Chapter 7: Assessment of Strengths, Weaknesses, Opportunities, and Threats (SWOT) for Guangxi’s Forestry Sector

7.1 Introduction

This chapter examines the strengths, weaknesses, opportunities, and threats associated with the development of fast-growing plantations and wood-based industries in Guangxi Zhuang Autonomous Region. The SWOT analysis is intended to support a more informed discussion about steps that can be taken to promote more sustainable and equitable development of Guangxi’s plantation resource and wood processing sector.

7.2 Strengths

7.2.1 The development of fast-growing tree plantations and integrated wood processing industries is an important policy priority at both the national and provincial levels. With the adoption of China’s Tenth Five Year Development Plan (2001-2005), the State Forest Administration (SFA) prioritized the establishment of a fast-growing high-yielding (FGHY) plantation resource base by including this as one of six core initiatives in the National Forest Protection Program. The central aim of the FGHY plantation initiative is to expand the country’s commercial wood supply to support domestic forest industries, especially new capacity for wood pulp production. The State Council and the National Development and Reform Commission (NDRC) have also adopted a series of measures to stimulate investments in a new generation of priority projects in the pulp and paper sector, as well as in the wood panel sector. These include: (i) devolving substantial authority to provincial governments over the investment approval process, and (ii) allowing provincial governments to offer preferential conditions above and beyond those stipulated in national policies (i.e. the authority to set tax rates, tax holidays, and fee waivers offered to investors).

Integrating forest plantation development with industry production is one of the basic criteria for qualifying as a priority project. The Chinese government is also providing significant financial incentives and capital subsidies to priority pulp and paper projects. Discounted loans from the China Development Bank, one of four government policy banks, and the Agricultural Bank of China, a state-owned commercial bank, have been an important source of financing for many producers.

7.2.2 Guangxi has substantial ecological and geo-morphological advantages with respect to intensive plantation forestry. The subtropical monsoon climate of southern Guangxi is well-suited to tree growth and particularly to some of the fastest growing eucalypts. In the northern half of the province where the climate is more contrasted - with winter frosts and hot, humid summers - a number of local fast-growing species and introduced pine species dominate the plantation forestry landscape. These include: Quercus sp., Betula sp., Slash pine, Chinese fir and a
number of bamboo species. In Guangxi, approximately 80% of the annual precipitation occurs between April and September within the range of 1,250 to 1,800 mm, in most areas. This seasonal distribution of rain may occasionally evolve in periods of drought which reduce the length of the growing season and increase exposure to fire hazards. Since Guangxi’s foresters have already developed a fair amount of knowledge and experience in matching species to plantation sites, there is little risk of massive plantation dieback due to climatic hazards - either due to frost or periodic drought. The variations in rain distribution and temperatures which have been observed so far are very much within the range of what each of the above-mentioned species is able to withstand. It is essential, however, that plantations are established at the right time of the year and that each site is planted with the right species. Topography in the coastal strip consists of plains and gently undulating tablelands easily accessible to vehicles and heavy machinery. These are the sites with best comparative advantages in terms of plantation operational costs, management logistics, and in most cases, productivity. In addition, the coastal region has a network of national and secondary roads which are in relatively better condition compared to the rest of the province. Transport distance to the future main delivery points of roundwood (Behai and Qinzhou) will also be shorter.

7.2.3 Plantation development, particularly in hilly areas, offers important opportunities for rural employment and household income generation. The development of plantations in hilly areas is labor-intensive, and rural households in Guangxi have benefited from plantation forestry through increased employment and income opportunities. This has been the case in spite of the fact that the demand is largely for seasonal and unskilled jobs. The impacts of plantation forestry on employment are relatively easy to assess in the sense that there are often no other development options for the land being utilized for plantations; and in many areas where plantations are being developed, there are few other job opportunities. Indeed, economic decline has been the prevailing trend over the last several years in much of the hilly areas of Guangxi. This has forced a large portion of the rural population between the ages of 18 and 45 to work outside the region. Migration towards large cities of the south and east coasts of China is still continuing. Plantations also have the potential to provide rural villages with improved public infrastructure, financed through taxes raised on plantation sales. By comparison, plantation development on flat lands in the coastal region of Guangxi generally provide the best sites for production of wood fiber at competitive costs. However, many of these areas are being managed mechanically and, therefore, they provide relatively fewer employment opportunities per hectare (or mu).

7.2.4 Guangxi’s wood industries are generally labor-intensive compared to those in other countries in the region, employing large numbers of people. A substantial portion of the province’s wood processing industries are small- and medium-scale enterprises with production processes that are often only semi-mechanized. In this way, the sector provides jobs for large numbers of people. This may change over time, however, as increasingly the provincial government is promoting a shift towards more capital-intensive forms of wood-processing – namely, large-scale MDF-HDF and wood-based pulp production.
7.2.5 Reconstituted panels and wood-based pulp utilize wood residues and small-diameter logs. Over the medium term, growth in Guangxi’s MDF-HDF and wood-based pulp industries is projected to account for the vast majority of new roundwood demand in the province. A major competitive advantage of these industries is that most of the fiber they consume is either residual wood (which is often classified as the ‘three wastes’) or small-diameter (< 8 cm) commercial logs. It is estimated that Guangxi’s MDF and HDF producers, for instance, get approximately 50 percent of their fiber from Greenwood residues obtained from thinning, tops of felled trees, and irregular logs (including those with bends, holes, knots, and/or less than 2 meters in length) generated by commercial harvesting activities; 15 percent from dry mill residues; and 18 percent from small-diameter commercial logs. Similarly, most wood-based pulp mills obtain the bulk of their fiber from small-diameter commercial logs. This strong demand for residual wood and small-diameter logs has several advantages: On the one hand, the heavy use of residual wood means that MDF and HDF mills play a critical role in the efficient utilization of Guangxi’s wood resources; indeed, they produce a value-added product from raw materials that might otherwise be wasted. On the other hand, these industries’ use of small-diameter logs means that they can be supported by fast-growing short-rotation plantations. In contrast to plywood and sawnwood production, which generally require larger diameter logs, Guangxi’s pulp and MDF mills can utilize plantation eucalyptus wood grown on rotations of 3-6 years.

7.2.6 Guangxi’s proximity to Guangdong has meant ready access to China’s largest furniture industry and a major construction market. Over the last several years, the special economic zones of the Pearl River Delta region in Guangdong Province have been the engine of growth in China’s US$ 26 billion per year furniture industry, and they currently account for over 50 percent of that industry’s total exports. Guangxi’s physical proximity has given the province’s wood panel producers a strong competitive advantage to supply a substantial portion of the panels consumed by Guangdong’s furniture producers and construction sector. With the two provinces linked by road, rail, and waterways, wood panel producers in Guangxi have generally been able to deliver their products to the Guangdong market much more cost-effectively than producers either in other provinces or in other countries. Virtually all of the irregular plywood and approximately 70 percent of the MDF and HDF produced in Guangxi is purchased by buyers in Guangdong. It is anticipated that the furniture and construction industries will continue to grow over the next several years, and wood panel producers in Guangxi are well-positioned to supply a substantial portion of Guangdong’s growing demand.

7.3 Weaknesses

7.3.1 The system of fees related to fast-growing, high-yielding (FGHY) plantations still requires further innovations to make it fully transparent. Recent policy measures have been adopted, at central level, to reduce the taxes and fees on forest products and streamline both the entire revenue system and the delivery of
government services. The purpose is to stimulate investments in plantation forestry. Forestry products have been exempted from the Special Agricultural Products Tax. However, there are a number of other charges which are still in place. Some, such as the afforestation fee and the quarantine fee are nation-wide. Others are province-specific. Finally, some charges are levied at local level. Their number and purpose vary greatly between localities. The overall system of fees is still very complex and relatively un-transparent.

7.3.2 The system of annual allocation of cutting permits still contains uncertainties for independent tree growers which might have disincentive effects on investors. Forest management inventories carried out by provincial forestry bureaus provide the basis for calculation of logging quotas. Logging quotas are assigned to each province by the State Forestry Administration. Provinces, in turn, assign quotas to prefectures and prefectures to counties. When quotas are tight, cutting permits might be difficult to obtain. Recently, projects integrating industrial processing facilities and fast-growing, high-yielding plantations were exempted from the logging quota system and allowed to conduct harvest in their own plantations on the basis of a forest management plan approved by the relevant provincial forestry administration. The State Forestry Administration foresees the need for further moves in this direction that would address concerns of independent and small-scale tree growers.

7.3.3 Relatively high wood costs undermine international competitiveness of Guangxi’s wood-based industries. The cost of growing wood fiber in Southern China is substantially higher in comparison to many other countries in the Asia-Pacific region. This is particularly the case of plantations on hilly sites which represent by far the largest portion of Guangxi’s forest plantations. In the case of pulpwood plantations, we have compared the delivered costs of several sources of overseas supplies with the range of delivered wood costs currently obtained in Guangxi. Our study shows that plantations of the high-cost category still maintain a modest delivered wood cost advantage over foreign suppliers. When comparing 2004 average production costs of wood chips made of locally-grown eucalypts with average 2004 delivered costs of Australian eucalypt chips it was found that Guangxi’s producers were able to maintain a cost advantage of approximately USD 50 per bone dry metric ton of chips. This cost advantage is more or less equal to the on-site costs (silviculture, harvesting and extraction) needed to produce the wood which is contained in one bone dry metric ton of chips. In hilly sites, on-site production costs are made essentially of labor (approximately 50%), fertilizers, seedlings, and supervision and transport costs. Bringing the base daily wage of unskilled workers up to USD 10 – with all other parameters remaining equal – would offset the current cost advantage that Guangxi’s producers have over imported Australian wood chips. The future is uncertain as for manpower availability and labor costs in remote parts of Guangxi since several rural areas in southern China already experience difficulties in hiring local labor for seasonal unskilled jobs. The labor availability issue might be lessened to some extent by the adoption of less labor-intensive practices, especially during harvest and extraction. However, in the context of Guangxi’s hills, a higher resort to mechanization might very well translate into higher operational costs.
considering the modest size of each individual plantation block and their relatively dispersion. High delivered wood costs represent a critical factor that may limit the competitiveness of wood-based pulp producers in Guangxi, which ultimately must be cost-competitive with pulp imports from more efficient producer countries, such as Brasil and Indonesia.

7.3.4 For plantation companies, access to new plantation land is a slow and complex process as most of the land suitable for new plantations is held by farmer households or collectives. In Guangxi like in all other southern provinces, the forest estate is, to a very large extend, under collective tenure. According to the last-published provincial forest inventory data, in 1999, Guangxi had 91% of its area of commercial forests on collectively-owned lands. The same source indicated that approximately 92% of the land which could be used for new plantations was also held by local communities, farmers’ cooperatives and individual households. These recognized land user groups are central when it comes to plantation development. Both private companies and government forest farms are therefore seeking to establish partnerships with them, often with the assistance of provincial and municipal governments, and they are using a number of different models to do so. Land classified as ‘wasteland’ has been and, to a large extent continues to be, targeted for plantation expansion. In most sites visited during the course of this study, areas classified as ‘wasteland’ reportedly have been of little or no use to generations of farmers or others. (In some provinces, however, areas formally classified as ‘waste land’ have encompassed important open-access areas for local communities and, at times, have held locally utilized forest resources). In potential plantation sites close to existing or potential markets, land speculation might cause additional difficulties and delays, and ultimately could push wood costs upwards.

7.3.5 Limited access to low-cost sources of energy has kept some mills from operating at full capacity and/or from expanding operations. The rapid pace of China’s economic growth in recent years has meant that in many regions, industrial expansion has outpaced the development of new energy sources. In Guangxi, this has meant that wood processing industries – like producers in many other sectors – have often faced energy shortages which have either interrupted production or raised production costs, sometimes significantly. Several producers interviewed during the course of this study reported that uncertain energy supplies in Guangxi are a major factor limiting plans for new production capacity expansion. In terms of relative production costs, the availability of low-cost energy sources is far more important for MDF and HDF producers than it is for other types of wood panel producers. For plywood producers, for instance, energy purchases typically account for only 8-10 percent of direct production costs. By comparison, MDF and HDF mills are fairly energy-intensive, with expenditures on energy typically representing 15-21 percent of direct costs.
7.4 Opportunities

7.4.1 Depending on the model used, plantation development can offer substantial potential economic benefits for farmers, particularly for low productivity areas classified as ‘wasteland’. A large proportion of rural households in the hills and mountains of Guangxi are living in poverty. The spectacular plantation development of the last ten years has occurred - to a very large extent - on collective lands, in hilly regions with both domestic and foreign companies providing most of the cash investment. Statistics show that this development has primarily taken place on lands that have previously been of little use to farmers or others. Plantation ownership on these collective lands has now taken various forms which reflect the wide array of agreements between those who have user rights on the land - communities or individual households - and investors. Land leasing to domestic and foreign companies is becoming a common practice. This type of agreement gives full ownership of the wood crop to plantation companies while ‘land owners’ enjoy minimum uncertainty and risk. Beside this, there are a number of partnership models by which ‘land owners’ and investors share profits or eventually risks and losses related to plantation development. In a more limited number of cases, communities or individual households invest on their own land with the intention to trade their wood on the open market. In sum, rural households can potentially benefit from growing trees either on their own or in partnership with industrial partners or private investors. However, it is still premature to provide an accurate analysis of the real likelihood and magnitude of profits for communities and individual households. In most cases, plantations outside the government sector have not yet reached maturity and it is therefore difficult to assess what the trends will be regarding real profitability.

7.4.2 There is strong potential for higher value-added processing in Guangxi’s wood products sector, particularly through investment in furniture production. Until now, Guangxi’s wood panel producers have sold most of their product to furniture producers in Guangdong Province. The expansion of furniture production within Guangxi could potentially enable the province’s panel producers to capture greater value-added through secondary processing done locally. The Provincial Forestry Bureau has already formulated a general plan to promote furniture industry development in Guangxi during 2005-2010. Under this plan, the Provincial Forestry Bureau will seek to triple Guangxi’s furniture output from 4.0 million pieces in 2004 to 13.0 million pieces in 2010, which would significantly expand local demand for wood panels. The provincial government’s plan is structured around the development of five integrated furniture industry zones in the following locations: Nanning; Liuzhou; Beihai; Yulin; and Guigang. It is anticipated that demand for furniture will increase sharply over the medium term, both within China’s domestic market and in key export markets. Compared to producers in Guangdong and many other provinces, wood-based furniture producers located within Guangxi would have a cost advantage in being located close to their wood panel supply.

7.4.3 There is considerable potential for higher value-added processing of wood panels for applications in construction and interior design. At present, some 80-85 percent of the MDF consumed in China is used for furniture production, while only
15-20 percent is used in construction and interior decoration. It is expected that over time the structure of MDF demand in China will move in the direction of Japan, with substantial volumes of panels being used for a wider and more sophisticated set of end-uses outside the furniture sector (BIS Shrapnel 2003). Most notably, construction applications include flooring (often in combination with plywood); steps; door jambs; mouldings; panels; doorskins; closet doors; window counters; and kitchen components. MDF and HDF are increasingly being used as substitutes for sawn timber, plywood, and particleboard in many interior applications, such as the base for laminated flooring, wall linings, and doorskins. In China, demand for laminated flooring and interior decorative paneling has increased quite significantly in recent years, and there continues to be considerable room for further growth in the volumes of MDF and HDF panels being directed to these end-uses. It is also expected that over time, demand will increase – not only in China, but also in Japan and South Korea -- for higher quality MDF and HDF panels, including panels with low formaldehyde emissions, fire resistance, and water resistance. To the extent that producers in Guangxi can position themselves to respond to growing demand in these areas over the medium term, they have significant opportunities to capture increased value-added from their products.

7.4.4 Guangxi is well-positioned to access new markets both in South West China, and in Vietnam and other parts of ASEAN. At present, emerging manufacturing centers in Sichuan and elsewhere are consuming increasingly large volumes of wood panels and pulp and paper products, and this demand is projected to grow sharply over at least the medium term. Some producers interviewed during this study reported that they are already selling as much as 30 percent of their panels to buyers in Chengdu and Chongqing. In addition, the rapid growth of Vietnam’s wood furniture industry in recent years has created new market opportunities to which panel producers in Guangxi have already started to respond. In addition to Guangxi’s physical proximity, trade opportunities with Vietnam and other Southeast Asian countries are perhaps further enhanced by the fact that Nanning serves as the permanent host for the China-ASEAN free trade agreement.

7.5 Threats

7.5.1 Limited genetic resource base and suboptimal species-site matching may pose risks to fast-growing plantations and/or limit productivity gains. Guangxi’s fast-growing plantations are making extensive use of recently developed eucalyptus clones. Since the early-1980s, Guangxi Forestry Research Institute and Dongmen Provincial forest farm have made substantial investments to develop tree breeding and clonal forestry. More recently Qinzhou City Research Institute and Bobai forest farm have followed the same path. This research started with the testing of a large number of eucalyptus species and provenances and the establishment of seed orchards and progeny trials. Currently, the aim is to clone genotypes with superior genetic traits. Advanced breeding and propagation strategies are being used to do so. In spite of this important research effort, only a limited number of eucalyptus clones is available for mass distribution. At present, no more than 20 clones are mass propagated every year.
over some 50,000 ha of plantation. Plantations stands are monoclonal. Southern Guangxi, has areas spreading over thousands of hectares, where landscapes are dominated by small to average-sized eucalypts wood lots, all made of the same single clone.

7.5.2 Low profits and/or potential losses from some plantation sites may lead to disappointing results for farmers: Our study shows that wood costs are sensitive to a number of factors including: plantation productivity, harvesting and extraction costs, land lease costs to name only those factors which are the most site-dependent and therefore might display high variability. Investors may face substantial risks when several factors turn out not to be in their favor. Risk of financial losses can be minimized when investment decisions give appropriate attention to site conditions - facility of access is of particular importance - and where harvest, extraction and transport costs can be predicted with some accuracy. Post-planting silvicultural work must also be properly funded and carried out in a timely manner. It must also be stressed that high cost inputs and good care given to a plantation doesn’t translate automatically in high productivity, low stumpage costs and high returns. Plantation forestry is a relatively risky and long time-frame undertaking with high exposure to climatic hazards and casualties such as fire.

7.5.3 Economic viability of small to medium-scale panel mills might locally be threatened as they lose access to cheap raw material sources following excessive conversion of pines and Chinese fir plantation into eucalypt plantations: Pine and Chinese fir plantations provide thinning products and harvest residues such as large branches which are used to feed - at low costs - a large number of mills which are competing for supplying the domestic market with cheap reconstituted panels. Short-rotation eucalypt plantations do not provide thinning products. The amount of residue that they produce at harvest is less than for pine and Chinese fir. The price of eucalypt round wood is more or less double than that of residues from pine and Chinese fir. We estimate that conversion of Guangxi’s pine and Chinese fir plantations into eucalypt plantations amount to some 10,000 to 15,000 hectares every year. Plantation conversion is the second most important source of land for the development of the fast-growing, high-yielding (FGHY) plantations. The above illustrate one possible impact of plantation conversion. There are many others with respect to the environment, in particular.

7.5.4 Rapid expansion of both the MDF/HDF and wood pulp industries may lead to competition among producers for land and/or fiber resources. Over the medium term, much of the new processing capacity that is projected to come online in Guangxi’s wood processing sector will be in the MDF and HDF industries and in wood-based pulp production. In principle, these industries rely on very different raw material sources, with MDF and HDF mills utilizing the ‘three wastes’ -- either in the form of residual Greenwood or mill residues – while wood-based pulp mills use small- and medium- diameter commercial logs. In practice, however, it appears that there is at least partial overlap in the raw materials utilized by MDF-HDF and wood pulp mills. This study estimates that approximately 25 percent of the fiber used by MDF producers comes from commercial logs of various sizes and another 10 percent comes
in the form of commercial wood chips. Each of these categories overlaps directly with the types of fiber utilized by wood pulp producers. Direct competition for fiber between MDF mills and wood pulp producers is likely to push fiber costs upwards and to result in increased competition for land.

7.5.5 Inequitable and/or inflexible land lease contracts or share agreements may result in tensions between plantation companies and collective land-owners. There is currently growing competition among plantation companies in Guangxi to secure leases with collective land owners for large areas that can be developed into plantations. Under these contracts, many companies are leasing land for periods ranging between 30 and 50 years and/or entering into various types of share-cropping arrangement with farmer households or collectives. In negotiating these leases, it is clear that some companies have sought to minimize the amount they pay to utilize the land and/or to lock in a low land rental fee for the duration of the contract. Experience from other countries and from other parts of China have shown that company-community agreements often do not last in situations where the contract is perceived to be inequitable by one or both parties. Moreover, it is generally the case that market prices for land rental tend to rise – sometimes dramatically – as plantation companies compete with one another to secure the available land within a limited area. Within such a context, it can be anticipated that collective land-owners that had leased their land before such a price increase occurred would want to have a mechanism for adjusting the amount of the land lease fee over time. Among the companies surveyed, only 40 percent of contracts have a clause for revising land rental price within the first 3-10 years. Even with such a clause, it would appear that there is often considerable ambiguity about how such an adjustment can be made once the contract has been signed.

7.5.6 Potential decline in demand for Chinese products in key export markets – either due to market downturn or anti-dumping measures – could negatively affect demand for primary wood products from Guangxi. Although most analysts expect demand for China’s wood panel products to continue to grow substantially over the next several years, it is entirely possible that demand could drop off for some types of products and in some markets. This could result, for instance, from a sharp decline in China’s furniture exports to the US market, which currently consumes over 50 percent of the country’s exports in that sector. Of particular concern for China’s wood panel and furniture producers, there are indications that the US housing market could soon experience a contraction, which would inevitably lead to a decline in US demand for imported furniture. In a similar manner, any action taken by the Chinese government to unpeg the Yuan from the US dollar would almost certainly result in reduced demand for Chinese furniture in the US and other markets, as it would become relatively more expensive than it is now. In addition, the US government has responded to China’s growing volume of furniture exports by imposing anti-dumping measures under the WTO, including tariffs of up to 198 percent on over US$ 1 billion of wood furniture. To the extent that anti-dumping penalties are adopted by governments in other destination markets or applied more broadly by the US, it is conceivable that they could restrict China’s access to key markets over the medium term. This, in turn, would create pressures on Chinese furniture producers to increase
sales in their domestic market and/or to expand exports to new destination countries. It can be expected that over time Chinese exporters will reduce these risks by expanding their exports to Europe and other non-US markets. It must also be emphasized that China’s internal market is growing very rapidly and can be expected to consume a growing portion of the country’s wood products over the medium- to long-term.