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Corporate Private Sector Dimensions in Planted Forest Investments

by

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Comments and feedback are welcome.

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Foreword

According to FAO, 2006, there are 271 million hectares of planted forests that account for 7 percent of global forest area or 2 percent of global land area. The role of planted forests in providing wood and non-wood raw materials and social and environmental services is increasing. In fact planted forests, in 2005 already provided more than half the global industrial roundwood and their area, productivity and importance for provision of goods and services are continuing to increase. The primary purpose for growing planted forests was reported as 205 million hectares for production (wood and non wood forest products) and 66 million hectares for protection of soils and water (combating desertification, rehabilitation of degraded lands etc).

Increasingly Governments around the globe have encouraged private sector investment in planted forests grown for productive purposes, both corporate and smallholder. According to FAO, 2006, according to area, only 50% of planted forests grown for productive purposes remain in Government, 32% in private sector smallholders and 18% in private sector corporate ownership. However, area is not a good indicator of the importance of the private sector corporate planted forests holdings. Generally, private sector corporate investments in planted forests employ forestry professionals, deploy improved genetic stock, apply improved nursery and establishment practices, are intensively managed, are protected from fires and forest health difficulties, have high productivity and produce quality forest products that demand premium prices on the market place. Such professional forestry that applies new knowledge and technology in planning and improved practices are not always the case with Government and smallholder plantings.

Although motivated by returns on investment, smallholder investors do not always base their decisions on commercial criteria or financial returns alone as they may have other social or environmental needs or seek other values from their planted forests. However, the corporate private sector identify market and investment opportunities, market their investment portfolios to their boards of directors and shareholder investors and are obligated to provide them with competitive financial returns. With increasing globalization these investors may be from abroad and have a different investment, social and environmental culture and commitments from the country in which they are investing. In recent years there have been many new investment funds and companies from Europe and North America that have invested in planted forests investments around the world, including in developing countries and those with economies in transition, where subsidies or incentives for investment exist and social and environmental prerequisites less rigid. When investment conditions become less favourable investors demand that their funds are invested elsewhere. This leads to a very mobile investment portfolio, including in planted forests.

This paper has been commissioned by FAO to outline the different dimensions that are considered by corporate private sector in assessing risks, investment policies and potential returns on investment. The sentiments expressed do not reflect those of FAO, but do highlight the corporate private sector investment perspectives that other stakeholders need to understand in their formulation of policy and planning frameworks and best practices guidelines.

FAO coordinated a multi-stakeholder process including Government authorities, private sector (smallholder and corporate), NGOs (social and environmental), Intergovernmental Organizations, academics and others to derive a Voluntary Guidelines for Responsible Management of Planted Forests (<http://www.fao.org/docrep/009/j9256e/j9256e00.htm>). These provide a non-legally binding framework of principles and guidelines, supported by key considerations in planted forests practices. FAO is working with all these stakeholder groups to strengthen their capacity to balance the social, environmental, economic trade offs needed in responsible management of planted forests

Corporate Private Sector Dimensions in Planted Forest Investments¹

The Role of the Market in Global Planted Forest Development

Most planted forests around the world were initially established by governments. This was a natural occurrence as Governments owned most original forestland, and so were charged with managing these forests after harvesting (which in many instances meant planting trees); or played active “national good” roles in establishing new planted forests, (e.g. United Kingdom, South Africa, Australia, New Zealand and Chile). These initial public investments in planted forests by Governments were often production driven, to provide future wood supplies for processing expansion and/or to demonstrate methods for planted forests management.

From the early 20th century, private ownership of planted forests became more common; with this trend accelerating past 1950 as global forest products processing companies expanded planted forest areas to secure wood resources for existing and future processing demand. This production driven mentality by integrated forest products companies continued until the late 20th century. However, since then, increasingly the private sector has responded to international and national market signals and commercial opportunities to invest in planted forests purely for financial returns.

Then from the 1970’s, some governments decided to sell off all or part of their plantings to private owners. These have included the governments of Chile, New Zealand, South Africa, Portugal and some Australian States. Most of these sales have involved the government continuing to own the land, while selling the trees and rights to grow future rotations on that land. The major reason why land has not been sold is the complications related to future indigenous peoples’ land claims.

More recently some governments have provided long- term land concessions to companies in order to grow trees. These countries include Indonesia, Malaysia, China and Russia.

However, there are still major parts of the world, for instance Central and Eastern Europe, Western Asia and Africa, where government forest ownership is still dominant in the industry, and so a “market” influence on forest ownership is not significant. This situation may change in future as increasingly democratic governments realize that owning forests is not paramount to the national interest.

Recent Changes in Corporate Ownership of Planted Forests

It is only recently that substantial ownership of planted forests has moved from a production driven motivation (mostly to secure wood supplies for processing) to more commercially motivated reasons. As a result, ownership patterns have changed and continue to change. The major ownership change trends are discussed below.

The relaxation of investment and trade restrictions has facilitated increasing globalization, including international investment opportunities in planted forests. Since the 1980s there has

¹ Much of the information provided in this chapter has been sourced from Dennis Neilson (dana@dana.co.nz) gathered while researching four publications in 2006-07:

- a) *The Global Tree Farm and Managed Forest Industry Review - 2007 edition* (RISI)
- b) *The International Pulpwood Resource and Trade Review - 2007 edition* (RISI)
- c) *The North American and International Timberlands Investment Review - 2007 edition* (DANA)
- d) *The Russian Forest Industry Sector Review - 2007 edition* (DANA)

been a significant rise in the ownership of planted forests around the world by institutional pension and endowment funds. This development commenced in the United States, with domestic institutions wanting to diversify their investment portfolios. One such diversified category was North American planted and managed native forests. In 2007, this region remains the focus of most planted and managed native forests owned by institutional funds, although there are also other smaller funds based in Europe, Oceania and Latin America.

One reason for these phenomena was the frustration of shareholders in listed forest products companies not being able to realize the true value of their planted and managed native forest holdings in the companies' share prices. The only way to gain recognition was to liquidate their forest holdings. At the same time that more companies wanted to sell their forests, more and more institutional funds wanted to buy them - a perfect match. The scale of the ownership change from forest products companies to institutional and other owners has been phenomenal. For instance, in 1981 forest products companies owned 23.5 million hectares of managed forests in the USA. By the end of 2007, they will probably own less than 6.0 million hectares. In contrast, the investment by institutional funds in global planted and managed native forests has increased from less than US\$ 1.0 billion in 1985 to perhaps more than US\$30 billion in 2007.

Most sales of forests by companies have occurred for the above reason in North America, but they have also occurred in Finland, Sweden, South Africa, New Zealand and Australia.

New management vehicles had to be established in order to manage the initial investment, and then ongoing management of institutionally owned forests. To accommodate this need, there has been an increase in the number of "*Timber Investment Management Organizations*" (TIMOs) formed. The number of TIMOs has grown significantly; from only 2-3 in the early 1980s to more than 25 in 2007. Of these, 6-7 are investing outside the United States and Canada. The TIMO vehicle suits many institutional investors, who may not want to directly buy and manage planted forests, or may want to put only small amounts of their funds into investment, so need to have a structure which can accumulate funds from many organizations to provide large funds. TIMOs are not publicly traded, and tend to establish funds which invest for about 10 years only. There are some funds, however, which are so attracted to planted forest investment that they may buy and arrange management independent of TIMOs. These include the Harvard University Endowment Fund and the Ontario Teachers Pension Fund.

Another vehicle which has developed in North America recently is called a "*Timberlands Real Estate Investment Trust*" (T-REIT). These are tax efficient, publicly listed vehicles and have grown rapidly since 2000. The largest private planted forest owner in the world, (Plum Creek) is a T-REIT. Since 2004 the investment assets of a number of forest products companies have been restructured into T-REIT vehicles, which are more tax efficient for stakeholders, and this process continues in 2007.

Since about 2005, yet another class of forest owner has emerged - the huge "hedge funds" which may buy and sell, or buy and hold vast tracts of planted and managed native forests. The ocean of inexpensive credit available until mid-2007 enabled these funds to often out-bid forest products companies, TIMOs and REITs to acquire large areas of planted forests. Often they would immediately set out to break them up into smaller parcels to re-sell. The liquidity crisis of late 2007 may reduce this trend; although the pressure of vast amounts of money still

in the global system may simply be too great for any temporary credit crunch to have a measurable affect in the medium term.

Indeed if these “new” North American- based planted forest investor types are grouped together, their total investment is estimated to be about \$50 billion in 2007, up from only \$2.0 billion in 1990 and \$16 billion in 2000².

Since 2005 there has also been the development of a number of European based private and listed funds which are investing in planted forests in both Europe and in other parts of the world - including the USA and Australia. Some have been formed specifically to invest where potential carbon trading rights are an attraction.

Another new phenomenon in planted forest investment is the development of specialist country funds. For instance, in 2007 a Colombian planted forest investment fund was launched; and a similar Japanese planted forest fund may be launched in 2008.

Yet another new source of funds is emerging which could play a serious role in planted forest investment past 2006-2007. This is the rapidly growing sector called Sovereign Wealth Funds (SWF). At the end of 2006, a total of perhaps \$2.5 trillion dollars³ was held by these funds to invest; with the top 20 of these funds (ranging from the \$875 million Abu Dhabi Investment Authority to the \$10 billion New Zealand Superannuation Fund) holding more than \$2 trillion dollars⁴. Six of these funds are located in Asia. The funds held by these SWFs could grow to \$5 trillion by 2010; and to 12 trillion by 2015, providing a vast amount of wealth seeking investment homes.

TIMOs and T-REITs tend to invest only in planted forests. They shy away from native forests, and to date have invested in only a small number of overseas countries/regions where they have concluded that strong government institutions and judicial independence exists. These include Oceania, Chile, Brazil, South Africa and Uruguay. To date they have not yet invested significant amounts of money in Asia or sub- Saharan Africa, although one USA based- fund is establishing some planted forests in Tanzania.

It is also important to note that only rarely do TIMOs or T-REITs invest in planted forest expansion. They may replant after harvesting (and indeed in some regions they do not even do that), but only a small number of them, and only in very selected regions, seek new land to establish an increasing planted forest area. This may change as the opportunity to invest in existing forests reduces.

The major concerns about investing outside core regions includes a perception of a lack of land tenure security, a lack of strong governance of administrative institutions and a lack of an independent judiciary.

A series of “rouge” investment companies which tempted international investors into bad teak projects in both Central America and India in the 1980s and 1990s has slowed a natural expansion into these planted forest options. However, in 2007 several institutions and high net wealth individuals are looking closely at teak and other native hardwood replacements.

² Hancock Timber Resources Group, August 2007.

³ Morgan Stanley, March 2007.

⁴ Another new SWF, China Investment Corp. Limited, with \$200 billion to invest, was launched in late September 2007.

Escalating land prices will limit teak expansion, in Latin America at least. Planted forest investors are now being pushed to (at least) consider hardwood investments in relatively risky countries.

International investment to date in Russia and China has largely been via major European and Japanese forest products companies securing resource for processing plants. However a few listed companies (mainly in Canada) are also expanding their planted and managed native forest holdings in both China and Russia, with one company delivering superb (six fold) returns to its shareholders from 2005 to late 2007.

However, while many western forest products companies have decided to sell their planted forests to institutional funds (and to instead rely on long term contracts for future wood supplies) a major exception is occurring with Japanese pulp and paper companies. They have been investing (by themselves, or in joint venture) in fast growing mainly hardwood crops in many countries including Australia, Chile, Ecuador, Brazil, South Africa, Laos and China to secure future supplies of pulpwood fibre. At the end of 2006, Japanese companies owned or controlled 230,000 hectares of overseas planted forests, with a total target area of more than 400,000 hectares. And these targets are increasing. For instance, following the purchase of a major planted forest resource in Northern Brazil in late 2006, Nippon Paper Company had met its goal of a 100,000 hectare overseas estate; but in 2007 again raised its target area by another 200,000 hectares. Another company, Oji Paper Company has a target to raise its existing 170,000 hectares of pulpwood estate to 300,000 hectares by 2010.

A challenge for these companies is that they are increasingly running up against competition from the USA (tax free) pension/endowment funds in seeking to secure land and planted forests.

Mobility of Investments

TIMOs and T-REITs and other international investors expect a competitive return on their investments within acceptable levels of risk around the globe. If the levels of risk become unacceptable and/or the returns on investment insufficient, then they can sell down their investments and invest elsewhere.

While planted forest investments are very immobile (being locked onto the land they are planted in) planted forest investment funds by contrast have become very mobile in recent years. It is now common for TIMOs especially to buy planted forests and managed native forests, and then sell down part or all of them within a decade. TIMO funds are set up to have about a 10 year life and it is most common for these to be wound up at the end of those periods, or before. Even endowment funds may buy and sell on very short timeframes. For instance, The Harvard Endowment Fund recently bought and then re-sold over 300,000 hectares of forestland (mostly in the US South) over an 18-24 month period. A hedge fund bought all of the USA-based Boise Cascade planted forests in the USA in 2005, and had re-parcelled them up and had resold them to TIMOs within 12-18 months. In addition, the pension investment funds are also mobile. For instance, Australian and New Zealand pension funds are investing in planted forests in both countries, but also in the USA.

This “short-termism” of the new planted and managed native forest owners may be creating a new set of problems, including fire management and long term wood supply security (or lack of it) for wood processing companies.

Incentives - Subsidies

There has been one very important factor which has linked almost all successful planted forest expansion projects internationally. That has been the application by governments of generous direct subsidies, and/or tax concessions to planted forest establishment and management. There is always a lot of criticism about providing free handouts, or tax concessions to any project. Such schemes invariably attract “fast money” investors who are only motivated by greed and not by the worthiness of the project itself; and it also invariably means that planted forests get established in the wrong areas, outside sensible guidelines for suitable soils, rainfall and other factors necessary to grow a successful tree planted forest crop.

The reality, however, is that without generous payment/concession schemes, major planted forest expansion projects rarely, if ever, get off the ground.

One of the most successful global planted forest schemes was initiated by the Chilean Decree Law 701, which ran from the early 1970s to the mid- 1990s without change. Under this scheme selected companies were able to plan for a long- term planted forest expansion programme, knowing that most of their development and management costs were going to be reimbursed by the Chilean Government. This scheme has transformed the Chilean forest products industry into a world giant.

Another very generous tax based scheme occurred in Brazil from 1967 to the early 1980s, which significantly expanded the softwood planted forest base. However, as expected, expansion stopped almost immediately after the scheme was cancelled, and Brazil now suffers from a planted forest softwood shortage as a result. A much focused subsidy scheme established by the Uruguayan government successfully increased the area in planted forests in that country, which in 2007 is probably the world’s most attractive country for overseas planted forest investors.

A change to the tax structure in New Zealand in 1992 enabled a major expansion of its planted forest resources for the next decade. Very attractive subsidies and tax concessions enabled Indonesian pulp companies to establish several hundred thousand hectares of fast growing Eucalyptus and Acacia crops. These subsidies have caused the loss of huge areas of native forest, but they have to some extent achieved their objective in developing a planted forest industry. Unfortunately (until recently at least), lax monitoring of these schemes allowed some entrepreneurs to greatly benefit from them without necessarily establishing or properly managing trees, and many have since failed. Generous subsidies and land rental deferment policies in Vietnam have enabled a very large planted forest base to be established by (mostly) small farmers.

A recent subsidy initiative in Kenya for planting pine trees has commenced and looks promising, if suitable monitoring audits can be put in place and be maintained.

Presently one of the most attractive tax concession schemes for expanding planted forests is offered by the Australian government and has resulted in several hundred thousands of hectares of new planted forests being established since the late 1990s. Because of its structure, most of the money invested has come from small, independent investors, paying into syndicated “*Managed Investment Scheme*” (MIS) projects. Demand for this scheme has been so great that it has forced up the price of rural land from ~A\$ 3,000 per hectare to ~A\$ 10,000 over the last five years, and has caused serious competitive issues with farmers. This scheme attracted almost US\$ 540 million into planted forest investment funds in 2006-07.

Some schemes which have worked in the past can later falter and may ultimately fail. For example, generous subsidies and tax incentives provided by the United Kingdom government from the 1970s to the 1990s encouraged a major expansion of commercial softwood planted forests. Many of these incentives are still in place, but are now being re-directed to basically non-commercial hardwood species -- with a major disincentive to replant conifers. Not surprisingly, in spite of incentives, new land planted forest expansion has plummeted. This is an example of a planted forest incentive policy basically failing, because it is targeting a planted forest philosophy which does not attract investors. And not unsurprisingly, if this “de-coniferisation” policy that the United Kingdom has apparently adopted is not reversed, wood shortages in that region may become chronic.

The positive impact of generous subsidies and/or tax concessions can be seen in a great many examples around the world; and in contrast, investor behaviour in not planting trees which occurs without subsidies or when subsidies are removed, provides a very clear picture of the critical importance of incentives to global planted forest development.

Risk Assessment for Investors in Planted Forests

International planted forest investors are regularly faced with a dilemma when choosing investment options.

It is common for the safest, least risky investment options, e.g. in a standard species/regime in the USA, to attract only modest returns, when by contrast the potential returns in countries, regions, species and management regimes deemed to be “more risky” may be a lot higher. Such investment decisions are always a trade off. The 2007 Tree Farm and Managed Forest Industry Review (previously mentioned) actually provide matrices of IRR returns versus “Country Attractiveness Ratings” for almost 100 “case studies” of softwood sawlog, hardwood sawlog and pulpwood investment options around the world.

There are now a growing number of well established independent consulting firms which are able to provide independent advice on investment proposals almost anywhere in the world. They range from multi-national consulting firms, to large and medium sized country- specific or region- specific service firms. Many have now had decades of experience advising on valuations and due diligence of the full range of planted forest estates in both temperate and tropical countries.

Different investors will have different risk profiles, and the country base of investors will affect their appetite and perception of risk. For instance, a Chilean investor may assess less risk in investing in Argentina than a USA investor would. Or, an Indian investor might assess less risk in investing in planted forests in Cambodia or Laos than a German investor might. By examining international transactions of planted forests around the world it is possible to determine risk profiles of various investors.

It should be emphasised that it is very difficult to properly assess values of planted forests. Because of the long term nature of even a single crop investment, and the large amount of international trade of wood products from most large planted forest countries, decisions on such basic factors as a discount rate to use, future currency exchange rate movements and future log price assumptions can seriously impact a valuation. Assessment of potential future non-wood values further complicates the process.

In 2007 the Boston- based RISI organization⁵ completed a major Review of global “*Tree Farm Investment Attractiveness*”.⁶ Using a proprietary template of 13 risk parameters it determined an attractiveness score for 70 countries from 1.0 (extremely risky) to 7.0 (no risk). In its survey it determined the least risky country was the United States. Other “attractive” countries/regions included Scandinavia, Western Europe, Oceania and Chile. Medium risk countries included Argentina, China, Bulgaria and Vietnam, while risky countries included Uganda, Cambodia, Madagascar, Angola and Zimbabwe.

The five tables below show examples of scoring and ranking for the most attractive of the 70 countries reviewed by RISI; along with the 18th country; the 36th country; the 52nd country; and the worst country (#70). The tables illustrate how the overall attractiveness scoring was developed, and provides some assistance in understanding what investors look for in selecting investments in various countries.

It is clear that high scores for policy consistency and in an independent judiciary are requirements for a high planted forest investment attractiveness rating and ranking against competitor countries⁷.

TIMBERLAND INVESTMENT ATTRACTIVENESS - # 1 UNITED STATES

Parameter	Score	Parameter	Score
Policy Consistency	7	Land Tenure	7
Inflation	6	Land Availability	7
Economic Climate	7	Market Accessibility	7
Deviation from PPP	3	Biological and Physical Risks	6
Strength of Judicial System	6		
Corruption	6	Total Score in 2006	6.36
Foreign Ownership Provisions	7		
Transport Infrastructure	7	2006 Ranking	1
Local Labour Costs	2	2002 Ranking	6
		1997 Ranking	6

TIMBERLAND INVESTMENT ATTRACTIVENESS - # 18 FRANCE

Parameter	Score	Parameter	Score
Policy Consistency	6	Land Tenure	7
Inflation	7	Land Availability	2
Economic Climate	4	Market Accessibility	7
Deviation from PPP	2	Biological and Physical Risks	5
Strength of Judicial System	5		
Corruption	5	Total Score in 2006	5.14
Foreign Ownership Provisions	5		
Transport Infrastructure	7	2006 Ranking	18
Local Labour Costs	2	2002 Ranking	11
		1997 Ranking	8

⁵ www.risiinfo.com

⁶ *The Global Tree Farm and Managed Forest Industry Review – 2007 edition.*

⁷ These risks reflect the international private sector/corporate investor risk profiles. Local smallholder investors may spread their risks with other activities (e.g. agroforestry), have lower expected returns, and may attribute non-financial values to their planted forest assets.

TIMBERLAND INVESTMENT ATTRACTIVENESS - # 34= CHINA

Parameter	Score	Parameter	Score
Policy Consistency	5	Land Tenure	4
Inflation	7	Land Availability	3
Economic Climate	2	Market Accessibility	7
Deviation from PPP	6	Biological and Physical Risks	4
Strength of Judicial System	2		
Corruption	3	Total Score in 2006	4.10
Foreign Ownership Provisions	3		
Transport Infrastructure	5	2006 Ranking	34=
Local Labour Costs	6	2002 Ranking	28=
		1997 Ranking	29

TIMBERLAND INVESTMENT ATTRACTIVENESS # 52 MACEDONIA

Parameter	Score	Parameter	Score
Policy Consistency	3	Land Tenure	4
Inflation	5	Land Availability	3
Economic Climate	3	Market Accessibility	3
Deviation from PPP	6	Biological and Physical Risks	5
Strength of Judicial System	2		
Corruption	3	Total Score in 2006	3.52
Foreign Ownership Provisions	3		
Transport Infrastructure	4	2006 Ranking	52
Local Labour Costs	6	2002 Ranking	na
		1997 Ranking	na

TIMBERLAND INVESTMENT ATTRACTIVENESS - # 70 ZIMBABWE

Parameter	Score	Parameter	Score
Policy Consistency	1	Land Tenure	1
Inflation	1	Land Availability	3
Economic Climate	1	Market Accessibility	4
Deviation from PPP	6	Biological and Physical Risks	3
Strength of Judicial System	1		
Corruption	1	Total Score in 2006	2.22
Foreign Ownership Provisions	2		
Transport Infrastructure	4	2006 Ranking	70
Local Labour Costs	7	2002 Ranking	80
		1997 Ranking	57

The increasing demand for planted forest assets being chased by more and more buyers has reduced the returns on timberland investment. For instance, RISI estimates that average returns on forestlands in the United States has fallen from 9% in 2001 to 6% in 2004; and to 4.5% in 2003. Other industry observers suggest that real returns from many recent investments will be only 3-4%.⁸

⁸ Because neither US based TIMOs, nor their largely institutional funding base pay tax in the United States, pre-tax and post-tax returns are effectively the same. When TIMOs invest overseas, they may be subject to the tax laws of the countries they invest in, but most have developed funding mechanisms which are able to eliminate all or most of their tax liability.

Risk Assessment from a Government and Society Viewpoint

Recent experience has shown that some governments and NGOs have taken a very hard, negative line on large scale commercial planted forest expansions, especially in developing countries. The ogres of monocultures, indigenous people displacement, the loss of diversity of both planted forest and animal species, and of non-wood economic activity in forests by villagers; the potential loss of water⁹, and soil erosion and carbon issues have all been raised as negatives. As a result, sound planted forest expansion programmes have floundered in many countries. In contrast however, massive expansion in agri-business crops such as palm oil, the expansion of numbers of highly polluting farm animals and rapid urbanization (all of which are far more harmful to the environment and to indigenous people than almost all tree crops) has been tolerated with almost no criticism.

There are now several internationally credible services to study impacts of planted forest expansions in any location, and dozens of international case studies which can identify the positive and any possible negative results of major planted forest expansion programmes. There is no need to re-invent the wheel in this regard.

In spite of environmental and social NGO criticism, for all major planted forest expansion programmes which have been responsibly managed, governments and citizens mostly look back on them decades later with a positive view.

The Need for Clear, Consistent, Concise Strategies to Support Planted Forests

There are numerous examples around the world which illustrate the positive effect that clear government strategies and standards can have on the expansion of planted forests; and conversely several examples where a lack of these can hinder or prevent expansion. There are even several examples of where governments have changed policies, and as a result planted forest expansion has all but ceased.

Case studies of planted forest development, and the role that governments played to ensure that investment was encouraged include United Kingdom (to the 1990s), USA, Australia, New Zealand (to the 2000s), Chile, Brazil, Uruguay, South Africa (to 2000), Vietnam, Spain and Portugal.

Equally there are case studies of how a lack of Government support and/or a lack of land tenure security, and/or the lack of an independent judiciary have hindered development. Examples would include the United Kingdom post-1990s (when it abandoned a supportive role for commercial species), South Africa post- 2000 (since when inter- departmental fighting between Forestry and Water has all but ceased expansion in a wood starved area), Angola, Mozambique, Zimbabwe, West Africa, Cambodia, Laos, Guatemala, Mexico and Paraguay.

Ironically, it is often over-zealous and top-down intervention by governments and NGO's which have resulted in disappointing or failed planted forest results, especially with "Community Forest Enterprises" (CFEs). A July 2007 report by the International Tropical

⁹ Water issues have stopped development of planted forests in South Africa, which uses less than 10% of the nation's water, while sugar cane farming, which uses almost 50% of the nation's water, has been allowed to continue almost without restrictions.

Timber Organization¹⁰ identifies major challenges in avoiding these enterprises being sidelined. It provides examples of the huge gap between “official” plans and actual control by villagers. Examples include:

- In Gambia, 170,000 hectares have been categorized as community forests, but only 13,000 hectares are actually in the hands of local villagers.
- In Cameroon, 4.0 million hectares are designated for communities, yet only 40,000 hectares (1.0%) are approved for legal use.

Unfortunately, well-meaning NGOs claim that people, particularly in richer countries, are needed to start paying for global CFEs. Well, they are not likely to start in any meaningful way if there is not something in it for them. That requires political and social stability, and governments setting standards and then letting the market act as it should. There have been huge government and NGO investments in planted forest development in countries like the Ivory Coast and Cameroon, which have not succeeded. In contrast, for instance, once heavy government intervention and well meaning NGO support of planted forest projects in Vietnam largely ceased, then sustained and commercially successful planted forest projects (mainly controlled by small landowners) could begin to thrive. And they have.

Lessons from these failures, and the many success stories discussed in this chapter should be reviewed, and lessons learned and applied.

It is not difficult for governments to create supportive policies. They just have to be clear and concise, and be left basically untouched for at least a decade to engender confidence that money invested will not be wasted or misappropriated.

Even the recent decision of the New Zealand government (for decades considered to be a planted forest- friendly developed country) to nationalize carbon credits from private forest ownership¹¹ has resulted in a “revolt” by private planted forest owners; and an almost complete cessation of planted forest expansion. In fact in 2007, there will be a significant net loss of planted forest area as trees are removed to be replaced by other land uses.

Economic Valuation of Wood and Other Non-Wood Based Products

For decades the single value driver for tree planted forest developments has been wood production. There are sometimes variations on wood-only valuations, but they themselves rely on wood value changes. For instance, some investors have benefited by purchasing a planted forest which is valued by the owners as one wood quality type (e.g. pulpwood), but for which the investor can identify more valuable wood types (e.g. sawlogs or ply-logs). Or, an investor may be able to change the planted forest management regime to produce more high value products than the vendor may have been able to identify. But in all of these variations, the only product being valued was wood.

Traditionally, an investor might have ascribed a lower discount rate if a long term wood supply contract was in place with a major wood products company. This is because that

¹⁰ The ITTO report discussed both native and planted forests.

¹¹ The New Zealand government, possibly bowing to forest owner pressure, announced a new carbon policy in September 2007 which will allow owners an option to be allocated carbon credits past 2008. However, the full implications of the new policy are yet to be analysed.

contract could be identified to be all or part “securitization”; hence reducing the risk inherent in selling logs on a spot market in future. However, recently the major planted forest asset buyers (TIMOs and REITs) may actually ascribe a negative value to a planted forest which has long term wood supply contract obligations. Most of these owners prefer to have their wood supplies unencumbered, so they can take account of market forces.

Also, traditionally the valuation of planted forests grown on freehold (or fee simple) land assumed that the cost of land would be entered as a positive cost at the start of the investment cycle, and then counted as a negative cost, with the same real value, at the end of the investment cycle. This standard valuation process assumed that the land would not increase in value over time, and so should be included in any valuation as a holding cost only.

Non-market values, such as social and environmental services that the planted forests may provide to society (nutrient sinks, protection of soils and water and other amenity or recreational values) have not played a major role in valuation or trade in these major wood products companies. However, if society values these sufficiently to pay for these services, then this could change in the future.

Higher and Better Land Use (HBU)

In the last decade, and especially in the last five years, however, planted forest investors who can also own the underlying land have found that much of the inherent value of the “planted forest” is actually in the land itself. The term “*Higher or Better Land Use*” (HBU) has been coined in the United States, as millions of hectares of planted/managed native forest land has been reassessed during and after purchase as what it is worth in an alternative land use. Large tracts of forestland may be subdivided and sold as smaller units. This “wholesale to retail” process generally allows investors to attract higher bids for smaller blocks, even if the land use (planted forestry) remains the same. In addition, selected areas (and sometimes all) of the planted forest may be subdivided and sold off as hunting and recreational blocks, or for residential or industrial subdivisions. The term HBU reflects a higher market value of the land and a better return on investment but does not necessarily reflect more responsible land-use.

This process started in a small way in the United States in the 1980s when the St. Joe Pulp Company decided it could add value to its planted forests by shutting its pulp mill, and then by breaking up its vast planted forest area in Florida into non-wood uses: residential subdivisions, airports, towns and so on. This has been a very successful strategy, and now more and more owners are seizing upon this opportunity to add value not to the trees, but to the land. A recent sale of 160,000 hectares by Weyerhaeuser in the state of Georgia in the USA was broken up approximately equally into “*timberland*¹²” and “*HBU*” land before it was sold, and was marketed to different groups of people.

The identification that the land value may actually be the controlling influence has spread to other countries. In Latvia for instance international investors have added greatly to the value of managed forest investments by selecting forests which may be rezoned in future, as they are located close to towns; or they may have rock-gravel quarries on them which have not been recognized. In New Zealand one investor recently purchased fee simple planted forests and immediately commenced removing the trees and converting the land to dairy farms. One (covering more than 20,000 hectares) will probably be one of the largest contiguous dairy

¹² “Timberland” is the American term for “forestland”.

farms in the world. By changing land use the investor increased the value of its investment several fold.

Of course this “non-wood” value is only available if the investor owns the land, and also if government regulations allow a land use change. Increasingly, authorities are placing limits on land use, sometimes related to carbon issues (see below).

Carbon Trading and the Impact on Planted Forest Values

There has probably been more “hype” about the use of trees in carbon emission abatement schemes in the last decade than any other topic in the forestry world. And the debate and the confusions continue.

The potential and (in rare occurrences) the actual opportunity to utilize carbon credits produced by growing trees had its roots in the 1992 United Nations Framework Convention on Climate Change. Originally forests were going to be left out of any future protocols by major policy makers, but a small group of planted forest experts managed to persuade the Convention that forests should be bundled up in an agreement, so they might be considered to provide carbon sequestration in future.

By 2007 however, one of the main architects of including native and planted forests in the 1992 protocol has apparently lived to regret this decision¹³. In a meeting in New Zealand in August 2007 at a conference to explore post- Kyoto climate change options, he said that for various reasons forestry should be omitted altogether. He (and no doubt others) has found that it is not just the “*international tortuous policy maze*” or the “*mind-boggling complexity of measurement*” that is a problem; it is that so few people actually understand the dynamics of forests (including planted forests) related to the carbon cycle.

An investigation of just how many carbon- based planted forest projects which have been accredited makes for lean pickings. Notwithstanding the myriad of problems, however, the possibility of gaining positive carbon credits and future carbon trading values is attracting increasing numbers of investment consultants and investors globally.

The Australians have been pioneers in carbon trading “contracts” based on planted forests. However, they have generally been contracts between two government departments in the same State (e.g. a government- owned forest manager and a government- owned power station manager); or they may have been for an “option” to the carbon at a later date, if future trading was ever allowed. Some Japanese pulp and power companies have paid “deposits” for this right over Australian planted forests. New South Wales was the first government in the world to write legislation which enables planted forest owners to legally separate the land, the trees and the carbon, so all their “assets” can be owned by different entities.

In late 2006, the New Zealand government sanctioned what it has described as the first carbon project in the world to be sanctioned by a Government and which is Kyoto- compliant. This project was developed under what is known as the “*Permanent Forest Initiative*” which allows the carbon ownership and trading of a forest established and not harvested for at least 35 years (and then thereafter always leaving a permanent canopy). European institutional money will reportedly fund the project.

¹³ NZ Journal of Forestry, August 2007.

In 2007 a number of companies have listed on the “AIM” stock exchange in London to attract international funds for planted forest investments involving the added benefit of future carbon trading. However, up to 2007 at least, the impact that possible carbon trading rights have had on attracting new investment money to expand planted forest areas has been modest.

In contrast, recently there has been a lot of media attention about the carbon sequestration value of preserving existing native forests through reduced deforestation and degradation, known as REDD. For instance two studies of tropical and of temperate forests suggest that it may be more valuable to preserve native forests for their carbon values than harvesting¹⁴.

At the 2006 rate of \$20 for a one-ton unit of carbon dioxide, the forests of Bolivia, Central African Republic, Chile, Congo, Costa Rica, Democratic Republic of Congo, the Dominican Republic, Guatemala, Nicaragua, and Papua New Guinea (coalition members) are reportedly worth about \$1.1 trillion for their carbon sequestration alone. These forests offer a great deal more value through the other, less measurable services they provide including fisheries protection, biodiversity preservation, erosion and flood control, recreation and tourism value, harvest of renewable products, and water services.

A recent study by the Pembina Institute for the Canadian Boreal Initiative found that carbon stored in Canada's boreal forests and peat-lands is worth \$3.7 trillion, while the annual value of ecosystem services like water filtration, pest-control services, and carbon storage at \$93 billion -- roughly 2.5 times greater than the net market value of forestry, hydroelectric, mining, and oil and gas extraction in Canada's Boreal region. The values can be expected to be similar in tropical countries.¹⁵

These studies are all very well as hypothetical ideas, but do not have much value until some government, or organization actually decides that it will outlay this sort of money to preserve these forests.

The Impacts of Bio-energy Production and Planted Forest Development

The bio-energy revolution, which started in Austria and Sweden in the early part of this decade, is now rapidly spreading around the world, although it is still largely focused on Europe and North America. The major raw material for wood based power generation has been wood pellets. In late 2006, a total of 288 wood pellet plants were operating in Europe, up from only 236 plants in 2005. In 2006, 80 pellet plants were operating in the USA, with another 28 expected in 2007.¹⁶ Bio-fuel is being traded across continents now, with, for instance, biofuel shipments being made from Latin America and North America to Europe, and it is believed Japan.

In 2006-07 several governments have decided to promote the use of ethanol as a substitute for gasoline. Brazil has been the pioneer in this effort, although most of the raw material has been sugar cane. The EU has a mandate for having 5.75% of all transport fuels as bio-fuels by 2010. The United States has embarked on a huge bio-ethanol expansion programme, but mostly based to date using food products such as maize. The USA administration has announced a goal for a seven fold increase in the use of bio-fuels, to 35 billion gallons by 2017.

¹⁴ mongabay.com

¹⁵ mongabay.com

¹⁶ Bioenergy International

The IEA forecasts that global use of ethanol will increase from 51 billion litres in 2006 to 120 billion litres in 2020. The same organization predicts the use of bio-diesel demand will grow from about 3.5 billion litres in 2005 to 24 billion litres in 2020.

There are still significant technical hurdles to be overcome before wood can be used in a cost effective way to manufacture either ethanol or bio-diesel. Major research into developing viable projects based on ligno-cellulosic ethanol production are being conducted in 2007 in the USA, Japan, Sweden and New Zealand. Other work is being carried out on converting ligno-cellulose to other fuels such as butanol.

To date, however, there does not appear to be any specialist wood based planted forest expansions specifically designed to meet this increasing demand. Waste wood from forests and wood processing plants is being used including sawdust, and woodchips. Recently major areas of wind, insect or fire damaged forests in Europe, Sweden and the USA are being targeted to supply wood raw material for bio-energy use. The use of fast growing popular species is being investigated in Central Europe and New Zealand to grow bio-fuel crops.

It is believed at least some of the roundwood harvested from a eucalyptus planted forest in the Republic of Congo will be sold from 2008 to European power stations as bio-fuel. A woodchip plant and fibre export facility is being built for this operation in 2007.

One species has been recently identified as an exciting plant to grow for future bio-fuel production. This is *Jatropha curcas*, which is a drought resistant, inedible oilseed bearing tree which does not require the good quality soil that would normally be used for food crops. The Government of India has singled out *Jatropha* for large-scale planted forests, and various Government Agencies offer subsidies and easy soft-loans to individuals and Companies investing in *Jatropha* planting.¹⁷ The bio-diesel content of its seeds is reported as 35%. *Jatropha* can live up to 50 years and can provide seeds up to three times per year¹⁸. In mid-2007, British Petroleum and D1 Oils announced that they are to form a 50/50 joint venture, to be called D1-BP Fuel Crops Limited, to accelerate the planting of *Jatropha*.

Under the terms of the agreement, BP and D1 Oils intend to invest about \$160 million over the next five years. D1 Oils will contribute its 172,000 hectares of existing planted forests in India, Southern Africa and South East Asia, and the joint venture will have exclusive access to the elite *Jatropha* seedlings produced through D1 Oils' plant science programme. It is anticipated that some 1.0 million hectares will be planted over the next four years, with an estimated 300,000 hectares per year thereafter¹⁹. If this planned project is implemented, this would become the largest single project tree planting programme anywhere on the globe.

Overall Outlook in Planted Forests Investment

As discussed above, massive "investments" have been made in planted and managed native forests by institutional and high net wealth investors over the last decade. However, almost all this investment has gone into existing planted and managed native forests, and has not been spent on expanding the area of planted forests (with a few, very minor exceptions in Latin America).

¹⁷ <http://www.jatrophabiofuel.com/>

¹⁸ Chachage, 2003

¹⁹ <http://envirofuel.com.au/2007/07/07/bp-backs-jatropha-as-a-biodiesel-feedstock/>

The actual expansion of planted forests has historically been directly correlated with clear governmental support for this process, coupled with affordable land purchase/rent costs and identified markets for wood products.

The alignment of many of these positive factors in several countries which occurred from 1960-2000 is no longer so obvious. The great expansions in both government and private sector forest areas in South Africa, Australia (softwoods), New Zealand, Chile, USA and elsewhere have effectively stalled.

The Chinese government is clear in its intention to expand planted forests. It is notable, however, that the area of “*timber planted forests*” in China actually reduced by 4.1% to 23.2 million hectares from 1998 to 2003. During the same period the area of “other” (probably protection) planted forests increased by 82% to 9.1 million hectares.²⁰ RISI (2007) predicts that China’s “*operable timber planted forests*” will increase from about 25.5 million hectares in 2005 to about 29.5 million hectares in 2020. The super-generous tax breaks for planted forests in Australia are continuing to allow expansion there, at least until land prices limit affordability (many would suggest that this is already occurring).

Future demand for pulpwood fibre is driving expansions of planted forests in Brazil, Malaysia and Vietnam; and is even starting in Laos. Continuing expansion of planted forests in Indonesia was expected, but in late- 2007 a major standoff between the Department of Forestry and the Police has stalled conversion of native forests to planted forests. The Police are reported to be re-assessing the legality of all existing permits to convert native forest land to planted forests²¹. Historically much of this land conversion process was controversial, and has been widely criticized by environmental groups and NGOs.

Various companies and investors are investigating major expansions of planted forests in sub-Saharan Africa, where there may be >25.5 million hectares of land suitable for planting south of the Congo River²². This land is on sites which have >1,000 mm (40 inches) of annual rainfall, are in humid or semi-humid climates and are on slopes > 8° (given that food production would be paramount on flat land). This was almost 15% of the total global area in planted forests in 2001, as assessed by FAO (and probably >20% of the actual global areas surviving). However, major political policy, corruption and other issues have to date severely limited the conversion of this potential into viable projects.

For decades planted forest investment (whether undertaken by governments or private enterprise) was driven by “patient” funds. Investors used to accept a period of 20, 30 or even >50 years between planting and harvesting. This is no longer the case. Most investors now want to be able to harvest trees within 5-15 years. So future planted forest expansion trends will be for shorter crops, and for processing technological innovation to allow add value solid-wood processing of young trees.

Continuing investment in existing planted forests by institutional funds can be expected, which will be re-arranging ownership of existing assets, but will not likely add to the global planted forest resource. Loss of planted forests to HBU will likely continue.

²⁰ China’s National Forest Inventory

²¹ Industry sources

²² SAPPI, 2002

In addition, increasing competition from major agri-business crops including palm oil, corn and maize (often heavily subsidized by governments); and by new rapidly expanding bio-fuel crops such as *Jatropha* will likely continue to drive up global land prices and rents. This trend will limit planted forest expansion rates - it is already happening in Indonesia, Malaysia and Brazil; and planted forest expansion in Thailand had faltered recently as farmers were being paid more for growing tapioca than for growing even short rotation eucalyptus tree crops.

The continuing loss of native forests in Africa, Asia and Latin America (in spite of the best efforts to slow the rate of forest destruction), will likely lead to growth in wood prices from planted forests. It is becoming apparent that available native forest resources in Indonesia and Malaysia have diminished rapidly since 2000. The large scale harvesting of native forests in Africa to feed Western, and more recently, Chinese industries will have the same effect within 5-10 years. Changes to tax policies in major wood producing countries, e.g. Russia, may also lift wood prices. Entrepreneurial efforts to raise funds for multi-use planted forests, including wood, carbon and bio-fuel values is likely to increase establishment rates somewhat, even if locating suitable land becomes more difficult.

The rapidly growing Indian economy will require more wood resources in future. To date very restrictive government policies have limited the expansion of planted forests in India, but this may change. In the meantime, some Indian companies are deciding that they will expand planted forest areas in other countries, such as Malaysia and Laos.

And finally, regional political blocs may become a new catalyst for planted forest expansion. They would do this in conjunction with goals and targets related to reducing greenhouse emissions. For instance, the leaders of the Asia Pacific Economic Cooperation Forum (APEC) in their agreed target of reducing "energy intensity" by 25% by 2030, pledged to increase forest cover in the Asia Pacific by at least 20 million hectares.

Conclusions

Over the past 50 years, most countries which have measurably expanded their sustainable, commercial planted forest base have had some characteristics in common. Most are considered to have stable governments, strong security of land tenure and an independent judiciary to protect investor rights. Almost all have introduced very generous tax relief of direct subsidy schemes which has operated over long periods of time. These may have been discontinued, or modified once a target area had been established.

The most effective way major international institutions such as the FAO and the World Bank can ensure similar expansion of private planted forest investments in developing countries would be to encourage and assist governments to adopt measures to improve security of land tenure, and to ensure that investors are protected by independent legal systems.

The ownership of planted forests in many countries in North America, Oceania and Latin America has been transformed in the last 30 years, and accelerated in the last 5-10 years, from mainly Government and integrated forest product ownership to institutional funds and private equity funds ownership. This process continues with additional funding sectors entering into this sector.

There are many initiatives from governments and political blocs to substantially increase the area of planted forests in future, largely driven by the global warming and carbon

sequestration issue. However, the mechanisms to identify and secure the land necessary for this expansion; and specific funding sources are still not known.

Planted forest expansion will encounter an increasing amount of competition, in both developed and developing countries from food production projects, many of which are now also becoming a source of raw material for biofuels.

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