações e resistência no ES. Rede Alerta contra o Deserto Verde e Rede Brasil sobre Instituições financeiras multilaterais, Brasília.

Gonçalves, I., Overbeek, W., 2008. Violações socioambientais promovidas pela Veracel Celulose, propriedade da Stora Enso e Aracruz Celulose. CEPEDES, Eunápolis.

Grainger, M., Geary, K., 2011. The New Forests Company and its Uganda plantations: "I lost my land. It's like I'm not a human being.", Oxfam Case Study. Oxfam International, Boston (<http://www.oxfamamerica.org/publications/the-new-forests-company-and-its-uganda-plantations>).



- Granda, P., 2005. Carbon Sink Plantations in the Ecuadorian Andes: Impacts of the Dutch FACE-PROFAFOR monoculture tree plantations project on indigenous and peasant communities. WRM Series on tree plantations 1. World Rainforest Movement, Montevideo.
- Halper, M., 2011. Friends of Earth rains on Lufthansa biofuel parade. (<http://www.smartplanet.com/blog/intelligent-energy/friends-of-earth-rains-on-lufthansa-biofuel-parade/7653>).
- Hansen, C., 2007. Lao land concessions, development for the people? Proceedings: international conference on poverty reduction and forests. Bangkok.
- Human Rights Watch (HRW), 2003. Without remedy: Human rights abuse and Indonesia's pulp and paper industry. New York: HRW.
- Instituto Estadual de Meio Ambiente (INEMA), 2008. Silvicultura no Extremo Sul e Sul da Bahia. INEMA, Salvador.
- Instituto Estadual de Meio Ambiente (INEMA), 2010. Relatório referente ao processo no. 2007-008437/TEC/NOT-6385, referente ao processo no. 2007-008437/TEC/LL-0084 de Licença de Localização para plantio de eucalipto e ampliação de celulose da empresa Veracel Celulose". Instituto do Meio Ambiente e Recursos Hídricos, Salvador.
- Jackson, R., et al, 2005. Trading Water for Carbon with Biological Sequestration. *Science*, 310, 1944-1947.
- Karumbidza, B., Menne, W., 2011. CDM carbon sink tree plantations in Africa: A case study in Tanzania. The Timberwatch Coalition (<http://timberwatch.org/uploads/TW%20Tanzania%20CDM%20plantations%20report%20low%20res%20%281%29.pdf>).
- Kongsager, R., and Reenberg, A., 2012. Contemporary land-use transitions: The global oil palm expansion. GLP Report No. 4. GLP-IPO, Copenhagen.
- Kröger, M. 2011. Promotion of Contentious Agency as a Rewarding Movement Strategy: Evidence from the MST-Paper Industry Conflicts in Brazil. *Journal of Peasant Studies*, 38(2): 435–58.
- Kröger, M. 2012a. The Expansion of Industrial Tree Plantations and Dispossession in Brazil. *Development and Change*, 43(4), July, forthcoming.
- Kröger, M. 2012b. Neo-mercantilist Capitalism and Post-2008 Cleavages in Economic Decision-making Power in Brazil. *Third World Quarterly*, 33(5), 887-901.
- Kröger, M., 2010. The Politics of Pulp Investment and the Brazilian Landless Movement (MST). Phd dissertation, Political Science, Department of Political and Economic Studies, University of Helsinki, Acta Politica No 39.
- Kuusi, O. et al, 2010. Löytöretkiä biopolitiikkaan. Finnish Parliament, Committee for the Futures, Helsinki (<http://web.eduskunta.fi/dman/Document.phx?documentId=jr07810110325978&cmd=download>).
- Lang, C. 2010. Indonesia: Government proposes 21 million hectares of plantations to meet



- climate targets. WRM Bulletin No. 150.
- Lang, C., 2002. The Pulp Invasion: The international pulp and paper industry in the Mekong region. World Rainforest Movement, Montevideo
- Lang, C., 2006. Laos: ADB's eucalyptus plantations increase poverty. WRM Bulletin 103 (www.wrm.org.uy).
- Lang, C., 2007. Banks, pulp and people: a primer on upcoming international pulp projects. Urgewald, Sassenberg.
- Lang, C., 2008. Taking the land, impoverishing the people: The pulp industry in the Mekong Region. Watershed 12(3) (<http://chiislang.org/2009/01/06/taking-the-land-impoverishing-the-people-the-pulp-industry-in-the-mekong-region/>).
- Lemos, A. (coord.), 2011. Lords of the Land: preliminary analysis of the phenomenon of land grabbing in Mozambique. Justiça Ambiental and UNAC, Maputo.
- Lohmann, L., 2002. Polanyi along the Mekong: New Tensions and Resolutions over Land. The Cornerhouse (<http://www.thecornerhouse.org.uk/resource/polanyi-along-mekong>)
- London: Friends of the Earth; Bogor: SawitWatch.
- Lyytinen, J., Nieminen, T., 2009. Stora Enso's Jackpot. Helsingin Samonati, International Edition (<http://www.hs.fi/english/artide/Stora+Enso%E2%80%99s+jackpot/1135248979552>).
- Magnabosco, A., 2008. Aracruz fecha acordo e perde R\$ 2.13 bi com derivativos. Jornal O Estado de São Paulo (www.estadao.com.br/noticias/impresso,aracruz-fecha-acordo-e-perde-us-213-bi-com-derivativos,272557,0.htm).
- Mantau, U., et al, 2010. EU wood - Real potential for changes in growth and use of EU forests. Final report. Hamburg. 160 p.
- Margon, Andréia, 2009. Aracruz explora e demite trabalhadores lesionados. Jornal Brasil de Fato 349.
- Marti, S. 2008. Losing ground – The human rights impacts of oil palm plantation expansion in Indonesia.
- Martinez-Allier, J., et al, 2010. Social Metabolism, Ecological Distribution Conflicts, and Valuation Languages. Ecological Economics, (2010), doi:10.1016/j.ecolecon.2010.09.024
- Martins, J. 2008. Explosive advance of transgenic. Latinamericapress (<http://www.lapress.org/articles.asp?art=5758>).
- Milieudefensie, 2012. Agrofuels in planes, heating the climate at a higher level. Milieudefensie-FOE The Netherlands, Amsterdam.
- MST/FASE-ES, 2006. Rompendo o Silêncio. Video. Disponível em www.wrm.org.uy.
- Nielsen, R., Ping, L., 2010. A case study on large-scale forestland acquisition in China: the Stora-Enso Plantation Project in Hepu County, Guangxi Province. Rights and Resources Initiative, Washington.
- Noor, R. and R. Syumanda, 2006. Social conflict and environmental disaster: A report on Asia Pulp and Paper's operations in Sumatra,



- Indonesia. Montevideo: World Rainforest Movement., Montevideo.
- Olivier, J.G.J., Janssens-Maenhout, G., Peters, J.A.H.W. & J. Wilson, 2011. Long-term trend in global CO2 emissions. 2011 report, The Hague: PBL/JRC.
- ONG Reporter Brasil and Centro de Monitoramento de Agrocombustíveis (CMA), 2007. O BNDES e sua política socioambiental: uma crítica sob a perspectiva da sociedade civil organizada. Reporter Brasil e CMA, São Paulo (http://www.reporterbrasil.org.br/documentos/BNDES_Relatorio_CMA_Reporte rBrasil_2011.pdf).
- Overbeek, W. 2010b. The Expansion of Tree Monocultures in Mozambique. Impacts on local peasants communities in the Province of Niassa. WRM series on Tree Plantations 14. World Rainforest Movement, Montevideo.
- Overbeek, W., 2010a. Brazil: Aracruz sows violence and destruction in Espírito Santo. WRM bulletin 161 (www.wrm.org.uy).
- Overbeek, W., 2010b. Brazil: Communities hit by monoculture eucalyptus plantations exchange experiences in Minas Gerais. WRM bulletin, 153 (www.wrm.org.uy).
- Overbeek, W., 2011. The new trend of biomass plantations in Brazil: tree monocultures. WRM bulletin 172 (www.wrm.org.uy).
- Radioagência NP, 2008. Brasil: Tribunal de Justiça suspende plantio de eucalipto em município de SP. 11/03/2008 (www.biodiversidadla.org/content/view/full/39528).
- Rodriguez, G., 2011. Climate change, supposedly renewable energy and biomass. WRM Bulletin 172 (www.wrm.org.uy).
- Sahabat AlamMalaysia-Friends of the Earth Malaysia (SAM), 2011. In defence of rainforests and indigenous peoples rights in Sarawak: a dossier of activities from 2008-2010. SAM, Penang.
- Schenk, K., 2011. Liberia: The case of Vattenfall – African timber to save the climate in Germany? WRM bulletin, 172 (www.wrm.org.uy).
- Scott, J., 1985. Weapons of the weak. New Haven: Yale University Press.
- Severo, L., 2012. Crime sem castigo da empresa Eldorado, em Três Lagoas. Jornal Brasil de Fato, 476.
- Simberloff, Daniel et al, 2010. Spread and impact of introduced conifers in South America: lessons from Southern Hemisphere Region. Austral Ecology 35, 489-504.
- Smil, Vadav, 2010. Energy Transitions: History, Requirements, Prospects. Praeger:Santa Barbara, Calif., p. 117.
- Swedish Forest Industries Association, 2010. The Swedish Forest Industries: Facts and Figures 2009. Swedish Forest Industries Association, Stockholm (http://www.forestindustries.se/Media BinaryLoader.axd?MediaArchive_FileID=9a47e1bc-91c1-4352-baeb-5a03c42c60d5&MediaArchive_Force Download=true).
- United States Department of Agriculture (USDA), 2010. Commodity Intelligence Report: Rising global demand fuels palm oil



- expansion
(www.pecad.fas.usda.gov/highlights/2010/10/Indonesia/).
- Villas, F., 2011. Tupiniquins e Guaranis: símbolos de resistência. In: Gomes, H. and Overbeek, W. (org.). Aracruz Credo: 40 anos de violações e resistência no ES. Rede Alerta contra o Deserto Verde e Rede Brasil sobre Instituições financeiras multilaterais,. Brasília.
- WALHI, 2008. Indonesian Environmental Forum (WALHI), 2008. Aerial bombardment of peasants in Sumatran village. Press release. Berlin, 23 December 2008.
- WRM, 2007. Working conditions and health impacts of industrial tree monocultures. WRM Briefing. World Rainforest Movement, Montevideo.
- WRM, 2005. Liberia: Report exposes dire working and living conditions in Firestone rubber plantation. WRM bulletin 94 (www.wrm.org.uy).
- WRM, 2007. Indonesia: The forest assaulted by the forestry industry. WRM bulletin 119 (www.wrm.org.uy).
- WRM, 2008a. Oil palm and rubber plantations in Western and Central Africa: An Overview. WRM Briefing. World Rainforest Movement, Montevideo.
- WRM, 2008b. Ethanol from Celulose: a technology that could spell disaster. WRM Briefing. World Rainforest Movement, Montevideo.
- WRM, 2009. Women raise their voices against tree plantations: Testimonies from Brazil, Nigeria and Papua New Guinea. Video. World Rainforest Movement, Montevideo (http://www.wrm.org.uy/Videos/Women_Voices.html).
- WRM, 2010a. French economic group Bolloré attempts to intimidate journalists who expose abusive practices on its plantations in Cameroon. WRM's bulletin 155 (www.wrm.org.uy).
- WRM, 2010b. South Africa: Research shows conclusive results on the impacts of tree plantations on water. WRM bulletin 161 (www.wrm.org.uy).
- WRM, 2010c. RSPO: the impossible 'greening' of the palm oil business. WRM bulletin 153 (www.wrm.org.uy).
- WRM, 2010d. Oil palm in Nigeria: shifting from smallholders and women to mass production. WRM bulletin 161 (www.wrm.org.uy).
- WRM, 2011a. The definition of forest: WRM Briefing. World Rainforest Movement, Montevideo.
- WRM, 2011b. Mega-projects and the criminalization of struggles to defend people's rights in India and Honduras. WRM bulletin 173 (www.wrm.org.uy).
- WRM, 2011c. Brasil: O caso da Plantar - o FSC servindo para vender créditos de carbono. WRM bulletin 163 (www.wrm.org.uy).
- WRM, 2011d. Brasil: Mato Grosso do Sul, a nova fronteira do eucalipto. WRM Bulletin 168 (www.wrm.org.uy).
- WRM, 2011e. Certification is definitely not the right path to follow. WRM bulletin 163. (www.wrm.org.uy).
- WRM, 2012a. Bulletin. Earth Grabbing, the ongoing concentration and privatization of land, water and



air'. WRM bulletin 177
(www.wrm.org.uy).

WRM, 2012b. Environmental
Services and the promotion of the

commodification and financialization
of nature: forests, tree plantations
and the 'green economy'. WRM
bulletin 175 (www.wrm.org.uy).

Next issues of the series:

- 4 Legal avenues for EJOs to claim environmental liability
- 5 Issues in the economics of ecosystems and biodiversity - recent instances for debate

