

Prospects for Australian plantations: business perspectives

Nick Roberts

Weyerhaeuser Australia Pty Ltd, 71 Ridge Street, Gordon, NSW 2072, Australia

Email: Nroberts@weyerhaeuser.com.au

Revised manuscript received 4 February 2003

Summary

Since their initial establishment in the late 1800s, Australian plantations have continued to grow both biologically and economically. In some cases, as in South Australia, plantations are now in their third rotation, indicating sustainability in several regards, including economic sustainability. Economic sustainability cannot, however, be judged by historic returns alone. The factors relevant to economic sustainability need to be examined to determine their likely state in the future. In the case of plantations, these factors revolve around the underlying demand for wood and fibre-based products relating to population growth, household formation, a culture of building in wood, and competition from substitutes, be they wood or non-wood based.

These economic factors are subject to risk in a long-term plantation investment. Risks that may affect returns are socio-political as well as financial. Fortunately Australia compares well to many other countries in this regard, as evidenced by investments by offshore funds in the plantation sector in Australia.

Existing plantations have a number of advantages relative to new plantations, which may be developed for economic reasons other than those related only to demand for wood products. For example, the economic returns from plantations developed to offset carbon tax liabilities under the Kyoto protocol may be satisfactory, but under certain circumstances these returns may not be sustainable.

Keywords: forest plantations; forest products industries; supply; demand; forest economics; forecasts; rural development; Australia

Economic sustainability and issues facing the plantation forest products industry in Australia

Background

Sustainability is a concept that has received considerable attention in our industry in recent years. At a simplistic level it seems that the industry's sustainability is self-evident. Stands in a plantation

are harvested, replanted and, with appropriate silviculture, a forest is able to provide a sustainable yield. When I was educated at forestry school in the 1970s sustainability was taught in the context of this single dimension — wood yield. During the 1980s and 1990s community expectations increased, and now the concept of sustainability has become multi-dimensional and in some countries it is incorporated in legislation and codes of practice.

Voluntary certification systems such as those of the Forest Stewardship Council (FSC), the Sustainable Forestry Initiative (SFI), the Pan European Forest Certification (PEFC), and shortly our own Australian Forestry Standard (AFS), have been developed. They aim to meet consumer demand for a certificate providing assurance about the environmental credentials of the forest from which wood products are made. These systems have their origins in community concerns about environmental sustainability, with economics being given little attention. This is surprising, given it is the dollars earned by a forest that provide for many other aspects of sustainability.

In addressing economic sustainability, I will refer to national, international and regional information, with most of the latter coming from the Green Triangle Region in South Australia where Weyerhaeuser is a joint owner of a 20 000 ha radiata pine estate.

Expansion of the plantation area

Anecdotal evidence suggests that forestry investments are economically attractive and sustainable relative to alternative land uses. In the Green Triangle area in South Australia, forest plantations were first established in 1881. This activity originated from concern at the rapid removal of tree cover as the area was settled. The plantation area has now increased to 205 000 ha in the Green Triangle region alone (Green Triangle Regional Plantation Committee 2001), and nationally to a total area of 1.6 million ha (National Forest Inventory 2002). Gerrand *et al.* (2003) present a chart showing the expansion of the national area of plantations since the 1930s, or two-and-a-half rotations ago. This increase is hardly the growth curve of an unsuccessful investment activity. Indeed, the area under plantations continues to expand as existing areas are re-planted and new areas are added to the base.

While the role of the State governments is an ongoing feature of forest investment in Australia, the area under private ownership has increased rapidly in recent years. Some 633 000 ha of the national estate is currently under State control. During the 1990s, however, the proportion of plantation investments made by the private sector has increased from the long-term trend of between 20% and 30% to 60%. While the rate of return of is just one of a number of socio-economic goals for the States, private investors are much more focused on the future returns from our plantations. That these private investors include institutional investors and forest products companies, with options to invest anywhere in the world, also speaks well for our industry's economic attractiveness.

Economic returns

Developing a picture of economic returns from Australian forests has proved more difficult than I had anticipated. Foresters, it seems, are very good at running econometric models looking at the Net Present Value (NPV) and Internal Rate of Return (IRR) of future plantations, but not so good at measuring what actually happened. To develop a view on returns, I have calculated the IRR of a radiata pine plantation just being harvested to determine whether recent experience would justify a positive reinvestment decision.

I was able to obtain data from a 1988 forestry conference at which Steiner (1988) demonstrated that a well-managed forest should, at best, yield a real return of 7–8%. Information on establishment and management costs in the 1970s was obtained from Forestry Commission of NSW (1978). Interestingly, the cost of establishing a softwood plantation with a sawlog regime in 1988 was A\$700–1000 ha⁻¹. Current published information and our own records show that this cost is still within that range. However, the component costs have changed quite dramatically. The cost of seedlings in particular has increased by almost 400%, reflecting the greater cost of raising genetically-improved seedlings and cuttings, while other costs, such as site preparation and weed control, have declined as better and cheaper chemicals have become available, and more efficient methods of application have been developed.

For the purposes of this analysis, cost figures for years when no data were available were adjusted by the Consumer Price Index. On the revenue side, current prices were applied to the block as if the harvesting was being done today. Revenues from thinning operations are based on these same prices, deflated to the scheduled date of operation. Volumes are as projected at the time of planting, but match those achieved on blocks clearfelled today.

From the resulting cash flows I have calculated a nominal interest rate return of 14.5% per annum. After allowing for the effects of inflation from 1972 to 2000 at 6.5% per annum, the pre-tax rate of return is around 8.0%; that is, a rate consistent with that calculated earlier by Steiner.

While these data and my approach are not stand-specific, they lead to a calculated return within 1–2% of that being achieved on a gross return basis from forests currently being harvested.

This analysis says that forestry is certainly profitable and, I would argue, economically sustainable. The plantation has been managed over a long period, has met its costs in full and has provided a solid real rate of return. There is no reason from an economic perspective why a decision should not be made to reinvest. Indeed, the costs of replanting of about A\$900 ha⁻¹ represent a modest 6% of revenue from the clearfelling operation, returns from which range from A\$14 000 to \$16 000 ha⁻¹.

Regional development

Having considered economic sustainability from an individual investor's perspective, it is appropriate to look at the wider economic implications of forestry as befits a broader definition of sustainability.

Plantation forests are an extensive form of cropping and tend to be grown on marginal lands where agriculture has not been able to produce adequate financial returns. The inability of forestry to pay high prices for land up front of a 30–35 y rotation means that Australia's plantations are located in regions that are generally remote from major centres. When plantations are first established there is often concern at the green blanket taking over from farming activities, and the effect that such extensive land use will have on rural communities. The reality is that forestry and downstream processing activities provide significant and ongoing employment and thus economic input to rural communities. Indeed, forestry is the backbone of some rural communities. Forestry is also a significant contributor to national and State economies: at the national level, 75 000 jobs are estimated to be directly related to forest operations and forest-product manufacturing.

Consider as an example the community in the south-east of South Australia centred on Mt Gambier. Since plantations were first established in 1881 the township of Mt Gambier has developed to its current population of about 25 000. Forest-based jobs in the region are estimated to account for 25% of employment and 29% of gross regional product (Green Triangle Regional Plantation Committee 2001). The towns in the region are continuing to develop as the forest area expands, in particular with investments in bluegum plantations. In addition, the wood processors continue to invest in maintaining and upgrading their facilities. Clearly this is an industry which has contributed to the economic sustainability of the local region, and will continue to do so.

The market

Any forestry investor has to have a view of future market potential. In this regard Australian forest owners are fortunate in having access to a large and integrated forest products industry.

It is important to consider the lumber market, which consumes most of the recoverable volume from a forest at clearfelling. Total lumber consumption in Australia is about 4.5 million m³ y⁻¹, composed of 3.5 million m³ of softwood and 1 million m³ of hardwood. Domestic production is 3.85 million m³, so 650 000 m³ of imports are required annually to meet total demand. Of this

total volume, about 70% is used in the domestic construction industry. This market is underpinned by an ongoing rate of construction of new houses of 145 000 units y^{-1} , which historically has exhibited cycles of activity at intervals of less than 5 y with variations of around $\pm 20\%$.

Supplying a strong domestic market is a distinct advantage for a forest investment. The demand dynamics, while cyclical, are at least understandable to the Australian investor. The risk factors are minimised relative to, say, a country dependent on exports for its revenue. Comparing an Australian dollar index of domestic log royalties with export returns for A Grade logs to Japan from New Zealand shows very different risk profiles. Domestic returns track inflation quite closely, with a small deviation in recent years. By comparison, export returns to New Zealand are affected by factors outside the domestic economy. For example:

- Logs are sold in US dollars so the domestic exchange rate to the US dollar has a major impact on returns.
- Japanese log buyers purchase logs in US dollars but using Japanese yen. As the yen's value fluctuates, the buyer's ability to pay is affected and log prices adjust accordingly. Indeed the increase in NZ log prices to Japan in the 1980s and 1990s had much to do with the strengthening yen rather than the fundamentals of supply and demand.
- The international freight rate to transport logs to Japan is set in US dollars and is also cyclical, and it can represent up to 30% of the delivered price. When this cost is translated into domestic currency it also can have a big impact on returns.
- Finally, the supply–demand balance is affected by:
 - the state of the Japanese economy,
 - the dynamics of supply and demand for the products manufactured from the logs, and
 - the supply–demand dynamics of the log market, for example, the supply of hemlock from the US West Coast and Canada and larch from the Russian Far East.

By contrast, the Australian domestic market for wood products provides a more stable and predictable environment, an important factor when considering the economic sustainability of future plantations.

Future investments

The prospects for existing plantations, when felled, cleared and replanted, are reasonably straightforward, assuming that the housing market will continue to build 145 000 units a year. For new plantation areas, however, the economics may be a little different. First an assessment of the future market has to be made. While current plantations have the benefit of supplying a strong domestic market, given an ageing population, modest population growth and a lumber market approaching self sufficiency, the opportunities to market sawlogs from future plantations will increasingly depend on exports. An expanding volume of logs from new plantations also has the potential to affect existing plantations. Thus, instead of simply increasing the capacity of the forests and forest products industry to meet the demands of a relatively isolated domestic market at the expense of imports, in future the industry will have to be able to compete in the international arena. There are some obvious implications.

- Returns will be more volatile and more like the returns experienced in New Zealand. In some cases returns from exports may be higher than domestic returns but in others, as markets cycle down, returns from exports may fall below domestic levels. To be successful in export markets the industry will have to commit to maintain supply, year in, year out, irrespective of market conditions. Buyers in Asia are no different to those anywhere else; they are looking for continuity of supply.
- As growers and processors, we have to develop and maintain an internationally cost-competitive position. Some industry sectors already have such a position, as indicated by current export statistics for medium density fibreboard (MDF), printing and writing paper and packaging and industrial paperboard. However, the volume of exports is still small and is dominated by woodchips, representing 40% of the total annual dollar value of A\$1.8 billion. In other sectors, such as softwood sawmilling, we have some way to go to be internationally competitive.
- Australians will make some future investments, while international companies and institutions will make others. These latter investors have choices. They will compare the costs, productivity and net present value (NPV) of growing wood in a range of situations. On highly productive sites, Australian growth rates, expressed as mean annual increments, look competitive with those in New Zealand. In a comparison of NPVs, however, opportunities in South America look more attractive, despite higher discount rates.
- If we are to export we need to develop the competencies to do that well. This means well-trained and motivated people, products that are well manufactured and able to compete internationally, and cost-effective logistics.

The balance of payments deficit, which is predominantly created by imports of paper products, suggests there may be opportunities for pulp plantations. The economics of these plantations, however, will be driven by increasing domestic pulp and paper capacity and offshore demand for woodchips, which are covered by other papers.

Industry associations

While not central to the issue of economic sustainability, the way the industry represents itself at a State and national level is important to its future. Many issues are too big for an individual forest owner or company to resolve and, accordingly, working together through an association is a good way to make cost-effective progress. As a newcomer to the Australian industry I am amazed by the number of associations that we have for an industry that is similar in scale to that in New Zealand or Chile. The acronyms alone are mind boggling: PTAA, TPAA, NAFI, TDA, TRADAC, QTB, FWPRDC, FAFPESC, PTR, TABMA*

* PTAA = Plantation Timber Association of Australia, TPAA = Timber Promotion Association of Australia, NAFI = National Association of Forest Industries, TDA = Timber Development Associations (various states), TRADAC = Timber Research and Development Advisory Council of Queensland, QTB = Queensland Timber Board, FWPRDC = Forest and Wood Products Research and Development Corporation, FAFPESC = Forest and Forest Products Employment Skills Company, PTR = Plantation Timber Research, TABMA = Timber and Building Materials Association.

etc. While I do not pretend to know the origins of the various bodies, which I am sure were formed for good reason, I question whether the plethora of bodies is providing efficient and co-ordinated representation and promotion of our industry. We have no shortage of challenges and issues:

- Steel framing is a successful and growing competitor to solid wood, but we seem to have trouble mounting a campaign promoting wood products. Individual associations are doing some good work but it is uncoordinated and its effectiveness is difficult to measure.
- Research and development will provide for the future of our industry, but our businesses are relatively mature and research needs to be targeted and cost effective. Companies providing funds, funding agencies and the wider industry need to develop a shared view of industry priorities. If we are to get the maximum value out of the money the industry provides for research and promotion, programs need to be coordinated across the providers and associations by industry practitioners.

The industry needs to review the way it operates through the associations. This doesn't necessarily mean fewer bodies but it should lead to better co-ordination and a focus on industry priorities, and probably does mean fewer voices representing us to our various publics.

Conclusions

I have tried to demonstrate the economic sustainability of existing forest plantations on the basis of anecdotal, financial and market information. I have also identified some of the issues that we need to work on to ensure that future plantations will be sustainable. While there is work to do and there are questions that need to be answered, there is no doubt that this industry will rise to these challenges and continue to be successful and sustainable.

References

- Forestry Commission NSW (1978) *Pine Planting in New South Wales*. Forestry Commission of NSW, Sydney.
- Gerrand, A., Keenan, R.J., Kanowski, P. and Stanton, R. (2003) Australian forest plantations: an overview of industry, environmental and community issues and benefits. *Australian Forestry*, **66**, 1–8.
- Green Triangle Regional Plantation Committee (2001) *South East Forest Industry Development Strategy*. [Adelaide] 52 pp.
- National Forest Inventory (2002) *National Plantation Inventory Tabular Report — March 2002*. Bureau of Rural Sciences, Canberra, Australia.
- Steiner, R.J. (1988) The business of plantation forestry. Paper presented at the *International Forestry Conference for the Australian Bicentennial*, Volume 4, 12 pp.