

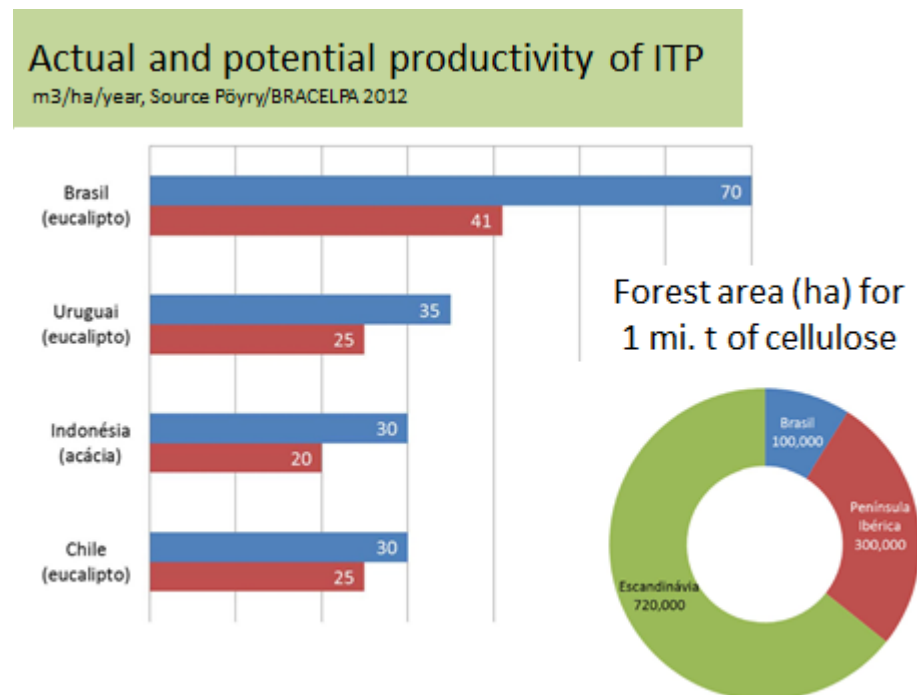
Opportunities and challenges for pulp and paper industry in South America

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Prof. em. Jan-Erik Nylund, Dept. of Forest Products, SLU Uppsala

LECTURE DRAFT

Introduction: The present pulp industry

The biological and economic potential of industrial tree plantations in southern South America, the *Cono Sur*, is well known. Brazil and Chile are major actors on the global market; Uruguay is emerging, while Argentina's potential is still to be realized. Other South American countries have the biological potential, but their technical and political conditions may not presently be conducive for the large-scale, long-term ventures pulp and paper mill establishment entails. In several countries, as well as in large parts of Brazil, suitable growing areas for ITP (industrial tree plantations) are too distant from shipping facilities of their products. So, this report has its focus on Brazil, Chile and Uruguay.



Brazil

The Brazilian pre-WWII industrial policy aimed at import substitution, just as in the neighbouring Argentina and Chile. The development of eucalypt pulping in the 1950s, where Billerud and Celbi had important role, was an eye-opener, but had to be followed by breeding work and better plantation technology. When Aracruz was launched in the 70s, it was a high-risk venture; the total flop of Ludwig's much published but poorly researched Jari project underlined the need for a solid research basis in green technology as well as engineering.

Aracruz set a model for the development of the pulp industry: large-scale enterprises with an increasing focus on export, based on a single product line and a single mode of growing the fibre: short rotation eucalypt. The enterprises were and continue to be industrial islands with few links to the local economy other than those required for maintenance and auxiliary services. No other types of timber are produced, no other kinds of forest and wood processing industries are associated with them. This policy was possible as the southern parts of the country already had a pulp and paper, panel and sawmilling industry catering for national needs, close to the main national markets.

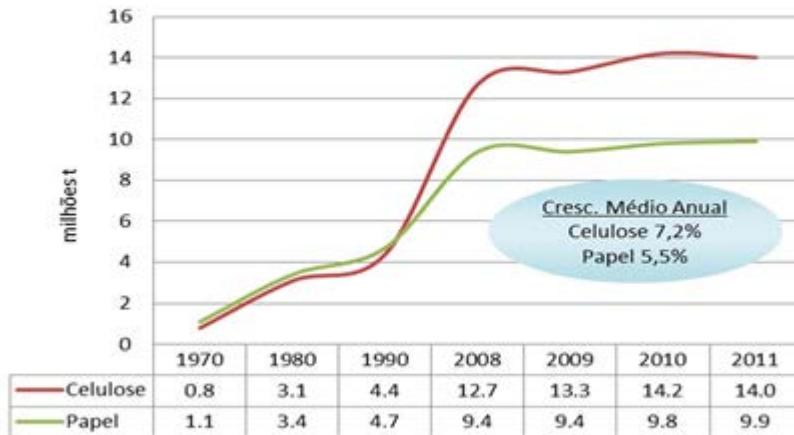


Between 1990 and 2010, “megaton” export mills were established in southernmost Bahia state, in neighbouring Minas Gerais; during the last years, Mato Grosso has seen an unprecedented expansion with three mills in Tres Lagoas; now, Piauí and Maranhão states are opened up for new ventures. Also, in the southern state of Rio Grande (Guaíba), a major mill establishment is under way. From today’s

installed capacity of 14 mi. t. of short fibre pulp, already on-going ventures will add another 3 mi. until 2014. On the drawing board are facilities for another 8 mi. t. until 2017, in preparation for a global economic recovery. Of the country's total pulp production, 60% is exported; however, of the long fibre pulp consumption, 25% is imported. 85% of the plantation area consists of eucalypt, 15% of pine.

Pulp and paper production, Brazil

Source: BRACELPA 2012



The pulp and paper industry is largely locally-owned and also locally financed; exceptions are Veracel, 50% owned by Stora Enso; Cenibra, owned by Japanese interests, and Celulose Riograndense, owned by Chilean CMPC; International Paper currently runs a new paper mill in Tres Lagoas and is acquiring stakes in the packaging industry. After major restructuring, Fibria and Suzano groups are the leading industry groups, with the newly established Eldorado expanding. Klabin, also a major actor, is focusing on packaging and restricted to the south. Notably, a complete newcomer in the forestry sector, Eldorado, runs the country's most modern (2012) pulpmill in Tres Lagoas. The sector is evidently coming into mature age as financial interests with no connection to forestry is seeing the pulp & paper business as worth investing in.

Public statistics give Brazil's pulp ITP area as 2,2 mi ha, with another 4 mi for the mining industry's charcoal and other energy demands. As a rule of thumb, 1 million eucalypt pulp requires 100 000 ha intensively managed plantations; through breeding and even better management, the potential productivity is held to be 50% higher. - The ITP area should be seen in relation to 25 mi ha under soybean and 8,5 under sugar cane for alcohol. - Taken the entire ITP area, 70% is company property, 14% owned by contract growers, the remainder by independent market growers, particularly in the industrialised South (all data from the bank, Bradesco, 2012).

Chile

As a contrast, when Chile embarked on a policy of stimulating its forest industry during the Pinochet era, sawn goods, panels and pulp had all a prominent place in the production. Today, the pulp and paper industry consists of two large companies, Arauco and CMPC, both owned by local interests; Arauco had links to Swedish industry but never a formal partnership. Due to climatic reasons, the focus was initially on pine; suitable eucalypt planting stock was bred only relatively recently. This diversification led to the development of a more balanced industry structure; also the enterprises were not the only growers, but a wide spectrum of private owners grew timber for the sector's industries. In this regard, Arauco and CMPC differ in policy, Arauco growing all its wood itself, while CMPC relies heavily on external suppliers. These in turn are not left at CMPC's mercy, as a wide array of sawmills and other smaller industries provide an alternate market. (Actually, in the Brazilian South, small growers also have their place). – Both companies are expanding their operations internationally.



Chile: Industrial tree plantations

	total 1981 - 2011	mean 2009 - 2011
Afforestation	1 700 000 ha	22 000 ha
Reforestation	1 200 000 ha	66 000 ha
	mean 2000 – 2008	mean 2009 - 2011
Small owners	23 800 ha	6 700 ha
Other owners	88 700 ha	85 000 ha
Pine annual plantation:	1998 - 2008: 59%	2009 – 2011: 57%
Pine total area	68%	
Eucalypt total area	23%	
Total area of regions VII–XI	16 620 000 ha	
Total plantation area	2 100 000 ha	
Total forest and ITP area (incl Patagonian regions)	15 500 000 ha	

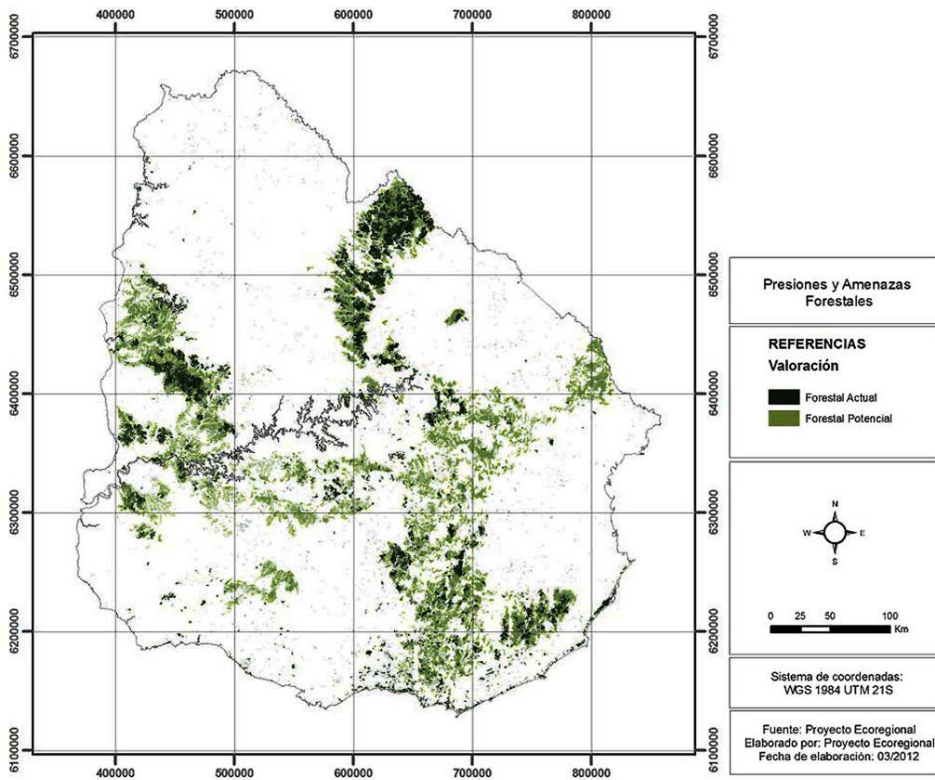
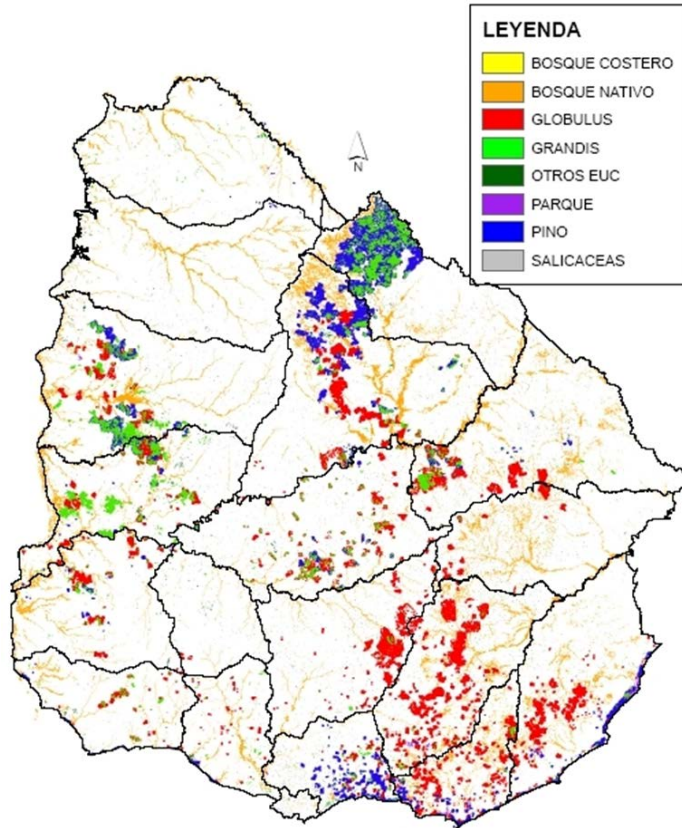
The plantation area, feeding five major pulpmills, was 2,1 mi. ha. in 2011, about equal proportions of eucalypt and pine. Due to climatic conditions, potential eucalypt productivity is around 60% of that in tropical Brazil. The total area of regions VII – XI, where industrial forestry is feasible, is 16,6 mi ha; thus, ITP is present in the landscape in a notable way. The pulp export 2010 was 4.4 mi. t., to this comes similar volumes of paper and board.

Uruguay: Forest and ITP areas

• Natural forest and tree covered areas	850 000 ha
• Eucalypt plantations	431 000 ha
• Pine plantations	170 000 ha
	Landsat 2011
• Total area identified for ITP :	1,5 – 2 million ha
• Land use 2006	
– Beef	13 000 000 ha
– Forestry	850 000 ha
– Dairy	874 000 ha
– Grains	718 000 ha
• National territory, total	17 625 100 ha

Uruguay

Uruguay, the newcomer in the league, differs in several ways. The grassland country (17,6 mi ha) has a long experience of small-scale growing of exotics for shelterbelts and local construction wood. Industrial forestry was, in contrast to Brazil and Chile, not promoted by the military dictatorship. Only when the country returned to democratic government, it decided to totally overhaul its forest legislation in the 1980's, to make industrial scale tree growing possible. At the same time, it also opened up for foreign investment – and ownership – in the agriculture sector, resulting in perhaps a quarter of the total area (17% in a census from 2000) being owned by Brazilian and Argentine agribusiness and foreign forest companies. After some turbulence, the first megaton mill, Orion/Fray Bentos, was established (in production 2007), now Montes del Plata is under construction, both owned by Nordic actors (UPM and StoraEnso, respectively) with a combined capacity of 2,5 mi t. Additional to pulp, Uruguay has been exporting up to 1,6 mi t chips (2011; 2012 was down to 0,7 mi t), with Spain's ENCE as a major customer. According to Landsat data from 2011, there are 430 000 ha eucalypt and 170 000 ha pine plantations, and land zoning shows that there could be room for one or two more megaton pulp ventures. Depending on selection criteria, 1,5 to 2 mi ha are suitable for forestry. For comparison, cereal and dairy farms occupy 700 000 and 850 000 ha, respectively.



Argentina

Argentina could be a fourth major producer but never embarked on forest industry development, and is hardly even self-sufficient; its only major modern mill, Alto Paraná in Misiones, is owned by Arauco. As the country was under military rule during the “seminal” 70s, one may ask why Argentina did not follow the example of Brazil and Chile. One reason may be that the Argentinian military had far less focus on economic development of the other two; another that the land-owning capitalists of Argentina ever since the early 1900s had shown little interest in investing in national industry, but rather established a rent-seeking strategy, exporting their money to Britain. A background factor, particularly in modern times, could be the erratic economic policy of an array of Argentine governments, discouraging large and demanding industrial investments.

Opportunities and challenges

Discussing opportunities and challenges in South America, focus is usually on the growth potential, both growth of the tree crops, growth of the mills and growth of the market. Additional to pulp and paper, companies like Suzano are already making investment plans for dedicated biofuel ventures, and pellet production may, because of the relative low mill cost provide a suitable escape even for pulp ventures in periods of p&p market recessions. Considering the vast expanses of extensively used or even idle land, access to planting land has been given little attention, particularly in more general discussions as those held at KSLA during previous years. My main message with this presentation is that land use for ITP is one of the most crucial issues for the future development of plantations, and thereby for the industry. There are several reasons, some overt, other indirect. In the following, we will examine

- Country-specific issues
- NGO campaigning against ITP worldwide
- Socio-economic consequences and the impact of landscape transformation

Brazil

Forest industries catering for domestic demand developed in the states of São Paulo – Paraná and Santa Catarina during the first half of the 20th century, based on pine plantations taking the place of the previous Araucaria (Paraná pine) forest. Land was definitely not available at affordable prices when the Aracruz venture was launched; instead, eyes were set on the coastal zone north east of Rio, in Espírito Santo and southernmost Bahia states had large, thinly settled areas of degraded or removed *Mata Atlântica* rainforest. The contemporaneous Jari project got a licence from the military government to take over a large tract of Amazonian rain forest north of the river’s estuary. In neither case any consideration was given to the local population of Indians, Black or settlers without proper titles; all over the country, the military encouraged large owners to get rid of non-titled residents, thereby greatly contributing to the growth of *favelas* in cities and rural towns. Bahia Sul, Veracel, and also Cenibra in Mina Gerais (with rail connection to Portocel, a port facility originally developed by Aracruz) all had their origins in military- and post military-time plantation projects. Today, when the mills have duplicated their capacity, land is getting more difficult and expensive to acquire, also, local protests have escalated. As a consequence, a second concentration of industry in Tres Lagoas of Mato Grosso do Sul,

served by rail to the São Paulo region, was developed, and may now be reaching a ceiling for ITP development. An initiative by Stora Enso to develop ITP in Rio Grande do Sul, adjacent to plantation land in Uruguay and Argentina's Misiones and Corriente states was thwarted in a complex political game, while CMPC managed to take over an older mill with ITP land and right now are developing the mill site at Guaíba to produce 1,7 million t pulp. Presently, the pulp industry, led by Suzano, is creating a new region in Maranhão/Piauí and possibly Tocantins; mainly in search of affordable land with an acceptable transport infrastructure.

Discussing the location of new ventures the industry's web site *Painel Florestal* (2013-01-21) notes that besides rising land prices, "local lack of understanding of the operating conditions of pulp industry" is a factor causing trouble. That is very much an understatement. The grossly unequal land ownership conditions in Brazil, the lack of proper land registration, particularly after previous forest land has been cleared, and the dysfunctional land reform process have turned land tenure and changes in land use into a politically hot issue, exploited for political purposes. Thus, the original legal status of land, later acquired allegedly legally by the forest companies, invite litigation and plantation occupations by landless people. "Political" actors such as MST (Movement of the landless) have chosen to focus on ITP and forest companies in the domestic struggle over land reform, even if extensively used or even mismanaged pasture land with equally questionable titling is available nearby, not to mention that soybean and cane agribusiness together account for 30 times more area, without provoking anything like the local resistance to ITP. Ecologically, the plantations are frequently described by protesters as disaster areas and, sometimes correctly, accused for having cleared away original *mata* (degraded or secondary forest). However, the fact that 50% of the ITP land is subject to regeneration of the natural vegetation, at least in southernmost Bahia state very successfully, is ignored; under the original ranch management, even the last patches of *mata* would be eroded away by grazing.

The resistance is compounded by the plight of the former occupants of the land. Southernmost Bahia is thinly settled, with an average like that of Sweden, but even then, creation of a 200 000 ha estate means that 10 – 15 000 people, typically squatters without any tenure rights and previously living in pronounced poverty, have to find somewhere else to live. Had there been a working land reform program, they could have been resettled as moderately prosperous subsistence and market farmers, but neither in Bahia nor in Maranhão have any such programs been considered, neither before nor after the establishment of the pulp industry. Without personal experience from the area, I assume that the same holds in Mato Grosso do Sul.

Considering the size, and the power of the country's industrial transformation, the companies will probably find land for ITP to the extent matching the global pulp market opportunities. But the moment when ITP will be more widely used for export energy – be it in the form of pellets or vehicle fuel – the conflicts over land use will be aggravated. – I will return to this matter.

Chile

The development of plantation forestry in Chile is remarkable, considering the limited area of the country where it is possible for climatic reasons – as noted above, around 16 million ha including all present

land use forms. The varied ownership structure, and market and end use of timber make the forest business an integrated part of local economic life. One challenge is that the total ITP area, currently 2.2 mi. ha., can hardly expand much more without intruding on natural forest or farmland. This is reflected in a high proportion of replanting: Over the past 30 years, totally 1,7 mi ha was new establishment of ITP, 1,2 mi ha replanting; however, the mean of 2009 to 2011 was 22 000 ha of new plantations, while 66 000 ha were replanted. A worrying trend is a reduced engagement by small/family growers: between 2000 and 2008, about 20% consisted of smallholdings, while over the past three years, the figure was just 7%, the total planting area being about constant. Informal sources claim that this is not a coincidence, but that a restructuration is under way, where major actors become more dominant. As discussed below, this can be seen as negative to the public perception of industrial forestry's legitimacy. – It is worth noting that the ITP area in Chile is about the same as the pulpwood area in Brazil, even if productivity is lower in both pine and even more in eucalypt due to climate and, so far, more intensive management in Brazil.

Yet, the major problem today is the flaring protests by Mapuche people in the central ITP areas, just south of Biobio river. This river was a border between Spanish and native lands until 1883, when Chile conquered the Mapuche territories and treated all the land as state property. The dream of repossession was held alive by the Mapuche people and got an impetus during the few years of the Allende government; however, with the military dictatorship, all efforts to improve their situation was branded as terrorism and brutally suppressed. In spite of the gradual return to democracy, protests took speed in the 1990, sometimes violently, and successive governments continue to see violence as acts of terrorism. The conflict continues today and is possibly even escalating, with a recent act of arson with two persons dead calling much attention in the media. These conflicts take place in densely settled land, and the disruptions of public security cause harm to all sectors of agriculture and forestry.

Uruguay

Uruguay differs from Chile and Brazil, not only in having almost no native high forest and no forestry traditions at all, but also in adopting legislation explicitly conducive to industrial. The new (1987) policy was motivated by a desire to diversify the small country's heavy dependence on meat production with small prospects of substantial expansion of it. As noted above, at the same time, the country was opened for foreign investment including land acquisition. This latter policy has become strongly contested over the last years, as large areas in the more populated parts of the country have come under above all Argentinian and Brazilian ownership. But after a period of hesitation in the beginning of the present (Mujica) government, the forestry expansion is again supported by officially and by the general public, as the plantations are made in thinly populated and rarely visited parts in the north and east of the country. The conflict with Argentina over the Fray Bentos mill rather strengthened Uruguayan pride in their industrial development, particularly as the mill lived up to promises regarding environmental performance, the principal bone of contention in the dispute. The second mill project, Montes del Plata is meeting with no protests from the broad public, and President Mujica has recently indicated that still one or two ventures might be welcome. Obviously, the perception of land grabbing is limited to the Argentinian and Brazilian agribusiness, not the forest industry.

In Brazil, ITP have been concentrated around mill sites, minimizing transport. No zoning has been done; the companies use the best land they can get hold of. In Uruguay, the need to establish the mills on coastal sites, while zoning allocates plantation land far in the interior, transport distances are far longer – and more expensive. On the other hand, massive plantation landscapes don't intrude on densely populated areas, nor collide with other land use, thus enhancing the acceptability of ITP in the country.

Environmental criticism in Uruguay concerns mainly the basic policy of converting low-productive and very extensively managed pampa to any kind of more intensive land use, but also mentions locally lowered water tables, causing real problems for some settlements in the forest zone unless new deep wells are drilled. The countrywide land use zoning provides a tool for a nuanced debate over land use, which can focus on concrete issues such as the suitability/sensitivity of certain formations for cultivation or ITP. With a strongly urban population, land tenure has not been an issue for the citizenry in general; with the arrival of forestry, large land owners have seen a dramatic rise of previously very low land prices and thus in the value of their assets. As mentioned in a previous presentation (Nilsson), land prices may now have reached a level making ITP expansion less profitable.

Critics have been asking what benefit Uruguay will have of the two foreign-owned pulp ventures, beyond the relatively few jobs created. This highlights the issue of foreign industrial enclaves and taxes. Customs duties have been waived to make possible the import of mill and forest machinery, very little of which is produced in the country. Last year, Uruguay also introduced a progressive land tax on foreign holdings. We have tried to get hard information on this, but have learned that both companies have made deals with the government, balancing their own profit interests with the legitimate national interest in tax revenue. The issue of taxing transnational profits are on the agenda all over the world, but of particular interest under the industrial enclave business model. In the case of Uruguay and forestry, the companies seem to relate the long-term political-economic sustainability to the public acceptance of their presence, which in turn must entail broad advantages to the host country.

Argentina and the “gaucho area” in Uruguay and Brazil

We have above briefly discussed why Argentina has not engaged in the regional growth of the forest business. Looking more into land use specifically, the Alto Paraná mill and surrounding plantations in Misiones would invite an expansion, particularly as Argentina is far from self-sufficient in pulp and paper. Environmentalist resistance in Argentina has called attention to the subtropical forest still present particularly in Misiones, but also in Corriente and Entre Rios, a biome already threatened by farming interests, and likely to suffer further from ITP. Also, much of the area lies within the sensitive Guaraní aquifer, reaching well into Paraguay. Furthermore, with the high water table in much of the area, there are documented risks of salinization, a problem not present for example in Bahía, where the water table is beyond the reach of thirsty eucalypt roots, meaning that salts in the soil are washed down, not sucked up.

Yet, looking at the entire “gaucho” region, i.e. Brazilian Rio Grande do Sul, Uruguay and the Mesopotamia region of Argentina (the lands between Paraguay and Uruguay rivers), national borders split up an area suitable for ITP. Unless the present Brazilian expansion saturates the world markets for

pulp (and other wood based materials), this could be a future region for cross-border collaboration in forestry, where plantations and processing does not necessarily follow national territorial divisions.

International NGO campaigning

As mentioned above, national NGOs are very active in resisting and occupying ITP in Brazil, far more than on other agribusiness land. Their focus on tree plantations must be seen in relation to the strong international NGO campaigning against “tree monocultures”. Key actors in this are organisations like WRM – World rainforest movement, FSC watch and Friends of the Earth, while for example Greenpeace is conspicuously absent. As head count membership goes, these organisations have a very limited base, but due to their very efficient communication and campaigning skills, they manage to make headlines and create sympathy all around the industrialised world. Over the past ten years, a survey of forest company annual reports and web pages show a marked reaction to this campaigning, emphasising sustainability and CSR, corporate social action, on web sites, in annual reports and marketing. Meanwhile, the NGOs relentlessly denounce real and alleged shortcomings in the companies’ actual behaviour and comparing it to their claimed standards. This campaigning undermines the public confidence in company brands and, indeed, in the public perception of forest industry. These organisations cannot be wished away, and may point at issues where industrial forestry needs to improve if it is to retain public confidence.

It should be understood that these organisations stand for a fundamental criticism of the present economic order of “market capitalism”, and particularly resist the commoditization of most aspects of life, a consequence of this economic model. The present system may be successful when it comes to efficiency in production of goods and services, but totally ignores the social aspects of distribution of benefits, frequently making some groups pay and other enjoy. The alternative would be socially and locally sustainable production in small scale.

These NGOs represent an interesting departure from previously entrenched environmentalism and social radicalism, seen for example when Greenpeace activists stood against forest workers organization in the conflicts over state forestry in Finnish Lapland. Not only ITP, but meticulous conservation as well, in principle exclude people from the lands; thus their visions of alternative land use entails social development paired with environmental restoration. In Southernmost Bahía, unrestricted clearance of *mata* between 1940 and 1975 led to an uncontrolled inflow of landless people from other regions, who never rose from their abject poverty but destroyed what natural vegetation had survived the activities of the *madereros*, lumberjacks, who moved away when the timber was gone without having made any contribution to local society other than removing the rainforest. Now, eucalypt plantations help recreating the lost *Mata Atlântica* on its restoration areas, but satellite imagery reveals a landscape devoid of people : neither state or business assume any responsibility for already vulnerable people evicted from the land they used but never owned. The NGO campaigning should be a memento to the companies to find socially more sustainable ways of going on with their business if they wish to be economically sustainable in the long run!

The pressure these organisations exert through their influence of media and public opinion will not cease through counter-publicity, arbitrary CSR action and better environmental standards by the companies, since the real clash is about basic values concerning world economic and social order. But their presence has already caused company managements to be more attentive to public concerns; a process which in Europe and North America has been going on for more than a century and transformed raw capitalism into socially integrated economic activity – or at least to some extent worked this transformation.

Cultural attitudes to forest and landscape change

Scandinavians want to protect the “pristine” forest as well as the open landscapes – or rather, if one looks beyond the slogans, don’t want their accustomed landscape mosaic to change. Similarly, the Scots have objected to the Forestry Commission transforming their barren and denuded hills into green productive forest, even if those should serve to common good much better, as conventional wisdom goes. This culturally conditioned but very fundamental attitude was even stronger expressed when large scale tree planting started in Portugal and adjacent Spain after WWII, even if the rural people since long were used to copses of native pine and exotic eucalypt for local and household needs.

In entire Latin America, the clearance of *selva* or *mata* was seen as highly laudable, encouraged by legislation in most countries, and even enforced, for example by the Brazilian military government. Speaking out of personal experience in both Central America and Brazil’s Southernmost Bahía, people respond negatively to “reforestation” (a highly inappropriate term for ITP establishment) – “how can we continue to live on our farm if it gets surrounded by trees?” The ideal is the open ranch land, or the smallholder mosaic of cropland. Single landowners now change view – to some extent, conserving remaining copses of closed canopy native tree vegetation, but the attitude to the closed and uniform bodies of mature (35 m high) eucalypt is uniformly negative among all who don’t have an own economic stake in the business. This resistance is only enhanced if local people find the companies bullying or arrogant when dealing with them, and, in case of landowners, negative to sell land for ITP, regardless of price. Also, it stimulates perceived stakeholders to litigate in situations of contested ownership but also other matters.

Lessons (to be) learned

Access to land will be a major constraint to the future expansion of ITP, regardless the destiny of the produce is pulp and paper products or the energy sector. Besides rising land prices everywhere, we can see that in Chile and Uruguay, there is an absolute limit to areal expansion. In Brazil, less productive agribusiness (albeit with a good export market and expansion potential) occupies ten times more land than energy and pulp plantations; land as such is not an issue. However, various aspects of resistance to land use for ITP is a clear constraint. In Argentina, the forest industry has, for that and other reasons, not even reached self-sufficiency. Reduced public acceptance is looming not only in South America, but globally.

It is worth looking more closely at factors behind a positive public view of forest business. Its establishment in the Nordic countries, but also in Chile, offers some lessons. After a period of “robber

barons”, the establishment of both sawmills and p&p industry implied both economic development and a general technology leap in remote rural communities. For good and bad, the mills played a patronal role and assumed responsibility for the community; people got cash income, a cluster of services and related industries developed. Thus, in spite of pollution and other environmental problems following early technology, and murmuring over all-powerful companies, the establishment of forest industry meant clear advantages to very many people with few other opportunities.

Today in the Nordic countries, this confidence capital is being eroded, as fewer people have a direct benefit from the mills. To land owners, forest income is mostly marginal, and highly rationalized forest management and mill technology offers much fewer, albeit rather well-paid jobs. Meanwhile, not pollution but perceived “landscape abuse” and ecological consequences of an intensive forest management are seen as clearly negative. This is mirrored in a quite negative image of the entire business in media, such as the provocatively biased articles by Maciej Zaremba in *Dagens Nyheter* 2012. Meanwhile, mill closures also receive negative publicity, but for the opposite reason: the starvation of the community around the mill. There is an evident cleavage between an urban opinion caring about environment and landscape aesthetics, and local communities caring about its bread-winning, clearly evident in specific conflicts like those in Swedish Jokkmokk, and the Kemijärvi mill closure in Finnish Lapland. Among several ill-considered suggestions by Mr. Zaremba, the light-heartedness with which he proposed a stop to forest management and forest industry in Sweden, “as forestry’s contribution anyhow is so small to GDP”, is disgusting. – With this background, it is striking that the public opinion in Sweden still shows the confidence in the forest industry as appeared in an opinion poll a few months ago: 75% have confidence in the business!

Forest industry seems to enjoy a far better acceptance in Brazil’s industrialised South (São Paulo, Paraná and Santa Catarina states. Here, settlement meant forest industry; the Paraná pine was nearly lost, but some of the settlers had a strong sense of forestry from their home country. And, already in the 30s and 40s, the same style of forestry cluster developed as in Scandinavia: small scale pulp and paper mills, sawmills and secondary processing, a range of both private and company plantations (of pine) producing the raw materials. Thus, we got a “forestry” landscape in a region where industrial development was accepted as a success model; many people had stakes in the business, and objections concerned specific matters such as pollution, not the forest industry as such. The development in post WWII-Chile, albeit with a later start, was quite similar, with industry primarily catering for the country’s own needs of sawn goods, panels, pulp and paper

Forest industry and ITP are seen as legitimate forms of land use and production where a large section of local economic life benefits from it. But how could this model be extended to the pulp ventures elsewhere in Brazil and in Uruguay? The most obvious is to increase the proportion of ITP run by contract growers, and, as markets develop, free suppliers. The option to diversify by sawmilling and other wood industry may be feasible in regions where a demand already exists, but the thinly settled lands where establishment several hundred thousand hectares are most sensible for social reasons offer little of a local market. Also, the eucalypt clones tailored for pulp are not suitable for quality timber. It seems more practical to have small pockets of quality timbers, particularly from the mahogany family which also for plant protection reasons (*Hypsipyla* borers) are best managed immersed in other species.

That quality timber, with a rotation of several decades, has an added value enough for the products of a mechanical processing industry to absorb the cost of longer transport to domestic and foreign markets. – Growing noble timber is already a topic on Brazilian websites, but this concerns regions with a developed wood industry, not the megaton pulp enclaves

Another diversification alternative seems to be *Acacia mangium*, which is now receiving interest among Brazilian foresters; over 100 000 ha have been planted with no obvious setbacks. The issue is rather, just as in the beginning of the eucalypt business, to develop varieties suitable to specific local conditions and needs. While being eminent for pulping – the main stock for Indonesian mills – it may be easier to grow on for larger dimension than the pulp eucalypts, and its timber would be far more attractive for sawmilling and secondary processing.

The present business model in Brazil is supported by both the political and business establishment, and the relative simplicity of the concept makes it unlikely that factors such as negative social consequences or NGO resistance will bring the present to a halt – global market opportunities will be the regulating factor. A new, albeit certainly a less profitable market for energy wood awaits around the corner. Pellet export is quickly picking up in the US (up 70% in 2012), with new pellet mills being established by European investors.

With the present strong socio-economic development in Brazil, the ITP scenario may change. On one hand, we may see a further rural exodus, already an order of magnitude larger in Southernmost Bahia than what the ITP expansion has caused; on the other, declining pulp prices due to a global market glut and competing use of these logistically attractive lands may let steam out of the pulp business. For its own, long term economic and social sustainability, it would be wise to consider how to diversify, integrate better with local economy, and finding more efficient ways than arbitrary CSR to improve the plight of rural poor, displaced or remaining.

Regarding Uruguay, the pulp-only business model may be more viable, due to the (relatively) less favourable growth conditions but above all the limited national market. And for Chile: much can be done to improve the management on the land area available – and of remaining native forest not to be protected. There, the sector's legitimacy in the eyes of the population not engaged in forest business will be the most important task besides silviculture. And Argentina? Still a question mark, but perhaps not the next country to "join the club", in spite of its latent potential.

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References

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