

Submission to House of Representatives Standing Committee on Agriculture,  
Resources, Fisheries and Forestry

Australia's forestry industry

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Australia's native forests and wood-based industries are at a crossroad. Which path they travel is entirely dependent on government policy. The House of Representative Standing Committee's inquiry is timely and opens the opportunity for Australia to turn a new page for native forests and the plantation based industry.

In this submission, I draw on four of my recent papers.

- A. Ajani J. (2011), Australia's Wood and Wood Products Industry – Situation and Outlook Analysis, Working Paper, The Fenner School of Environment and Society, The Australian National University.

The aim of this working paper is to present key background information and analysis to those engaged in policy areas that interact with Australia's wood and wood products industry. This includes climate change, native forest biodiversity conservation and carbon stores, the carbon farming initiative, plantation managed investment schemes, tax based subsidies for carbon forest sinks, wood and wood products industry policy and bioenergy and other biomass feedstocks.

- B. Ajani J. (2011), The global wood market, wood resource productivity and price trends: an examination with special attention to China, *Environmental Conservation*, doi:10.1017/S0376892910000895

In this paper, global wood consumption trends are reviewed in the context of framing a coherent forest policy in the era of climate change. Over the period 1980 to 2007, global wood consumption has been essentially stagnant, increasing by only 0.4% per year. In contrast, over the same period, global consumption of wood products increased steadily, paper by an average 3.2% per annum and solid wood products (sawn timber and wood panels) by 0.8% per annum. Wood saving (eg paper recycling, high yielding pulp mills, wood-based panels substituting for sawn timber) explains these significantly different growth trajectories in unprocessed wood and processed wood products. (Historically, Australia's forestry policy has focussed on the slow-growing market – wood growing – rather than processing).

China's rapidly growing wood products industry has lifted wood saving to a new high. China has so far avoided triggering a global wood shortage and associated wood price increases through a progression of strategies: successful pre-emptive price negotiations, increased use of recycled paper, adoption of high-yielding pulp technologies, substitution of reconstituted wood panels for sawn timber and tree planting substituting for natural forest supply.

- C. Ajani J. (2010) Climate change policy distortions in the wood and food market, contributed paper to the Australian Agricultural and Resource Economics Society National Conference 2010, Adelaide Convention Centre, February 8 - 12.

There is an apparent anomaly in the Australian Taxation Office (ATO) treatment of plantation managed investments. Investors in plantation managed investment schemes (MIS) are able to deduct their costs against income earned elsewhere. This is only possible because they have received a dispensation from the ATO deeming their business activity to be commercially viable. In granting this dispensation, the ATO must have judged that plantation managed investments are inherently commercial.

In fact, my research suggests that, far from being an attractive investment proposition, plantation MIS are high cost to both the government and investors and I present evidence that many investors may recoup just 25 per cent of their funds. This is not commercially viable. Hence my first recommendation: that Treasury review the ATO information and process that deemed plantation managed investments to be commercially viable

- D. Ajani J (2010), Submission to the Department of Climate Change and Energy Efficiency on the Carbon Farming Initiative

The natural and inevitable decline in the plantation MIS sector, with its inherent flaws, is in danger of reversal as MIS companies and intermediaries making money from the schemes will use the CFI to resurrect it as an even more attractive tax minimising venture. Although most plantation MIS companies have collapsed, some remain and tax minimising investors still subscribed \$74 million into plantation MIS in FY2010. The Australian Government retains the enabling legislation.

The details for CFI rules and integrity standards are not finalised, but it is virtually unimaginable (in the absence of substantial political engagement) that plantation MIS will not enter in the CFI carbon credit market with plantation MIS companies becoming CFI project proponents, promoting and managing 'carbon sink forests' as another income stream.

Plantation MIS requires productive agricultural land to generate (at least on paper) the wood yields and therefore income to cover these high-cost tax minimisation products. The tax arrangements underpinning the schemes work as a subsidy distorting agricultural land and water use away from food production to plantations. The CFI is likely to intensify resource misallocation in Australian agriculture.

The contents of the four papers are relevant to the Committee's Terms of Reference as follows:

### 1. Opportunities for and constraints upon production

- Australia's 'forestry' industry is now heavily plantation dependent with the processing sector more economically robust as a result. Australia's plantation wood resource presents immediate and substantial processing opportunities, particularly in the wood panels and pulp/paper sectors (Paper A).
- Industry concentration in the printing and writing paper sector is a major inhibitor to what would otherwise be highly attractive commercial opportunities in pulp/paper based on import replacement (Paper A).
- Productive plantations help build competitive processing industries. The policy attention to plantation expansion (high cost) works against focussing on economically sensible plantation productivity improvement on land already planted with trees. The average productivity of Australia's plantation estate is mediocre: the rewards from enhanced plantation productivity are high (Paper A).
- Largely due to a long-term absence of sophisticated Parliamentary political engagement, the native forest conflict has spread into the plantation sector. No industry engulfed in conflict prospers over the long term.
- If 'production' in the ToR means meeting plantation area targets devoid of market analysis or commercial viability, then Australia is playing the mugs game – at the bottom of commodity production. Policy dominated by plantation area expansion keeps industry and resources focussed to the slowest growing sector of the global wood and wood products industry, namely wood production (Paper B).

### 2. Opportunities for diversification, value adding and product innovation

- For too long (half a century), the Australian Government has held the 'forestry' industry's hand and the industry is less robust as a result. The public purse is also poorer. Wood and wood products investment opportunities should be a matter for the private sector. Business assesses opportunities, makes decisions, takes risks and enjoys the benefits.

### 3. Environmental impacts of forestry

- In 'forestry', so called win-win outcomes require rethinking 'balance'. We should abandon the 'multiple use' approach to native forests (more recently rebranded 'ecologically sustainable forest management') and replace it with a policy frame of allocating land to the job it does best. Native forests do biodiversity conservation/carbon storage like no other biological land use and

plantations generate high quality wood for scale economy processing better than native forests. There in lies the ‘win-win’ (Papers A & B).

- Removing the plantation MIS tax based distortions in agricultural land and water use (and not replacing them with another distortionary subsidy) will also see agricultural resources put to their most efficient use. There in lies a ‘win-win-win’ (Papers A, B, C and D).

#### 4. Creating a better business environment for forest industries

- Removing wood and wood products industry subsidies and props (eg low native forest wood prices, tax based subsidies for wood growing) will help build economic robustness into the industry and reduce distortions in agricultural land and water use (Papers C & D). Such actions will reduce the conflict with environmentalists and food producing farmers now engulfing the industry. This is necessary for a better long-term business environment for the wood and wood products industry.
- Commercially viable plantation processing should be the dominant objective for the wood and wood products industry. Wood and wood products industry policy should sit within the generic industry policy frame and include research and development programs, worker and management skill development and transport strategies with a focus around regional hubs with a critical plantation mass for scale economy processing (Paper A).
- An incorrect interpretation of market failure has been used in calls for government funding to do the job the private sector apparently is not interested in – investing in long lead-time plantations. Long lead times are not in themselves a market failure. Rather, investors in long rotation plantations require higher returns to compensate for the increased risk. However, hardwood sawmillers (in particular) appear unwilling to pay the higher wood prices to attract the plantation investment and expect the public to keep subsidising their wood costs. The well-established trend decline in Australia’s consumption of hardwood solid wood products, comprising mainly sawn timber, turns-off private investors but does nothing to temper the calls for government subsidies to plant trees for a market in decline (Paper A). The argument is essentially the same for softwood sawlogs.

#### 5. Social and economic benefits of forestry production

- Wood and wood industry economic wealth benefits are maximised when plantations, not native forests, dominate the market (as they do) and most plantation wood is processed domestically in commercially viable facilities (which is becoming less so, notably for the hardwood plantation resource) (Paper A).
- If ‘social benefits’ means maximum long term stable jobs, then plantation processing should be top priority. If ‘social benefits’ means reduced levels of conflict, then allocating native forest land to biodiversity conservation/carbon storage and ending distortions in agricultural land and water use through the termination of plantation MIS is relevant (Papers C & D).

## 6. Potential energy production from the forestry sector

- Using native forests for energy has a high climate change opportunity cost, namely carbon stock deterioration.
- Planting trees for energy production needs rigorous appraisal from an energy efficiency perspective. Building incentives for such plantings will undermine the commercial viability of more efficient energy products/systems.

## 7. Land use competition between the forestry and agriculture sectors

- Efficient use of agricultural land and water requires the removal of subsidies that, after decades of work to reduce agricultural subsidies, favour wood growing over food production. Building new schemes to promote plantations will exacerbate resource use inefficiency and escalate conflict in rural Australia (Papers D & C).

Submission to the Department of Climate Change and Energy Efficiency on the Carbon Farming Initiative

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## **Summary and recommendation**

The natural and inevitable decline in the plantation MIS sector, with its inherent flaws, is in danger of reversal as MIS companies and middlemen making money from the schemes will use the CFI to resurrect it as an even more attractive tax minimising venture.

Although most plantation MIS companies have collapsed, some remain and tax minimising investors still subscribed \$74 million into plantation MIS in FY2010. The Australian Government retains the enabling legislation.

The details for CFI rules and integrity standards are not finalised, but it is virtually unimaginable (in the absence of substantial political engagement) that plantation MIS will not enter in the CFI carbon credit market with plantation MIS companies becoming CFI project proponents, promoting and managing 'carbon sink forests' as another income stream.

Plantation MIS requires productive agricultural land to generate (at least on paper) the wood yields and therefore income to cover these high-cost tax minimisation products. The tax arrangements underpinning the schemes work as a subsidy distorting agricultural land and water use away from food production to plantations. The CFI is likely to intensify resource misallocation in Australian agriculture.

The CFI additionality test requires that there are reasonable grounds to believe that the project is unlikely to be financially viable or to occur without income from carbon credits. For plantation MIS, this provision raises important questions that require clarification.

- If plantation MIS are considered commercially unviable (as evidenced by the spate of collapses) does this mean plantation MIS could satisfy the CFI additionality standards?
- If so, does not this contradict the ATO judgement that plantation MIS are inherently commercial?
- Could a plantation MIS Responsible Entity, through the CFI, apply for carbon credits arguing that unforeseen market conditions now render the original project unviable but growing the plantations on would be viable with carbon credits?

It is recommended that:

The government prepare a consultation paper articulating MIS arrangements and CFI interactions to clarify the CFI's additionality and integrity standards for plantations.

## 1. Introduction

A long, convoluted and often incoherent policy process precedes the draft *Carbon Credits (Carbon Farming Initiative) Bill 2011*. The Carbon Farming Initiative (CFI) is likely to generate a new wave of agricultural land and water use distortions via a combination of government failure and market failure. In addition to rising resource use inefficiencies in Australia's agricultural sector, Australia's contribution to the global climate change challenge will be significantly less than we are capable of delivering.

Critical building blocks to support policy to engage the land use sector in the climate change challenge remain contested with unsettled conceptual and measurement tasks and inconsistencies in the treatment of different land uses and activities. This, combined with the vested interest behaviour of countries engaged in global climate change negotiations and the actions of rent seeking businesses and associated lobbyists attracted to potentially substantial new income sources, has generated a wall of complexity that makes coherent climate change policy for the land use sector probably beyond the current capacity of government. Policy makers should proceed with caution.

My aim in this submission is to communicate the potential for substantial distortions in the use of Australian agricultural land and water through the tree planting component of the CFI.

## 2. The Carbon Farming Initiative

The Initiative provides financial incentives for certain activities in the land use sector that remove or avoid emissions of green house gases (subject to not yet fully specified integrity standards). The sale of credits generated by eligible projects will be initially to the voluntary market in Australia and globally, and to overseas governments that have obligations under the Kyoto Protocol or companies with emissions obligations under national or regional emissions trading schemes. The actual volume of credits traded and their price will be determined by market demand and the CFI credit cost curve. In a compliance market, demand for credits will be dominated by the fossil fuel industry seeking to offset their carbon emissions, with the level of demand dependent on government emissions reduction targets. Without science-based and therefore significantly higher emission reduction targets than Australia currently subscribes, offsetting fossil fuel emissions via land based removals will stifle Australia's already weak contribution to the global climate change challenge. In a climate regime of increased variability, Australia's agricultural industry will be the loser, but compromised in its political engagement in climate change negotiations by those sectors benefiting from offsets income.

The CFI is deeply flawed. The Australian Government promoted the initiative as providing 'new economic opportunities for farmers' (Minister for Agriculture, Fisheries and Forestry & Minister for Climate Change and Energy, 2011), but this new – and in some sectors much needed – income source is dependent on continuing fossil fuel emissions. In the absence of Government establishing science-based emissions reduction targets, climate variability is set to amplify and erode food producing farm income across much of Australian agriculture.

Plantation wood growers are positioned best to take advantage of the CFI. The sector has 15 years managed investment scheme (MIS) experience (an investment vehicle that appears CFI ready with Responsible Entities becoming project proponents) and has been actively engaged

with Government over a similar period to facilitate wood into the biofuel market and carbon sink forests. The plantation sector is CFI ready, has fewer measurement difficulties than most other project types and is likely to dominate the supply of CFI credits (especially Kyoto compliant ones) when the market opens.

### **3. Plantation MIS**

The Australian Government maintains the enabling legislation for plantation MIS arrangements: a sector saturated in corporate collapses (since 2006, Environinvest, Great Southern, Timbercorp, Forest Enterprises, Rewards Group, Willmott Forests). Economically, plantation MIS are fundamentally flawed (discussed below) with the corporate collapses predicted and commencing well before the GFC. Nevertheless, plantation MIS promoters remained active in 2010 with Macquarie Forestry offering tax minimisation products based on eucalypts for wood chips, Tropical Forestry Services (sandalwood), Elders Forestry (mixed species) and WA Blue Gum project (eucalypts for woodchips). Gunns withdrew its product. Despite the highly publicised collapses, tax minimising clients (often inappropriately termed ‘investors’) steered \$74 million into plantation MIS over FY2010 – 62% of all agricultural MIS (Australian Agribusiness Group, 2010). Macquarie Forestry is estimated to account for 70% of plantation MIS sales in FY2010.

Plantation MIS are engineered tax minimisation products that create market failures because wood market signals are largely blocked. Tax minimisation drives the money flow into plantations with clients – despite being classified as ‘carrying on a business’ – seemingly taking little if any serious independent wood market analysis. The Responsible Entity selling the tax minimising product has a reduced incentive to undertake a robust market analysis because the market risk is largely born by the client through high-cost up-front payments to the Responsible Entity (fully tax deductible) with the majority of the returns generated at project end from net harvest proceeds (whatever they might be) going to the tax minimising client.

These arrangements are made possible by an apparent anomaly in the Australian Taxation Office (ATO) treatment of plantation MIS. Tax minimisers putting money into plantation MIS are able to deduct their up-front payments against income earned elsewhere. This is only possible because they have received a dispensation from the ATO deeming their business activity to be commercially viable. In granting this dispensation, the ATO must have judged that plantation MIS are inherently commercial. Far from being an attractive investment proposition, plantation MIS are high cost with many tax minimising clients recouping an estimated 25 per cent of their up-front payments (Ajani 2010). Contrary to the ATO view or analysis, such a return is not evidence of a commercially viable business.

The arrangements enabling plantation MIS is a tax-based subsidy to forestry estimated at between \$0.9-1.2 billion per annum over the five years ending 2008 (Ajani 2010). The assistance exceeds substantially the assistance (including drought related payments) to food growers and works to distort agricultural land and water use. If the CFI is combined with plantation MIS tax engineered products, resource use distortions in the agricultural sector can be expected to escalate.



#### 4. Macquarie Forestry

Macquarie Forestry dominated (estimated 70%) plantation MIS sales in 2010 and as such its Product Disclosure Statement is appropriate for illustrating the criticisms raised in section 3. The key variables and financial arrangements for Macquarie Forestry's 2010 product are presented in Table 1.

Table 1. The Macquarie Forestry Investment 2010

Item	Quantification	Benefit to Macquarie	Benefit to tax minimising client
Year 1: up-front payment.	\$10 208 (inc GST)	High up-front payment generates investment income from surplus funds.  Macquarie receives fees and interest on loans to clients.	Up-front payment is fully tax deductible in tax year 1.  Provision of loan funds from Macquarie Bank up to 100% of payment with interest cost fully tax deductible.
Year: 1 planting land arrangements.	Clients have the option to purchase units in the Macquarie Timber Land Trust 2010 (a MIS) at \$1 500/ha. Macquarie Bank finances outstanding land cost.	Macquarie receives fees and interest on loans to clients.	Clients can finance the payment via a Macquarie Bank loan. Payments and interest fully tax deductible.
Assumed plantation productivity (MAI).	22.5 m <sup>3</sup> /ha over 10 years.		
FOB woodchip price per bone dry tonne (bdt).	\$207.40 for 2009. No expected final price data presented but text and associated graph (Macquarie Group p. 20) suggests real prices may continue to decline at historical rate of around 1% per annum.		
Assumed woodchip sales revenue/ha.	No estimate reported.		
Plantation establishment, management and maintenance over the rotation undertaken by contracted plantation managers (Midway & McEwans).	No cost data reported.	Contract paid by Macquarie from revenue received in year 1. Surplus available for ongoing investment and income generation.	
At rotation end, harvesting, haulage, chipping and loading contracted to Midway.	No cost data reported.	Contract paid by Macquarie from revenue received in year 1. Surplus available for ongoing investment and income generation.	

Net harvest revenue	No estimated net harvest revenue data presented.	Macquarie Bank minimises its exposure to risk of unfavourable market and low plantation productivity. High up-front payment enables Macquarie's low 11.45% share of net harvest proceeds (comprising maintenance & management fees and deferred rent as detailed in next two items).	Receives 88.55% of net harvest revenue as taxable income.
Maintenance and management fees (5.5% (inc GST) of net harvest proceeds).		Fees paid to Macquarie.	Fees are tax deductible.
Deferred rent (4.95% (inc GST) of net harvest proceeds).		Fees paid to Macquarie with equal amount of deferred rent paid to the Land Trust Responsible Entity.	Payment is tax deductible.

Source: Macquarie Group, 2010.

As investments, plantation MIS are high cost products (for evidence, see Ajani 2010). The Parliamentary Joint Committee on Corporations and Financial Services (2009, pp. 45-6) commented on agribusiness MIS:

*'... , there is currently potential for MIS to use unprofitable high cost structures to provide greater tax deductibility to investors, while directing a proportion of this tax-related investment to related entities charging above commercial rates for project services. While investor focus is on minimising tax, rather than investing in the most profitable venture, this directs capital away from profitable uses and disadvantages traditional farming enterprises by increasing natural resource costs and encouraging oversupply.'*

High-cost up-front products provide increased opportunities for middlemen providing them guaranteed income hooks via fees and contracts. Ultimately, the Australian public, farming communities and tax minimising clients pick up the bill. Wood processors are also damaged with their wood supply shifted to a high-cost and high-risk wood growing regime disconnected from market signals.

Nearly every aspect contributing to the client return is heavily inflated in the PDS. For example, plantation growth rates are assumed to be 22.5 m<sup>3</sup>/ha however, in late 2008 there was increasing evidence, including some published information, that much of the earlier plantings are not achieving anything close to these growth rates. Indeed, pre-inventory data collected by one firm suggests that the average MAI at age 10 is more like 14.5 m<sup>3</sup>/ha/yr (a 40% reduction on earlier expectations).

Similarly, in respect of stumpage rates: the price paid to 'growers' for standing trees before harvest. (Plantation MIS Responsible Entities call tax minimising clients 'growers'.) The return they receive at harvest time is effectively for stumpage and so the market reality of

stumpage price statements in Product Disclosure Statements is crucial for sound investment decision making.

In the expert report accompanying Macquarie Forestry's product disclosure statement, Poyry Management Consulting calculated a chiplog stumpage price of \$49.65/m<sup>3</sup> and a harvest residual stumpage price of \$29.57/m<sup>3</sup> (Macquarie Group 2010, appendix A). These assumptions, while helping to make the financial product look better on paper, bear no relation to actual returns being achieved by growers nor prices being paid by buyers of plantation wood in Australia at present.

For example, Gunns' pulpmill would be rendered commercially unviable even with the 'cheaper' harvest residual stumpage cost of \$29.57/m<sup>3</sup>. The chiplog stumpage price of \$49.65/m<sup>3</sup> is around two to three times higher than softwood plantation chiplog stumpages for wood also supplying paper and wood based panels producers.<sup>1</sup> It is also many times higher – even allowing for quality differences – than competing native forest wood (We should acknowledge that most native forest wood is sold by state forest agencies that at best barely break even.)

## 5. Market analysis

The wood market analysis presented in plantation MIS product disclosure statements has been poor (see Ajani 2009 Appendix A for a detailed examination). The normal commercial incentive to undertake rigorous market analysis is dampened under plantation MIS arrangements because Responsible Entities receive their major income flow up-front. Indeed, Responsible Entities have a short-term commercial interest in biasing upwards their wood market assessments to maximise up-front funds input.

Macquarie Forestry's 2010 product disclosure statement (Macquarie Group 2010) presents six pages of wood market analysis that contain words of caution about predicting market conditions on nearly every page. It also notes that the trend decline in real (inflation adjusted) native forest hardwood chip prices is a relevant guide for 2010 clients. However, substantial information, that I argue is crucial for sound (hardwood chip) plantation investment decision making, is not presented. This information concerns three areas:

- a. Macquarie Forestry states that the level of paper consumption is dependent on GDP and population. It does not refer to increasing wood saving practices, notably paper recycling and investing in higher pulp yielding pulp mills, both of which dampen the demand for wood to make paper. Macquarie Forestry's clients are selling into the wood (not the paper) market and resource saving technology enables paper consumption to continue growing at significantly higher rates than that for wood. Data limitations abound, but FAO data reveal that pulp made from wood used in global paper production grew by 1% per annum since 1990, meaning that growth in actual wood input is likely to be less than 1% per annum because of increasing pulping efficiencies (Ajani 2011).

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<sup>1</sup> For comprehensive Australian stumpage prices see Private Forests Tasmania (2004). Prices are for 2002 but unlikely to have changed significantly in real terms over the past eight years.

- b. Macquarie Forestry's arguably loosely worded statement that:

*'Harvest volumes from plantations are expected to progressively replace much of the native forest-sourced fibre currently used by the Japanese market. It is anticipated that the Australian woodchip producers, such as investors in the Macquarie Forestry Investment 2010 remain in a position to provide a replacement for the native forest sourced wood previously used to satisfy demand for wood and paper products.'*

could reasonably be interpreted to mean that the Japanese woodchip market for 2010 clients (i.e. in 2020-2021) will still be open to native forest substitution. The evidence is to the contrary. Over FY2009, Australia exported an estimated 3.7 million tonnes of hardwood plantation chips and an estimated 4.4 million tonnes of native forest hardwood chips (using ABARE 2010 with data amended for wood losses and unit conversions). Most (81%) was exported to Japan. Australia's hardwood plantation chiplog supply over 2010-14 is projected at 13.8 million m<sup>3</sup> per annum (1 m<sup>3</sup> is roughly equivalent to one green tonne) (National Plantation Inventory 2007, p. 8). The Japanese paper industry is already well advanced in its shift to the more attractive plantation resource, a structural change that is expected to be finished well before Macquarie Forestry's 2010 wood comes onto the market.

- c. Macquarie Forestry highlights China as an emerging market opportunity without mention of China's substantial work to avoid pressuring global wood resources. China has so far avoided driving up wood prices through resource saving technology (notably paper recycling and investment in high yielding pulp mills), plantation establishment for paper production and pre-emptive price negotiations. Despite China's average 9% per annum growth in paper consumption over the 27 years ending 2007, growth in global wood consumption has remained constrained and export prices for wood have not escalated (Ajani 2011).

## 6. MIS and the CFI

Although most plantation MIS companies have collapsed, some remain and tax minimising investors still subscribed \$74 million into plantation MIS in FY2010. The Australian Government retains the enabling legislation. This is the context for appraising the CFI. The details for the rules, arrangements and integrity standards are not finalised, but it is virtually unimaginable that plantation MIS will not be incorporated, in the absence of substantial political engagement to oppose such an outcome. Possible arrangements include:

- a. Plantation MIS Responsible Entities becoming CFI project proponents, promoting and managing 'carbon sink forests' as another income stream. Plantation MIS requires productive agricultural land to generate (at least on paper) the wood yields and therefore income to cover these high-cost tax minimisation products (for example Macquarie Forestry 2010 p. 22 states its 2010 planting will be undertaken on dairy farms, grazing properties and existing commercial plantation land). The tax arrangements underpinning the schemes work as a subsidy distorting agricultural land and water use away from food production to plantations. The CFI is likely to intensify resource misallocation in Australian agriculture.

- b. Broadening plantation MIS to include biofuels and other biomass feedstocks. This would link the already economically flawed plantation MIS arrangements with the arrangements aimed at meeting government renewable energy targets (Australian and overseas). Policy implementation in Australia is via traded renewable energy certificates (RECs) which generate an income stream in addition to the actual energy product. Governments (Australian and overseas) have deemed wood-based energy renewable and therefore eligible for RECs. This is heavily contested in the case of native forest wood and questioned in the case of plantation wood. In addition, for both wood sources, Australia ignores the CO<sub>2</sub> emissions from burning wood for power production, arguing that regrowing 'forests' will (eventually) remove the emissions. Such a ruling enables wood-based energy products to be carbon cost free in any carbon pricing arrangement, although emissions occur and take decades for removal.

CFI projects will be required to meet additionality standards: the test being that there are reasonable grounds to believe that the project is unlikely to be financially viable or to occur without carbon credits income. This provision raises important questions that require clarification:

- If plantation MIS are considered commercially unviable (as evidenced by the spate of collapses) does this mean plantation MIS could satisfy the CFI additionality standards?
- If so, does not this contradict the ATO judgement that plantation MIS are inherently commercial?
- Could a plantation MIS Responsible Entity, through the CFI, apply for carbon credits arguing that unforeseen market conditions now render the original project unviable but growing the plantations on would be viable with carbon credits?

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# Australia's Wood and Wood Products Industry Situation and Outlook

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## Working Paper

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Australia's native forests and wood based industries are at a crossroad. Which path they travel is entirely dependent on government policy concerning, in particular, how the land use sector is brought into the climate change challenge; whether native forest energy and other biomass feedstocks are engineered into profitability; the policy priority given to plantation processing; and whether unprofitable state native forest agencies are retired. Tackling these contemporary policy issues requires an understanding of Australia's wood and wood products industry: its situation and outlook. The aim of this working paper is to present such background information to those engaged in the policy process and to place it in the context of contemporary policy challenges.

## Summary

Low consumption growth and surging plantation resources characterises Australia's wood products industry. Australia's wood consumption (to make all the sawn timber, wood panels and paper we consume whether domestically produced or imported) increased by only 0.8% pa over 1990 to 2009. Domestic plantation wood supply grew by 6.3% pa over the same period (Figure 1).

Plantations now supply 82% of the wood for solid wood products manufacturing (sawn timber and wood panels) in Australia (Figure 7). Production of native forest solid wood products has contracted by an average 2% pa over the past two decades. In this intense period of industry structural change, buyers have not shifted to hardwood-based imports, including from tropical regions. Instead, consumption of hardwood solid wood products, domestically produced and imported, contracted (Figure 10). Imports of solid wood products from tropical countries accounted for only 2% of our consumption in 2008/09 (Figure 24).

Hardwood plantation chips are decimating native forest chip exports, the single biggest market for native forest wood. On current trends, we can expect a near complete displacement of Australian native forest chip exports within the next few years (Figure 20).

We can also expect increasing plantation-based production, even without any expansion to Australia's plantation estate, as softwood saw and veneer log supply is maintained (Figure 9) and work to increase plantation productivity is set in train; as the projected supply of hardwood plantation saw/veneer logs increases steadily over 2010 to 2030 (Figure 10); and, in particular, as supplies of hardwood pulp logs soar (Figure 20).

Virtually all native forest markets are vulnerable to plantation competition, including within the small high appearance sawn timber and veneer market. Australia's two million hectare softwood and hardwood plantation estate can immediately meet virtually all Australia's wood needs (Figure 1). For too long the false argument, that native forest logging is sawlog-driven and that most sawn timber would survive the plantation competition because of its successful shift to high appearance products, has held sway in state and federal policymaking circles. It is estimated that high appearance sawn timber, less vulnerable to the plantation competition, accounted for 3% of native forest wood production in 2009 (Section 3.1.6). It is a sad reflection on Australian wood and wood products industry policy that a minor product devoid of reliable quantification has stymied coherent forest and wood industry policy for so long.

No doubt calls will be made for more publicly funded hardwood and softwood sawlog plantations. On the softwood front: productivity improvements to lift the existing mediocre performance are waiting for uptake and offer substantial land cost savings compared to the alternative of plantation estate expansion. On the hardwood front: government projections indicate substantial hardwood plantation saw/veneer logs coming on stream over the next 20 years relative to the declining high appearance hardwood sawn timber market (Figure 10). An incorrect interpretation of market failure has been used to support calls for government funding to do the job the private sector apparently is not interested in – investing in long lead-time plantations. Long lead times are not in themselves a market failure. Rather, investors in long rotation plantations require higher returns to compensate for the increased risk. Hardwood sawmillers, however, appear unwilling to pay the higher wood prices to attract the plantation investment and expect the public to keep subsidising their wood costs.



Missed opportunities abound as the benefits of new industry players, products and technologies and biodiversity conservation/carbon store opportunities for native forests lie unrealised. Realising these missed industry opportunities requires government developing a coherent wood and wood products industry policy focussed around plantation processing. Such a policy would completely free the market of state-subsidised native forest competition and stop unending plantation expansion via tax-based subsidies devoid of rigorous market analysis. Instead, it would set the prime objective to encouraging commercially viable domestic plantation processing. The package would include research and development programs, worker and management skill development and transport strategies with a focus around regional hubs with a critical plantation mass for scale economy processing.

Wood products industry and forest policy making today is like being back in the 1970s. Native forest logging interests calling for approval to enter the vast energy and other biomass feedstock markets are the new woodchippers. Their successful lobbying on carbon accounting details and classifying native forests as renewable and therefore eligible for renewable energy certificates works to propel these commercially marginal new opportunities for native forests across the profitability line. The behaviour is akin to the 1970s chip export proposals that depended on low priced native forests logs for profitability. Even the calming sounds of ‘sawlog-driven’ or additional to ‘high value’ processes are familiar, as is the argument that only ‘waste’ will be used. Also familiar are plans for state forest agencies to manage areas of native forests for carbon stores. It was called ‘multiple-use management’ in the 1970s.

The 1970s was the era of government subsidies for softwood plantations followed, a few decades later, by tax minimisation plantation managed investment schemes. These schemes remain in place and tax minimisers keep subscribing despite the predicted and now realised widespread collapse within the sector. Forestry lobbyists have carbon sink plantings, either separate or tacked onto wood producing plantations, on the agenda. With the public purse open, it seems there is no end for plantation expansion in Australia.

There is one difference: we can choose to learn from past policy mistakes.

Public interest outcomes are compromised when policy is dominated by the interests of economically and environmentally inferior incumbents. Engineering commercial viability into wood based energy suits the native forest sector: but it is not an efficient energy production system. Planting carbon sinks, especially with single or limited species, suits the plantation lobby: but such plantings are not efficient carbon stores. Tasking state forest agencies with managing native forests as carbon stores suits the incumbent state forestry agencies: but they not skilled in biodiversity conservation which is the key to maintaining and restoring native forest carbon stocks.

Quite possibly, government will not resist the lobbying that prevents Australia having a coherent wood products industry and forest policy where each land sector is allocated to the job it does best: plantations for wood products and native forests for biodiversity conservation/carbon stores/water. If government facilitates native forests into the energy and other biomass feedstock markets, Australia’s forest conflict will continue raging. The public can wish to avoid this outcome, but only governments can make that happen.

## 1. Introduction

Australia's native forests and wood based industries are at a crossroad. Which path they travel is entirely dependent on government policy concerning, in particular, how the land use sector is brought into the climate change challenge; whether native forest energy and other biomass feedstocks are engineered into profitability; the policy priority given to plantation processing; and whether unprofitable state native forest agencies are retired. Tackling these contemporary policy issues requires an understanding of Australia's wood and wood products industry: its situation and outlook. The aim of this working paper is to present such background information for those engaged in the policy process and to place this information in the context of contemporary policy challenges. The paper was stimulated by environment movement requests for such background information and analysis.

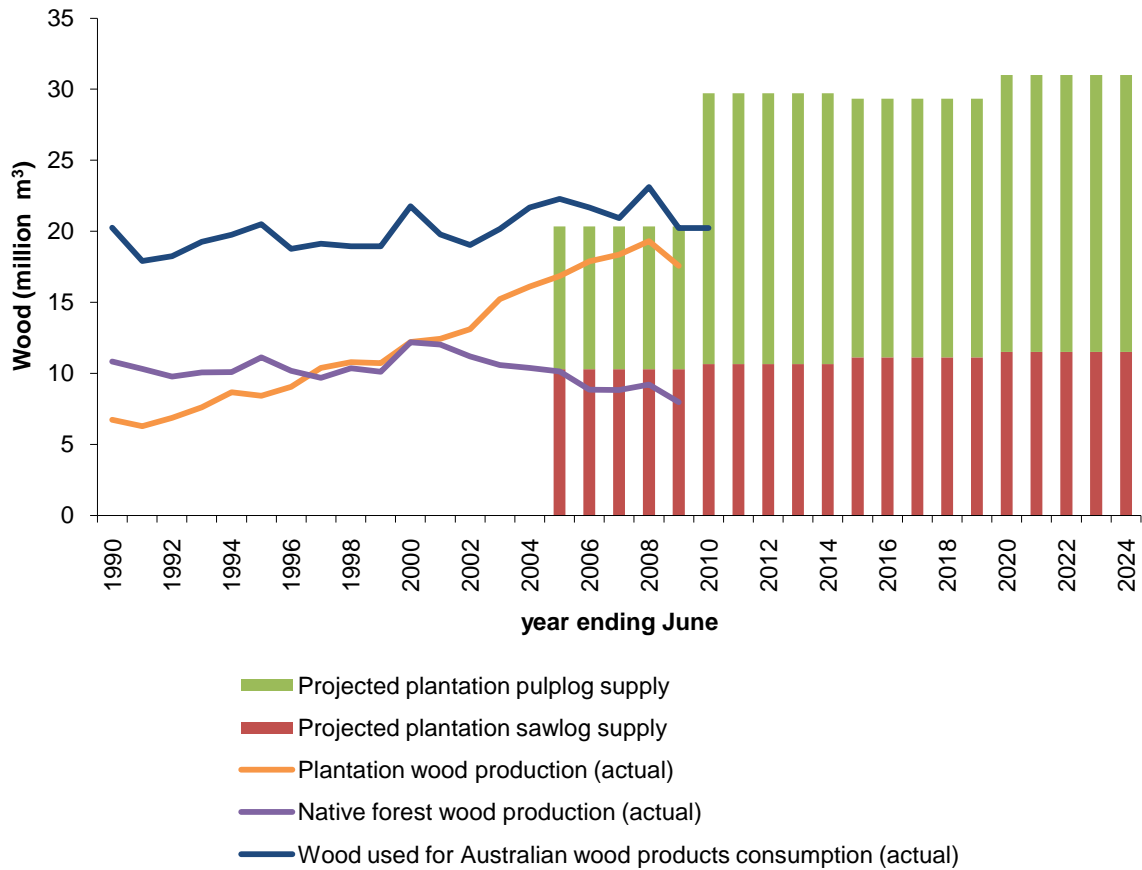
The data sets used in the analysis are close to entirely sourced from ABARES (the merged Australian Bureau of Agricultural and Resource Economics and the Bureau of Rural Sciences) and the Australian Bureau of Statistics (ABS). This includes actual production, import, export and consumption data and projected plantation wood supply. The main challenge was to disaggregate those data sets not already split into their plantation-native forest components. Where this was necessary, the methods are detailed under the relevant figure or table. There may be different views about the methods, for example the proportion of pulp made using fillers and additives or sawn timber recovery rates. However, amending the figures presented in this working paper will not change any of the conclusions arising from the analysis. Australia's plantation resources, relative to the native forest based sector are simply too big.

## 2. Australia's plantation wood supply and wood needs

Australia's two million hectare plantation estate can supply more than enough wood to make virtually all the sawn timber, wood panels and paper Australia consumes. This includes the wood embodied in imported wood products (Figure 1).

The Bureau of Rural Sciences, now the Australian Bureau of Agricultural and Resources Economics and Sciences (ABARES), generated the plantation wood supply projections (Bureau of Rural Sciences 2007) presented in Figure 1. The projection work was undertaken when Australia's plantation estate covered 1.8 million hectares, which means that the average productivity of the estate is around 16 to 17 m<sup>3</sup>/ha/yr. For a processing industry wishing to establish and maintain international competitiveness, this mediocre plantation productivity demands attention. A modest 1% pa productivity improvement over the next 20 years (reaching 20 m<sup>3</sup>/ha/yr by 2030) would increase plantation wood supply to around 37 million m<sup>3</sup> pa by 2030. If achieved, growers would benefit from higher yields/revenues and cost savings by avoiding the purchase of around 350k ha of land) and processors would enjoy scale economy benefits. Preferencing productivity improvements over on-going land acquisition is a cost attractive strategy for long term wood supply growth over and above that from maturing plantations.

**Figure 1** Australia’s wood consumption and projected plantation wood supply



Source/methods: ABARE *Australian Commodity Statistics* for wood consumption (includes wood embodied in imported sawn timber, paper and wood panels) and wood production which was amended using ABARE *Australian Forest and Wood Products Statistics* to identify hardwood plantation sawlog production and cypress sawn timber converted to sawlog production (using a 0.4 recovery factor) to enable the plantation – native forest disaggregation.

Other important information from Figure 1:

- Australia’s wood consumption (to make all the sawn timber, wood panels and paper we consume whether domestically produced or imported) increased by only 0.8% pa over 1990 to 2009.<sup>1</sup>
- Australia’s plantation wood production increased by 6.3% pa over 1990 to 2009 and accounted for two thirds of Australia’s wood production in 2009.
- Australia’s production of native forest wood decreased by 0.7% pa over 1990 to 2009 and accounted for one third of Australia’s wood production in 2009.

<sup>1</sup> This (and all other) long term growth rate was calculated using ordinary least squares regression including all annual data over the period specified, to avoid the distortions of compound growth rate calculations based only on end point data.

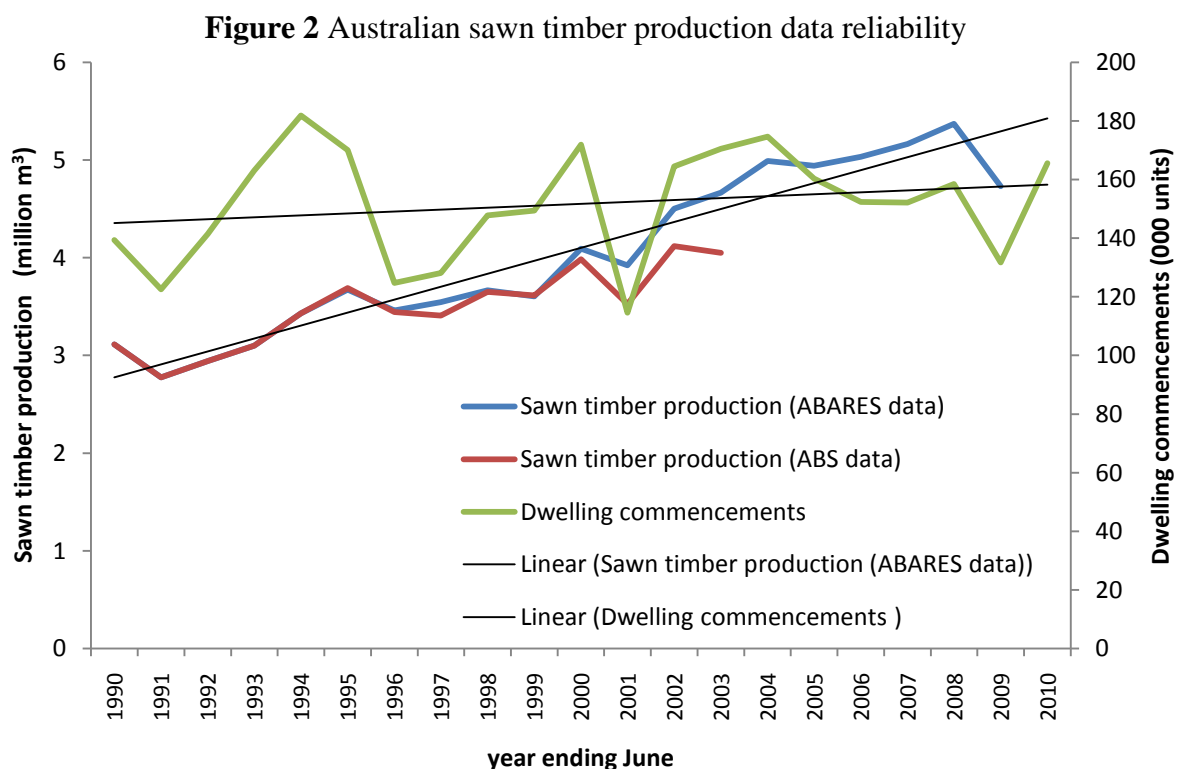
### 3. Processed wood products

In this section we investigate, in as much product detail as government statistics enable, trends in consumption, production, imports and exports of processed wood products. The capacity for existing plantations to meet, in both quantity and quality terms, Australia's consumption of individual wood products is examined.

#### 3.1 Solid wood products (sawn timber and wood panels)

##### 3.1.1 Sawn timber data reliability

Australia does not have reliable sawn timber production time series data. This compromises sawn timber consumption data which ABARES estimates by adding imports to and deducting exports from domestic production (export and import data are reported by the Australian Bureau of Statistics (ABS)). ABARES report that since the cancellation of a number of state-based surveys by the ABS and state government forestry agencies in 2004, there have been no consistent estimates of sawn timber production available for Australia (Burns *et al.* 2009). ABARES conducted a sawmill survey in 2007 to improve sawn timber data quality (Burns *et al.* 2009) however sawn timber production and consumption data should be viewed cautiously because of the absence of ongoing rigorous data collection.



Source: ABARE *Australian Commodity Production* for ABARES sawn timber data; ABS *Manufacturing Production, Australia June 2010* Cat. No. 8301.0.55.001 (series now ceased) for ABS sawn timber production; ABS *Dwelling Unit Commencements Australia* Cat. No. 8750.0 for total dwelling commencements.

Evidence suggests the ABARES data may overstate sawn timber production (Figure 2):

- Over the concluding four years of ABS sawn timber reporting (2001 to 2003) based on relatively high quality manufacturing industry surveys, ABS reported increasingly lower sawn timber production relative to ABARES.
- Most sawn timber is used in dwelling construction, yet Australian consumption of sawn timber (calculated using ABARES production data) is reported to be increasing at rates significantly higher than trend growth in dwelling commencements.

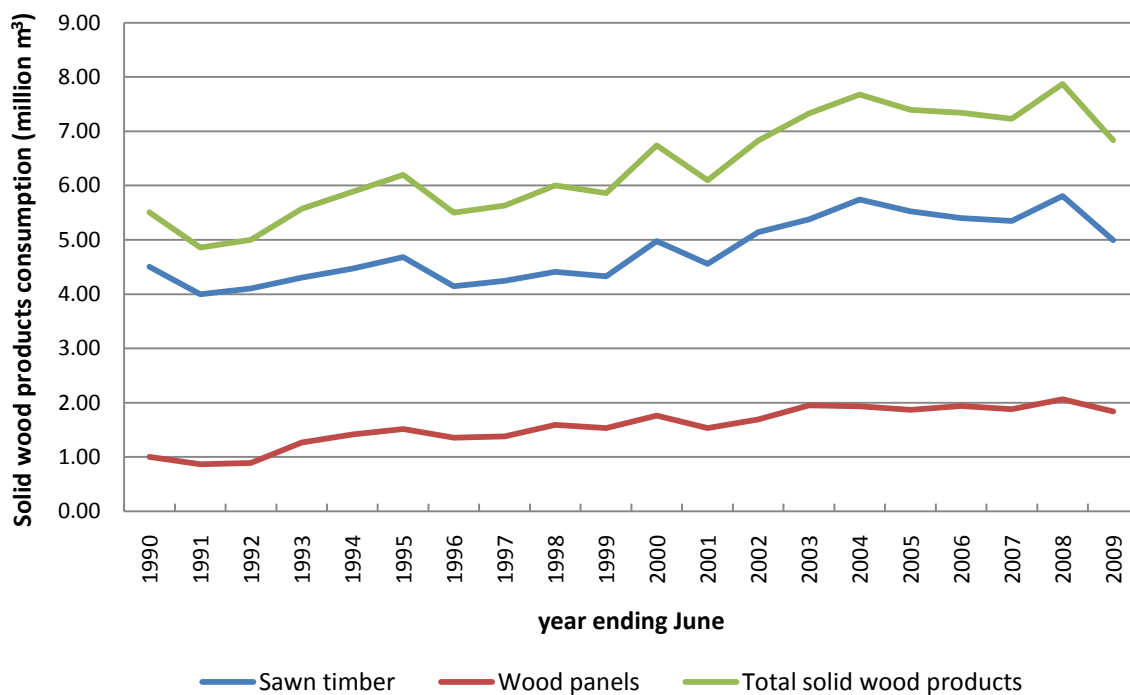
ABARES sawn timber production and consumption data are used in the following analysis with the understanding that both data sets may be overestimates.

### 3.1.2 Solid wood products – consumption

In this analysis, solid wood products cover sawn timber and wood panels with the latter comprising those reported by ABARES namely plywood, particleboard, medium density fibreboard and hardboard. Intra industry product substitution is high within the solid wood products sector.

Solid wood products consumption has increased by an average 2.2% pa over the past two decades, but with no growth since 2004 (Figure 3). **From a low base**, wood panels consumption has grown at nearly double the rate of that for sawn timber (average 4% pa c.w. average 1.7% pa) over 1990 to 2009.

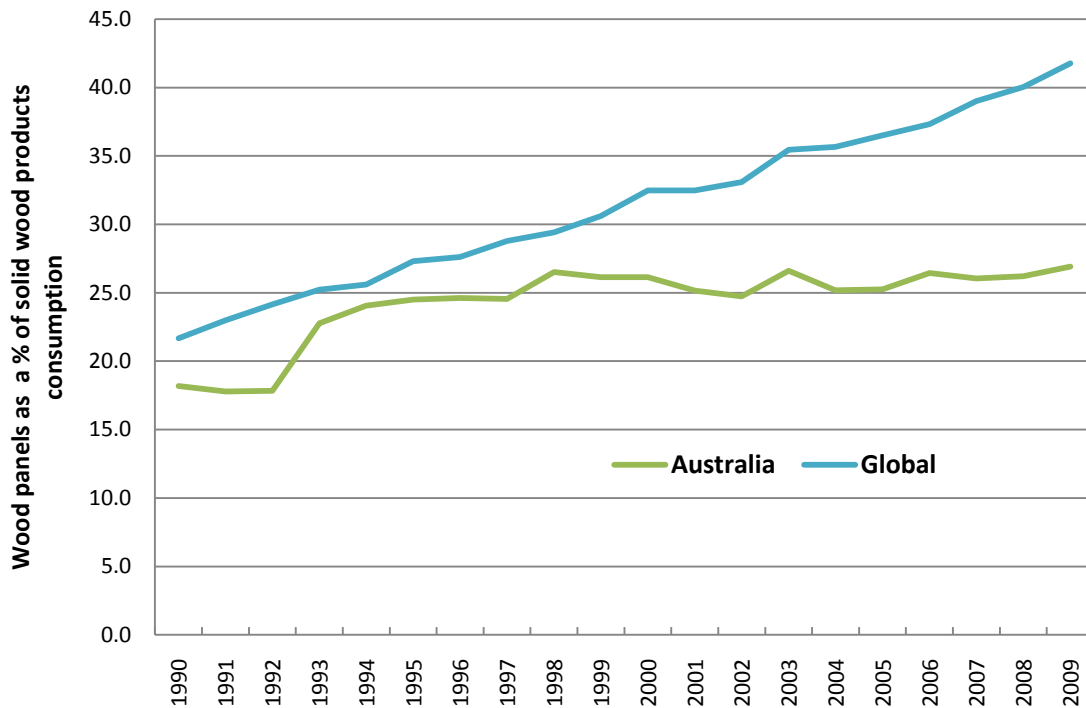
**Figure 3** Australian consumption of solid wood products



Source: Consumption data from ABARES *Australian Forest and Wood Products Statistics* and *Australian Commodity Statistics*. Wood panels consumption includes plywood, particleboard, medium density fibreboard and hardboard (production set at 50 000 m<sup>3</sup> pa since 1993).

Wood panels' Australian market share is low, relative to its market position globally, and has been stagnant since the mid 1990s (Figure 4). One explanation is that if official Australian sawn timber statistics are overestimates (see section 3.1.1), wood panels' market share is actually higher than that depicted in Figure 4. Another explanation is that official statistics are accurate but for some reason Australian producers and importers of wood panels have failed to build market share over the past 15 years. We will return to this matter in the analysis of wood panel imports.

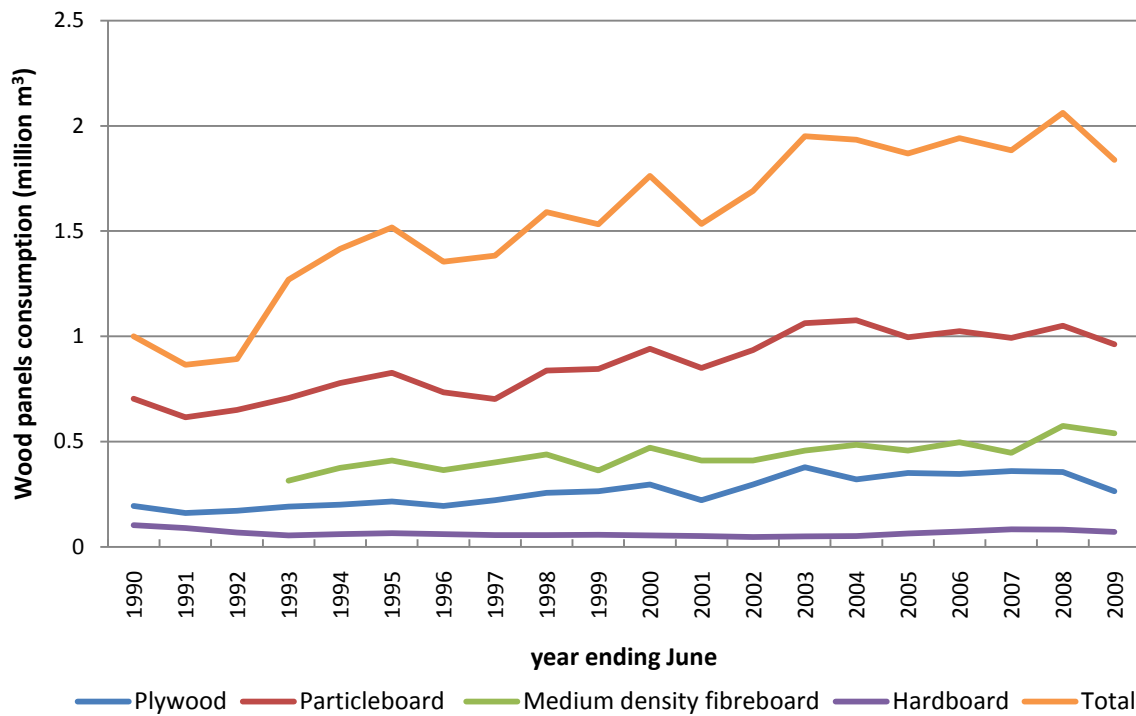
**Figure 4** Wood panels market share – Australia and global



Source: Australian data as for Figure 3; global data from FAO FAOSTAT.

Particleboard accounts for half of Australia's wood panels consumption, followed by medium density fibreboard and plywood (Figure 5). Since 2003, consumption across all products has been flat, with the exception of medium density fibreboard in 2008.

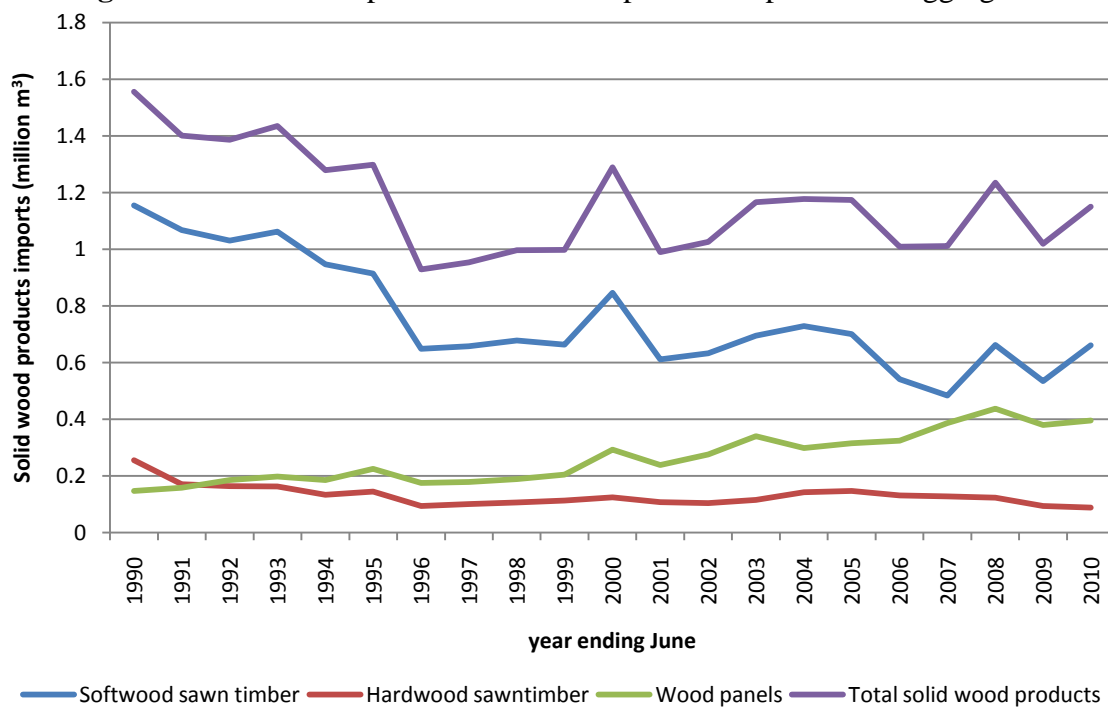
**Figure 5** Australian wood panels consumption – product disaggregation



Source: Consumption data from ABARES *Australian Forest and Wood Products Statistics* and *Australian Commodity Statistics*. Wood panels consumption includes plywood, particleboard, medium density fibreboard and hardboard (production set at 50 000 m<sup>3</sup> pa since 1993).

### 3.1.3 Solid wood products – imports

**Figure 6** Australian imports of solid wood products – product disaggregation



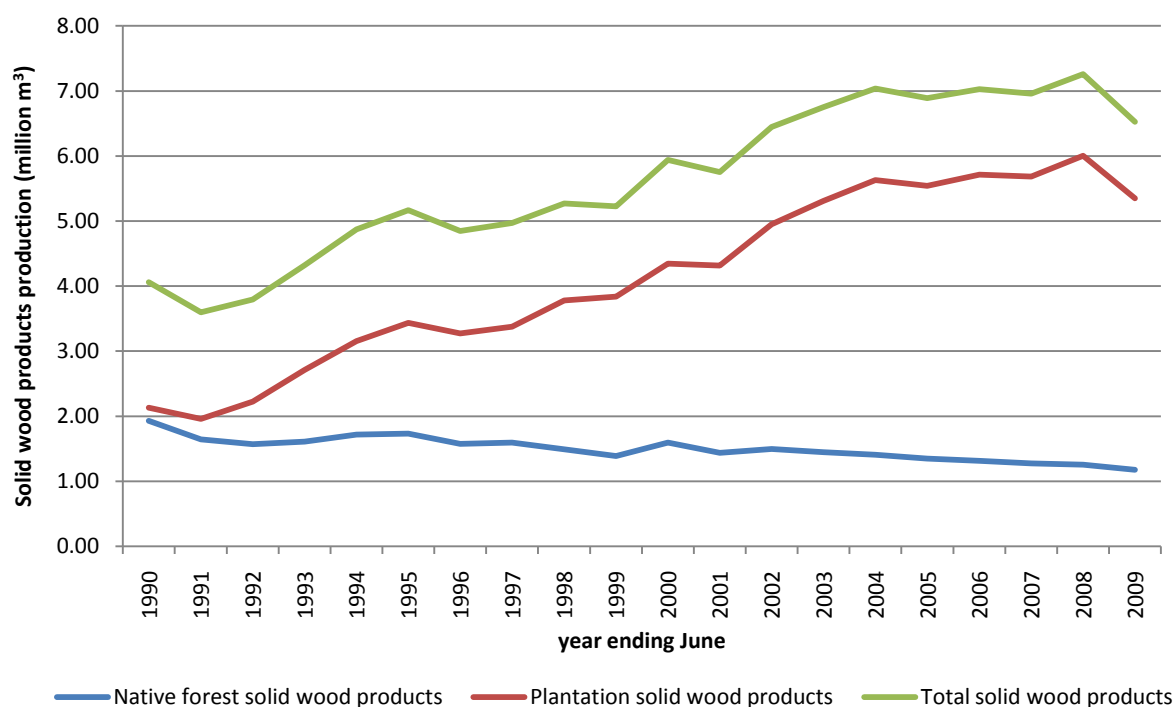
Source: ABS *International Trade, Australia* Cat. No. 5465.0 as reported in ABARES *Australian Forest and Wood Products Statistics* and *Australian Commodity Statistics*.

Australia’s imports of solid wood products have remained unchanged over the past decade with declining softwood sawn timber imports offsetting increasing imports of wood panels particularly plywood. Imports of hardwood sawn timber are minor and continue to trend down.

### 3.1.4 Solid wood products – Australian production

Australia’s production of solid wood products has grown strongly over the past two decades (average 3.6% pa 1990 to 2009) on the back of strong plantation based growth (average 5.9% pa). The sector is now heavily plantation dependent (82% in 2009): the actual market share for plantation based solid wood products may be understated if ABARES’ native forest sawn timber production statistics are overestimates. Production of native forest based products contracted by an average 1.9% pa over 1990 to 2009 (Figure 7).

**Figure 7** Australian production of solid wood products – wood source disaggregation



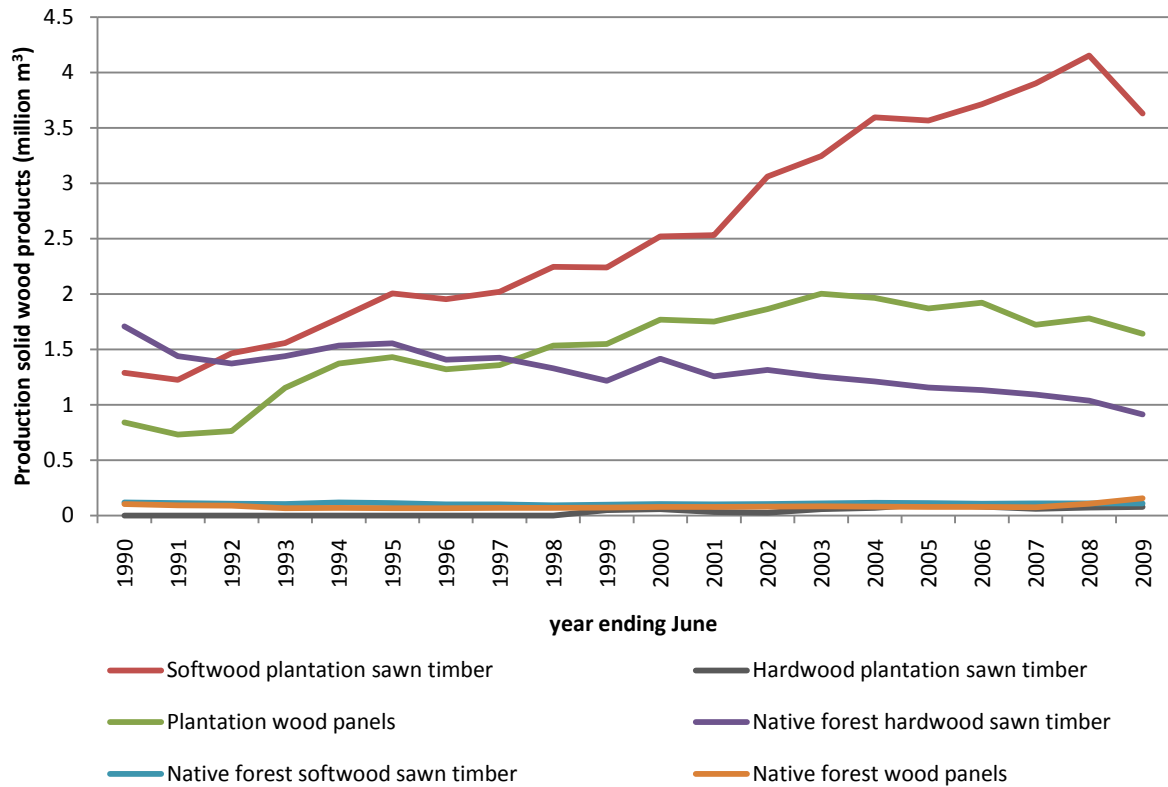
Source/methods: Production data from ABARES *Australian Forest and Wood Products Statistics* and *Australian Commodity Statistics*. Native forest sawn timber includes cypress production. Hardwood plantation sawn timber was estimated using a 0.38 recovery factor applied to hardwood plantation sawlog data reported in ABARES *Australian Forest and Wood Products Statistics*. Wood panels production includes veneer (exported), plywood, particleboard, medium density fibreboard and hardboard (production set at 50 000 m<sup>3</sup> pa since 1993). Wood panels production was disaggregated into wood source using the following plantation/native forest proportions: exported veneer 0.0:1.0; plywood 0.95:0.05; particleboard 1.0:0.0; medium density fibreboard 0.98:0.02; hardboard 0.0:1.0.

Softwood plantation sawn timber dominates Australia’s production of solid wood products (Figure 8). Of concern should be Australia’s declining production of plantation-based wood panels since 2003, despite increasing consumption which is being met via imports (Figure 6).



Native forest sawn timber production is expected to continue contracting and all native forest-based wood panels production to remain nationally insignificant. Although not discernable in Figure 8, native forest veneer production rose strongly in 2008 with the commissioning of the Ta Ann Group’s rotary veneer mill in Tasmania. Also not discernible in Figure 8 is the emergence of an upward trend in hardwood plantation sawmilling: a matter for more detailed analysis of native forest sawn timber (Section 3.1.6).

**Figure 8** Australian production of solid wood products – wood product and wood source disaggregation



Source/methods: Production data from ABARES *Australian Forest and Wood Products Statistics* and *Australian Commodity Statistics*. Native forest sawn timber includes cypress production. Hardwood plantation sawn timber was estimated using a 0.38 recovery factor applied to hardwood plantation sawlog data reported in ABARES *Australian Forest and Wood Products Statistics*. Wood panels production includes veneer (exported), plywood, particleboard, medium density fibreboard and hardboard (production set at 50 000 m<sup>3</sup> pa since 1993). Wood panels production was disaggregated into wood source using the following plantation/native forest proportions: exported veneer 1.0:0.0; plywood 0.95:0.05; particleboard 1.0:0.0; medium density fibreboard 0.98:0.02; hardboard 0.0:1.0.

### 3.1.5 Solid wood products – plantation supply capability

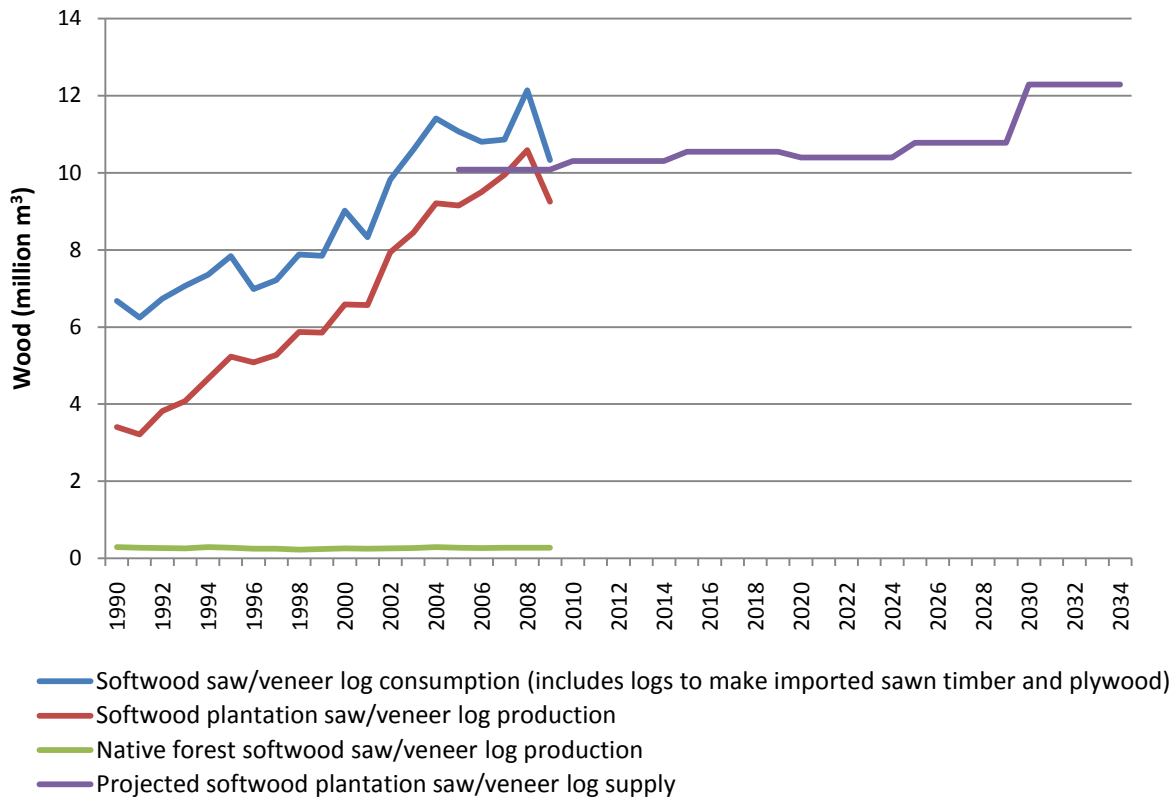
In aggregate wood volume terms, Australia’s existing plantations can supply more than enough wood to make all the sawn timber, wood panels and paper Australia consumes (Figure 1). The question this section investigates is whether existing plantations can do the job for each product group in the solid wood products market?

Saw and veneer logs, as distinct from wood particles, are crucial for meeting Australia’s solid wood products consumption. Sawn timber will continue to dominate the market for the foreseeable future and the residues from its manufacture are able to meet all Australian wood-

based panels<sup>2</sup> consumption with resources to spare: a matter we will pick up after bringing the paper market into the analysis.

Based on existing softwood plantations, Australia is currently close to fully self sufficient in the softwood component of its solid wood products sector (Figure 9).

**Figure 9** Softwood saw/veneer logs – Australian consumption, production and projected plantation supply



Source/methods: Consumption data from ABARES *Australian Forest and Wood Products Statistics* and *Australian Commodity Statistics* with sawn timber and plywood converted to log equivalent using a recovery factor of 0.4 and 0.63 respectively and 95% of plywood consumption assumed to be softwood based. Production data from ABARES *Australian Forest and Wood Products Statistics* and *Australian Commodity Statistics*. Native forest sawn timber comprises cypress sawn timber production reported in ABARES *Australian Forest and Wood Products Statistics* converted to log equivalent using a 0.4 recovery factor. Plantation wood supply projections from Bureau of Rural Sciences (2007).

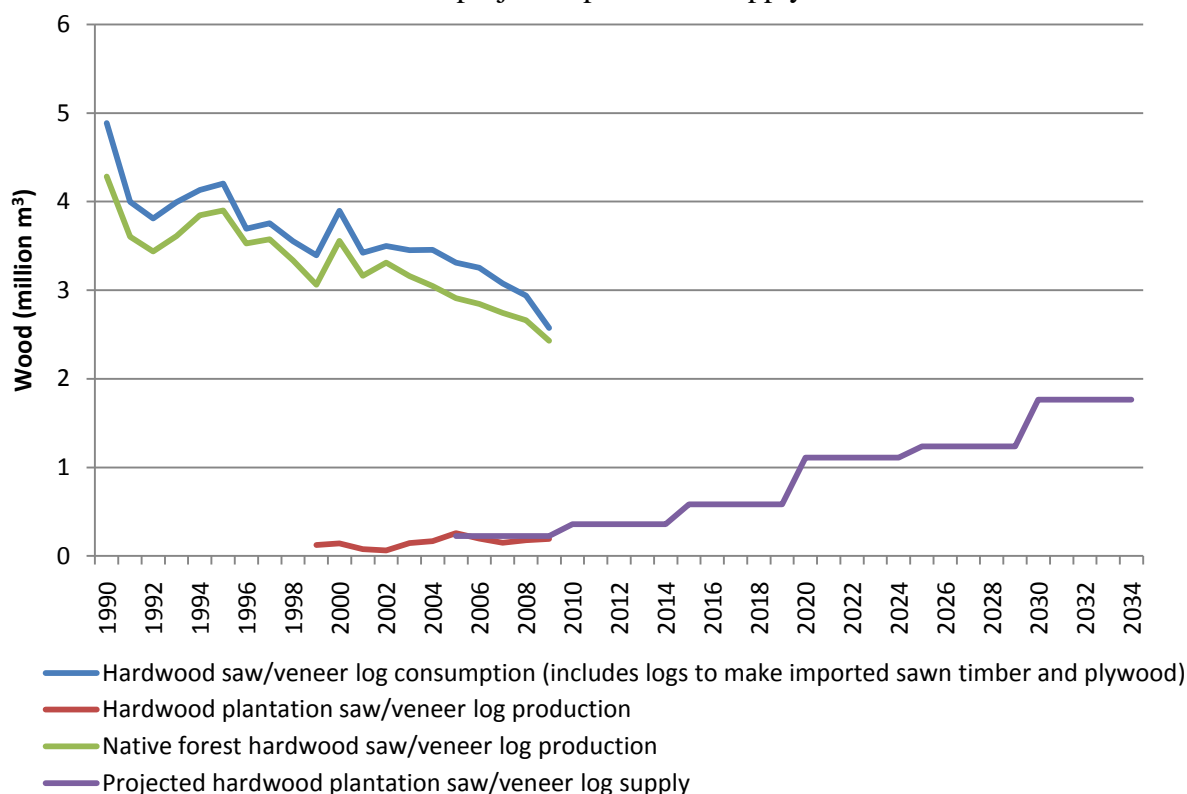
Whether self sufficiency is maintained depends on the demand and wood supply outlook. Growth in the demand for saw/veneer logs will flatten if the consumption mix shifts more to reconstituted wood-based panels – in line with global trends. On the supply side, if realised, plantation productivity improvements will increase future saw/veneer log supply. Processing competitiveness, exchange rate trends and individual corporate strategies will influence the level of imports and exports. These factors will all determine whether or not Australia’s softwood plantation estate should be expanded. The private sector is the best placed to make

<sup>2</sup> Wood-based panels are a subset of wood panels and are made using particles of wood, usually residues from sawmilling and veneer production. Examples include medium density fibreboard, particleboard and hardboard.

such decisions, take the investment risk and enjoy the rewards. This matter is addressed in the policy discussion (Section 5).

Hardwood is the minor raw material in Australia’s consumption of solid wood products; accounting for only 20% of wood used in 2009. Australia’s consumption and production of hardwood-based solid wood products declined by an average 2.1% pa over 1990 to 2009 (Figure 10). This trend is expected to continue in the immediate term with the ongoing displacement of less competitive Australian native forest hardwood sawn timber by softwood solid wood products, both domestically produced and imported. ABARES projects steadily increasing supplies of hardwood plantation saw/veneer logs (Bureau of Rural Sciences 2007) which offer significant processing opportunities over the long term relative to current production (Figure 10). One possibility may be the substitution of native forest logs with hardwood plantation logs at the Tasmanian-based Ta Ann plywood mill. The mill, with its 265 000 m<sup>3</sup> pa hardwood log supply contract through to 2027 (current production is scaling up to this level), is Australia’s largest native forest solid wood products enterprise. ABARES projects strong growth in Tasmanian hardwood plantation saw/veneer log supply: 193 000 m<sup>3</sup> pa over 2010 – 14; 446 000 m<sup>3</sup> pa over 2015-19; 746 000 m<sup>3</sup> pa over 2010-20 (Bureau of Rural Sciences 2007, p. 43).

**Figure 10** Hardwood saw/veneer logs – Australian consumption, production and projected plantation supply



Source/methods: Consumption data from ABARES *Australian Forest and Wood Products Statistics* and *Australian Commodity Statistics* with sawn timber and plywood converted to log equivalent using a recovery factor of 0.4 and 0.63 respectively and 5% of plywood consumption assumed to be hardwood based. Production data from ABARES *Australian Forest and Wood Products Statistics* and *Australian Commodity Statistics*. Plantation wood supply projections from Bureau of Rural Sciences (2007).

### 3.1.6 Native forest sawn timber

So far, the quality of Australia’s sawn timber time series data (see section 3.1.1) does not unduly compromise the analysis of Australia’s solid wood products sector for policy purposes. Reliability becomes an issue when investigating the markets for Australia’s native forest sawn timber. Invariably, at this first level of disaggregation, sawn timber product data are expressed as percentages, not actual estimates. This is a wholly undesirable practice for official (including State Government) statistical reporting.

ABARES’ 2007 sawmill survey covering 26% of native forest sawmills in Australia sought not percentage figures but actual mill production in total, and disaggregated into green structural, green appearance, green other, dry structural, dry appearance and dry other (Burns *et al.* 2009). ABARES however reported only percentage figures for the product disaggregation. I applied ABARES’ product mix to estimated native forest hardwood sawn timber production in 2009 to establish the degree of exposure of native forest sawn timber to plantation solid wood product competition in the immediate term (Table 1).

Under the least intense Scenario 2, where all native forest appearance sawn timber is assumed to be completely isolated from plantation competition, well over half the native forest sawn timber currently produced in Australia is threatened by plantation competition: namely structural sawn timber, pallets, fencing & wooden stakes. The threat increases significantly under Scenario 1 where half the appearance production is assumed to be vulnerable to plantation competition. Combined with structural sawn timber, pallets, fencing & wooden stakes, under this scenario, 80% of current native forest sawn timber production is estimated to be vulnerable to plantation-based competition (Table 1).

**Table 1** Estimating Australian native forest sawn timber product composition 2009 – approach 1

Category	% total native forest sawn timber production	Estimated production heavily exposed to plantation-based competition Scenario 1 (000 m <sup>3</sup> )	Estimated production heavily exposed to plantation-based competition Scenario 2 (000 m <sup>3</sup> )
Total sawn timber production		913	913
Green structural	32%	292	292
Green other (pallets, fencing & wooden stakes)	16%	146	146
Green appearance	13%	59	0
Dry structural	15%	137	137
Dry appearance	23%	105	0
Dry other	1%	9	9
Total exposed to plantation competition		748	584
% of estimated native forest sawn timber production		82%	64%

Source/methods: Burns *et al.* 2009 for product shares. Sawn timber production in 2009 from ABARES *Australian Forest and Wood Products Statistics* with hardwood plantation sawn timber netted out using a 0.38 recovery factor. Scenario 1: 50% of appearance (green and dry) and 100% of all other products heavily exposed to plantation based competition in the immediate term. Scenario 2: No appearance sawn timber but 100% of all other products heavily exposed to plantation-based competition in the immediate term.

The National Carbon Accounting System (NCAS) presents data that enables an alternative approach to investigating native forest sawn timber's immediate prospects. Using (undocumented) Victorian Association of Forest Industries information, Jaakko Poyry Consulting (1999, p. 38) develop the following profile for hardwood (native forest) sawmilling:

- 45% of the sawlog is converted to green sawn timber of which:
  - 30% is used for green framing
  - 15% is used for pallets and palings
  - 55% goes onto drying & dressing, of which:
    - 32% is shavings and waste
    - 68% is used for dried and dressed products, of which:
      - 50% is used for framing
      - 10% is used for furniture
      - 40% is used for flooring and boards.

Applying these percentages to ABARES' estimated native forest sawlog production in 2009 of 2 283 000 m<sup>3</sup> generates a product profile as presented in Table 2.

**Table 2** Estimating Australian native forest sawn timber product composition – approach 2

Category	Estimated sawn timber production 2009 (000 m <sup>3</sup> )	%
Framing (green and dry)	500	59
Pallets and palings	154	18
Furniture	38	5
Flooring and boards	154	18
Total sawn timber	846	100

On the basis of this data set, 77% of current native forest sawn timber is used for framing, pallets and palings and therefore highly vulnerable to plantation competition in the immediate future. A proportion of flooring and board products are also vulnerable.

Final note on native forest sawn timber data reliability

The total sawn timber production figure presented in Table 2 that was estimated using Jaakko Poyry Consulting (1999) recovery factors and product shares applied to ABARES reported native forest sawlog production in 2009 is 7% lower than ABARES' estimated native forest hardwood sawn timber production of 913 000 m<sup>3</sup> (ABARES *Australian Forest and Wood Products Statistics*, with estimated hardwood plantation sawn timber netted out). This adds more weight to the concern that ABARES' native forest sawn timber production statistics are over-estimates and provides a plausible explanation.

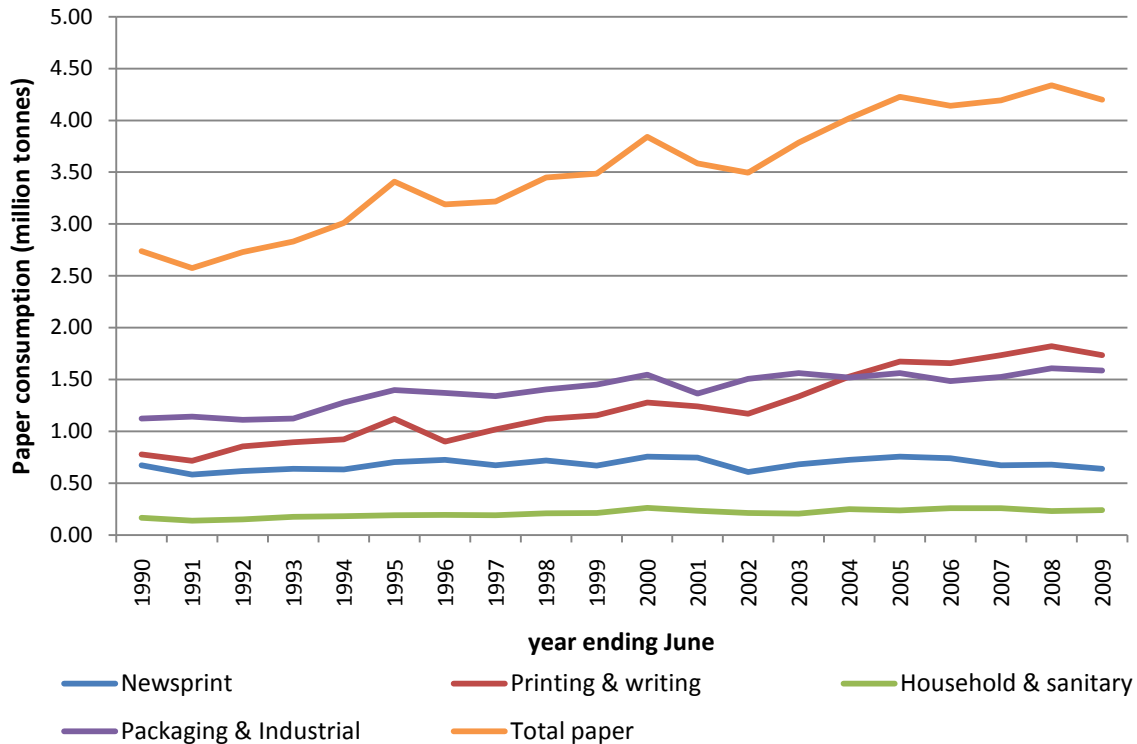
### 3.2.1 Paper

#### 3.2.1 Paper – consumption

Over the near two decades ending June 2009, Australian paper consumption has increased by an average 2.7% pa (Figure 11). Consumption is heavily concentrated on printing & writing papers and packaging & industrial papers (79% of total paper consumption in 2009). Of significance is the strong growth in printing & writing paper consumption, averaging 4.9% pa

over the near two decade period. This high consumption growth rate appears to be slowing, perhaps influenced by paper cost saving strategies by individuals, corporates and government. More recently, and before the global financial sector generated crisis, growth in Australian printing & writing paper consumption contracted to an average 3% pa over the year ending June 2005 to 2008.

**Figure 11** Australian paper consumption – paper product disaggregation

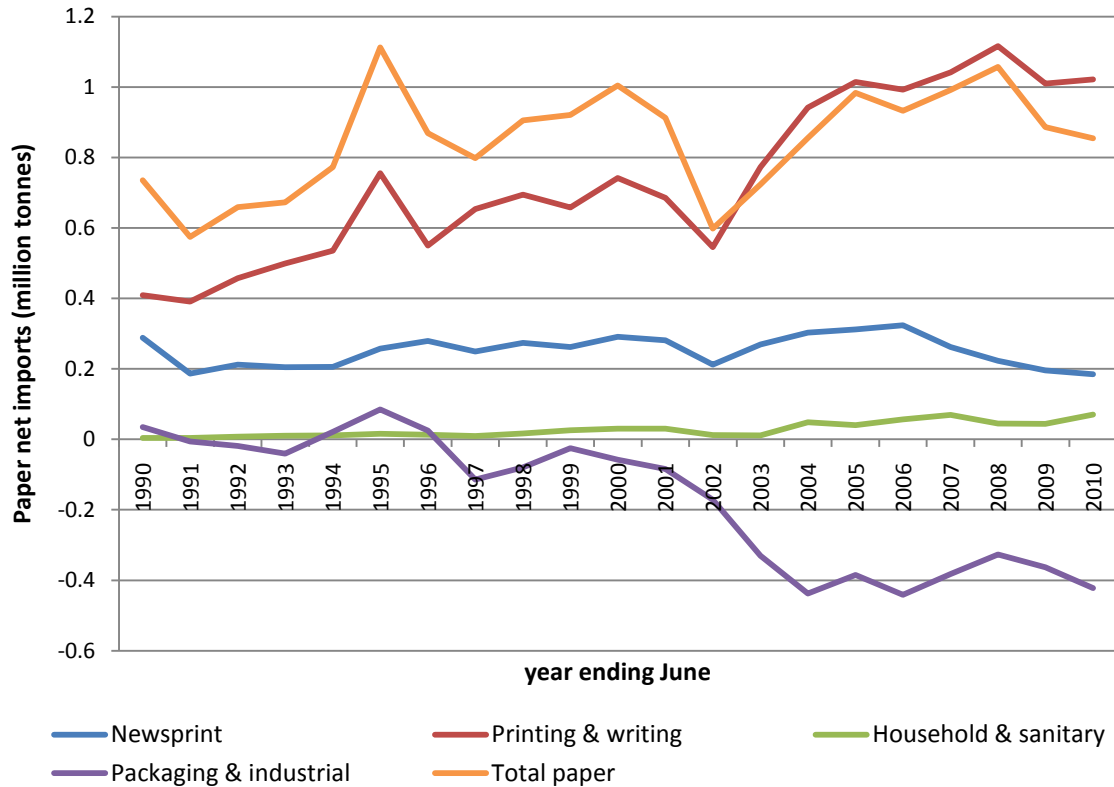


Source: ABARES *Australian Commodity Statistics*.

### 3.2.2 Paper - net imports (imports minus exports)

Net imports of paper have remained flat since the mid 1990s with increasing exports of packaging & industrial paper cancelling increasing imports of printing & writing paper (Figure 12).

**Figure 12** Australian net imports (imports less exports) of paper



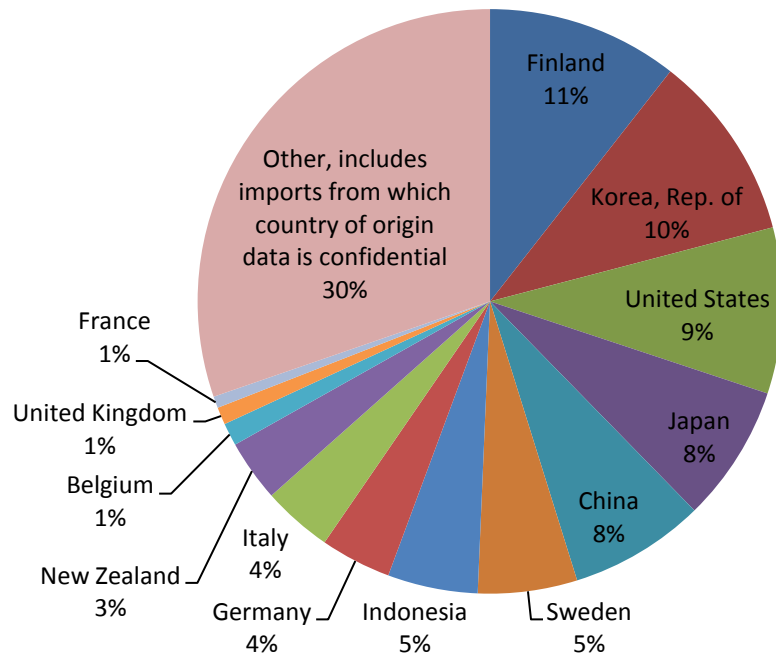
Source: ABS *International Trade, Australia* Cat. No. 5465.0 as reported in ABARES *Australian Forest and Wood Products Statistics*.

Major export destinations for packaging & industrial paper in 2010 were China/Hong Kong/Chinese Taipei (23%); New Zealand (20%); Philippines/Malaysia/Singapore/Indonesia (17%); United States (11%) (ABS *International Trade, Australia* Cat. No. 5465.0 reported in ABARES *Australian Forest and Wood Products Statistics*).

In contrast to this regional concentration in export destination reflecting VISY’s packaging papers’ export market strategy, country of origin sourcing of printing & writing papers imports are diverse (Figure 13). However some trends are discernable for the period 2004 to 2010. Countries of declining importance in meeting Australia’s printing & writing paper consumption include Finland, Sweden, France, Germany, USA and Indonesia. Countries of unchanged importance include Korea, Italy, Belgium and the UK. Countries of increasing importance include China (average 25.9% pa growth over year ending June 2004 to 2010), (Japan 14.6%) and New Zealand (5.0%).<sup>3</sup>

<sup>3</sup> The high growth rates also reflect the low starting point.

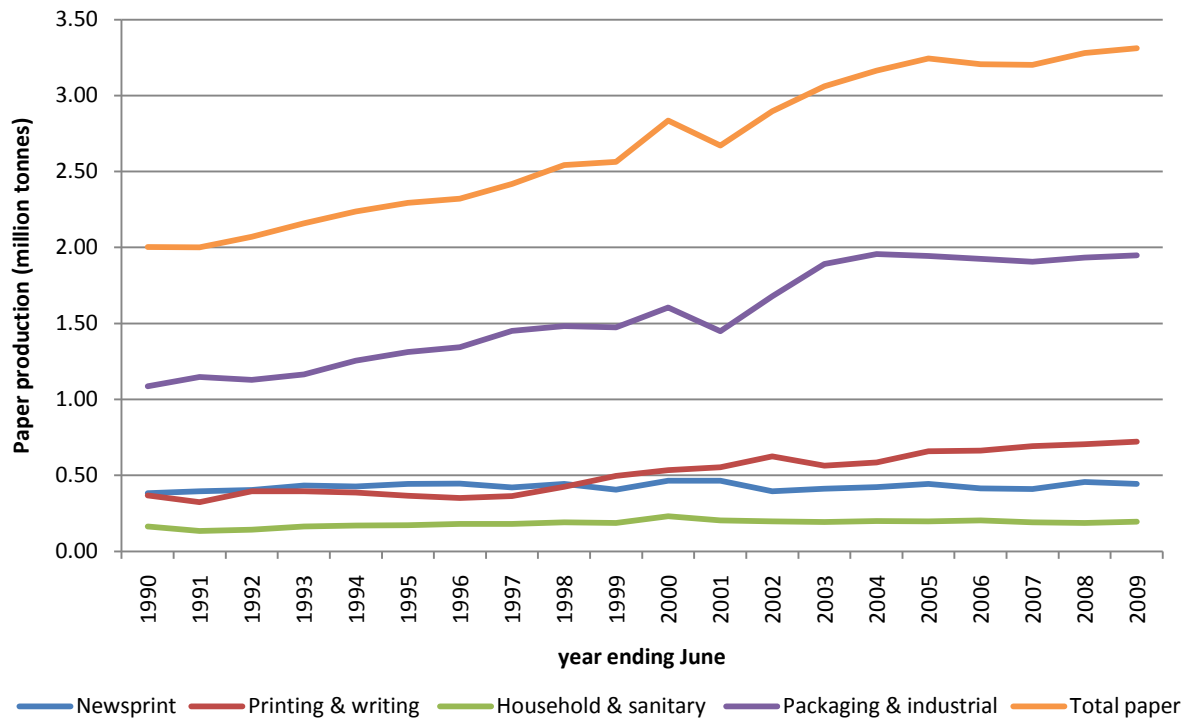
**Figure 13** Australian imports of printing & writing paper by country of origin – 2009/10



Source: ABS *International Trade, Australia* Cat. No. 5465.0 as reported in ABARES *Australian Forest and Wood Products Statistics*.

### 3.2.3 Paper – production

**Figure 14** Australian paper production – product disaggregation



Source: ABARES *Australian Commodity Statistics*.



Australian paper production grew by an average 3.0% pa over the near two decade period since 1990 (Figure 14). Packaging & industrial grades dominate Australia’s paper manufacturing (60% in 2009) with production trending up at an average 3.5% pa over 1990 to 2009. Considerably further down in the product mix are printing & writing papers (22% in 1990), however production of these papers also grew strongly: average 4.4% pa over 1990 to 2009. Newsprint and tissue papers are relatively small components of Australia’s paper product mix (19% combined in 2009).

### 3.2.4 Material inputs for Australian paper consumption

Australia’s paper consumption is met through a combination of domestically produced and imported pulp with varying raw material mixes, recycled paper and imported paper. Comprehensive statistics on the material inputs underpinning Australia’s paper consumption, not surprisingly, do not exist. Table 3 presents an approximation of the material composition of Australian paper consumption using **Australian** paper industry input mixes and conversion factors, informed by the Australian Plantation Products and Paper Industry Council (AP3), *Australian Paper Industry Statistics 2005-06* and Resource Assessment Commission (1992, p. L99). The material inputs required to meet Australia’s current paper consumption were estimated by applying these ratios to Australian paper consumption (Table 4 & 5).

**Table 3** Australian paper consumption – estimated material inputs

	Recycled paper (%)	Softwood pulp (%)	Hardwood pulp (%)	Non wood input, fillers & additives (%)	Softwood input/tonne softwood pulp (m <sup>3</sup> wood per tonne pulp)	Hardwood input/tonne hardwood pulp (m <sup>3</sup> wood per tonne pulp)
Newsprint	35	65	0	0	2.5	
Printing & writing	5	15	65	15	3.7	3.7
Household & sanitary	20	60	20	0	3.7	3.7
Packaging & industrial	65	35	0	0	3.5	

**Table 4** Estimated material inputs required to meet Australian paper consumption – 2009

	Consumption (000 tonnes)	Recycled paper input (000 tonnes)	Non wood input, fillers & additives (000 tonnes)	Softwood pulp (000 tonnes)	Hardwood pulp (000 tonnes)
Newsprint	639	224	0	415	0
Printing & writing	1734	87	260	260	1127
Household & sanitary	240	48	0	144	48
Packaging	1586	1031	0	555	0
Total	4199	1390	260	1374	1175

**Table 5** Estimated wood required to meet Australian paper consumption – 2009

	Softwood (000 m <sup>3</sup> )	Hardwood (000 m <sup>3</sup> )	Total wood (000 m <sup>3</sup> )
Newsprint	1038	0	1038
Printing & writing	962	4170	5132
Household & sanitary	533	178	711
Packaging & industrial	1943	0	1943
Total	4476	4348	8824

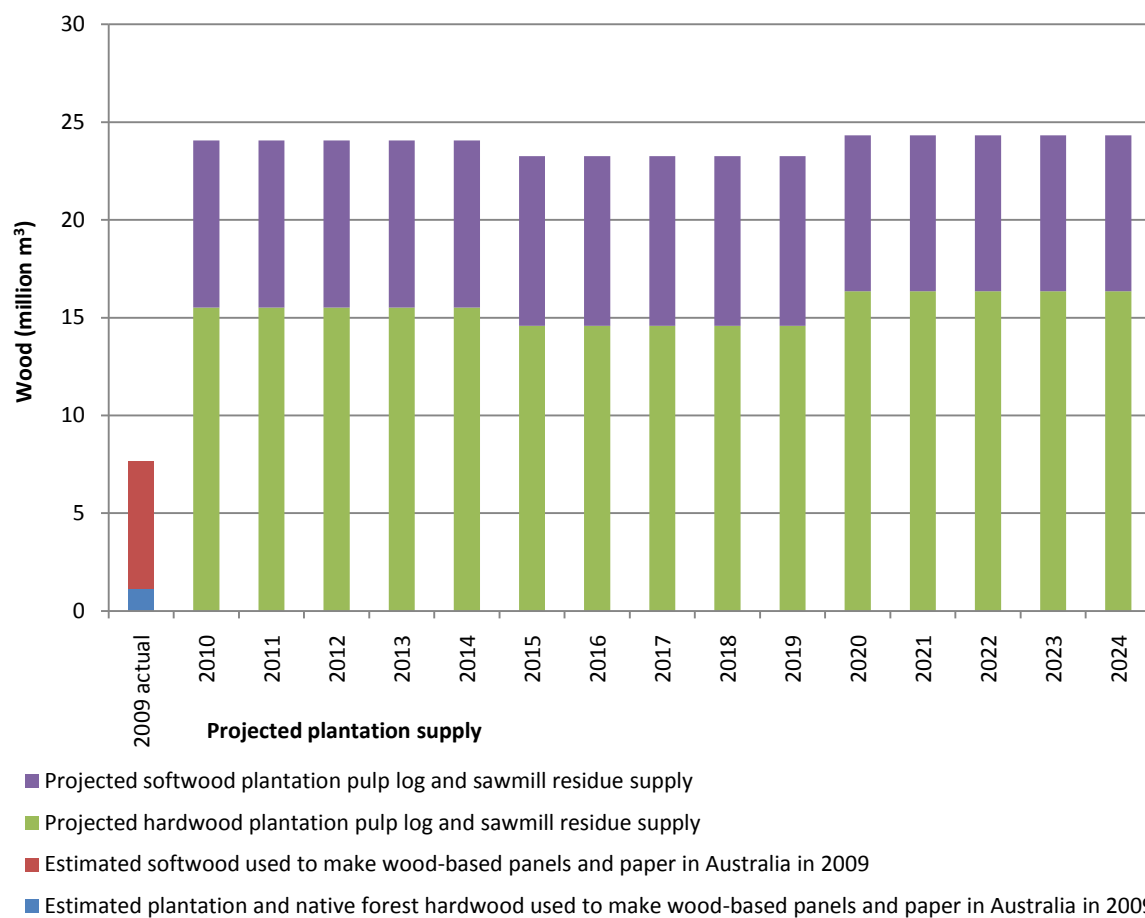
Based on the specified input mixes and conversion factors (Table 3), the 4.2 million tonnes of paper consumed in Australia in 2009 was estimated to have been made using recycled paper (33%), softwood and hardwood pulp (61%) and fillers and additives (6%) in domestic or overseas pulp and paper production. Producing the wood pulp required an estimated 8.8 million m<sup>3</sup> of wood, approximately in equal proportions of hardwood and softwood.

Opportunities for wood saving are substantial in the paper industry (for China's leadership, see Ajani 2011), especially because of Australia's very low levels of recycled paper input for printing and writing paper (Table 3). For example, a boost to the share of recycled paper in printing and writing papers from 5% to 20% and corresponding cut in the hardwood pulp share from 65% to 50% would generate 1 million m<sup>3</sup> pa in hardwood resource savings, or a 23% cut in the volume of hardwood currently required to meet Australia's printing and writing paper consumption.

### 3.3 Plantation supply capability for wood-based panels and paper

Australia's maturing hardwood plantation estate presents major opportunities for wood-based panels, pulp and paper production (Figure 15). Over and above the current use of hardwood from native forests and plantations for wood-based panels and paper production (estimated 1.2 million m<sup>3</sup> pa), an additional 14 million m<sup>3</sup> pa of hardwood plantation pulp logs and sawmill residues is projected to be now available for new processing investments in wood based-panels and pulp/ paper production. Effectively, there is no hardwood plantation resource constraint in these sectors. The challenge for new processing investment lies in establishing competitiveness, undertaking rigorous market analysis and regaining public trust. Potential new investors in printing and writing pulp/paper face additional challenges, namely breaking through Australia's heavily concentrated printing and writing paper industry (As discussed in Section 5.1.1, this concerns Nippon's production monopoly and substantial interests in copy and light weight coated paper distribution in Australia).

**Figure 15** Projected Australian plantation wood supply for paper and wood-based panels



Source/methods: Wood used for wood-based panels production in Australia in 2009 estimated using ABARES *Australian Commodity Statistics* and applying a 0.67 recovery factor for particleboard (all softwood based); 0.57 for MDF (all softwood based); 0.56 for hardboard (all hardwood based). Wood used for paper production in Australia in 2009 estimated using ABARES *Australian Commodity Statistics* and assuming 65% of newsprint was made using softwood pulp with a wood/pulp ratio of 2.5; printing & writing paper 15% and 3.7; household & sanitary 60% and 3.7; packaging & industrial 35% and 3.5. Australian Plantation Products and Paper Industry Council, *Australian Paper Industry Statistics 2005-06* for hardwood native forest and plantation wood used to made paper. Bureau of Rural Sciences 2007 for plantation pulp log supply projections with sawmill residues estimated using a 0.35 chip recovery factor, and a 0.17 sawdust recovery factor with 50% use rate.

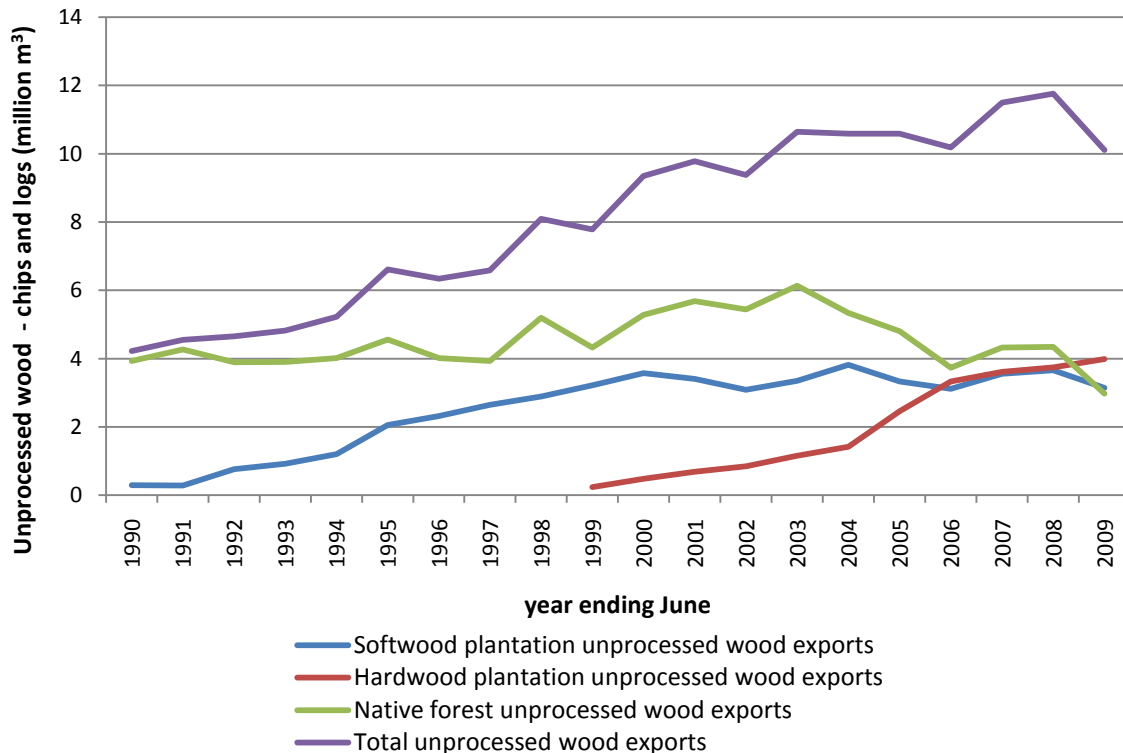
## 4. Unprocessed wood products for export

### 4.1 Chip and log exports

Over the year ending June 2009, 40% of Australia’s wood production from plantations and native forests was exported unprocessed as chips and logs. Most was exported as chips: 95% of unprocessed wood exports from native forests in 2009; 100% of hardwood plantation exports; and 74% of softwood plantation exports.

The year ending June 2009 was a historically significant year for Australian forestry: hardwood plantation chips became the single biggest source of unprocessed wood exports (Figure 16).

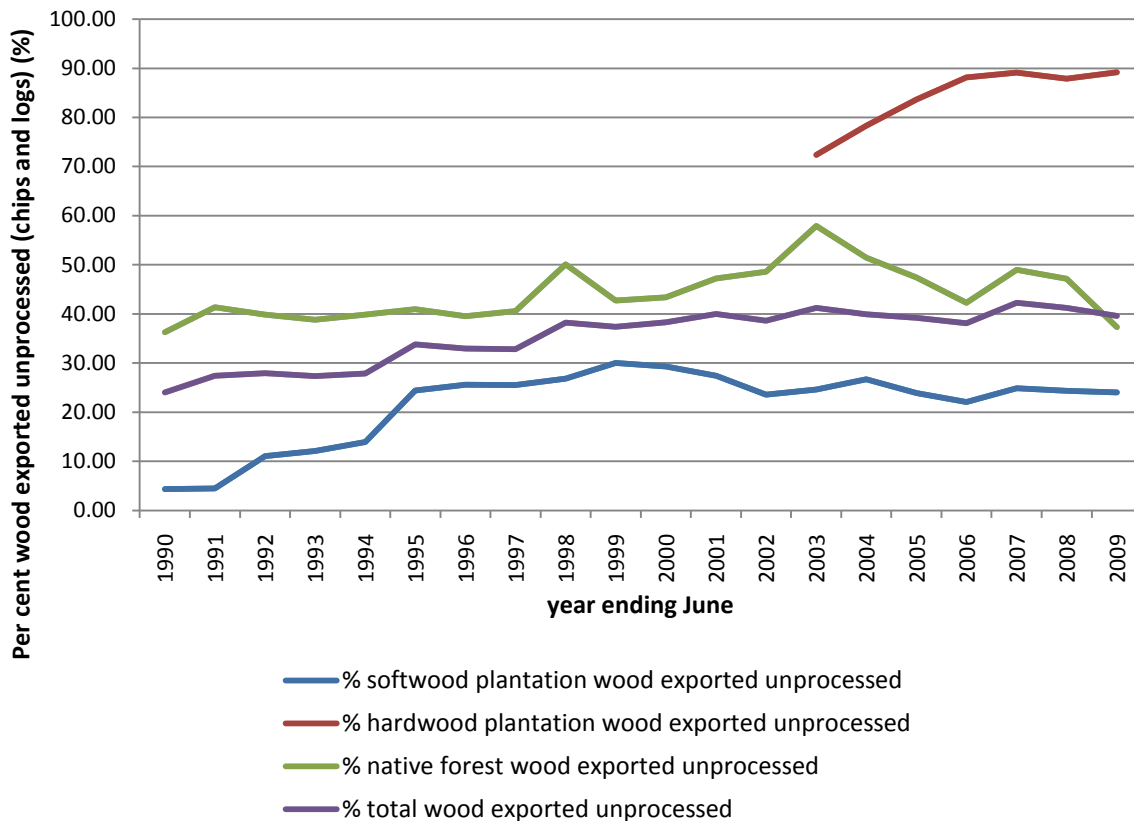
**Figure 16** Australian exports of unprocessed wood (chips and logs)



Source/methods: Chip exports from ABS *International Trade Australia* Cat. No. 5465.0 reported in ABARES *Australian Commodity Statistics*. Bone dry tonnes converted to m<sup>3</sup> using basic density for softwood of 415 kg/m<sup>3</sup> and hardwood 630 kg/m<sup>3</sup> (Jaakko Poyry Consulting 1999, p. 70). Hardwood plantation chip exports separated from hardwood total using ABARES *Australian Forest and Wood Products Statistics* and assuming for years (YEJ) 1999 to 2001 that 200 000 m<sup>3</sup> of logs were for domestic paper making. Log exports from ABS *International Trade Australia* Cat. No. 5465.0 reported in ABARES *Australian Commodity Statistics*. In the wood source disaggregation, softwood and other (minor) log exports were allocated to plantations and hardwood log exports were allocated to native forest.

A staggering 90% of the hardwood plantation cut is now exported unprocessed. This compares to 25% for the softwood plantation sector (Figure 17). Whilst hardwood plantations are eliminating native forest chip exports, the lost opportunities for wealth and employment through plantation processing are substantial.

**Figure 17** Australian exports of unprocessed wood (chips and logs)  
– per cent wood production



Source/methods: Chip exports from ABS *International Trade Australia* Cat. No. 5465.0 reported in ABARES *Australian Commodity Statistics*. Bone dry tonnes converted to m<sup>3</sup> using basic density for softwood of 415 kg/m<sup>3</sup> and hardwood 630 kg/m<sup>3</sup> (Jaakko Poyry Consulting 1999, p. 70). Hardwood plantation chip exports separated from hardwood total using ABARES *Australian Forest and Wood Products Statistics* and assuming for years (YEJ) 1999 to 2001 that 200 000 m<sup>3</sup> of hardwood plantation logs were used for domestic paper making. Log exports from ABS *International Trade Australia* Cat. No. 5465.0 reported in ABARES *Australian Commodity Statistics*. In the wood source disaggregation, softwood and other (minor) log exports were allocated to plantations and hardwood log exports were allocated to native forest. Wood production statistics as for Figure 1.

Unprocessed exports from softwood plantations remained steady over the 2000s after the 1990s surge. Australia’s softwood dominated saw log export trade started in the late 1980s with the Republic of Korea the main destination. Today, China dominates the trade with 1 million m<sup>3</sup> of logs (71% of the trade) exported to China during the year ending June 2010. Australia’s softwood chip export trade commenced with the Japanese paper industry and Japan continues to dominate this export market, purchasing upwards of 90% of Australia’s softwood chip exports.

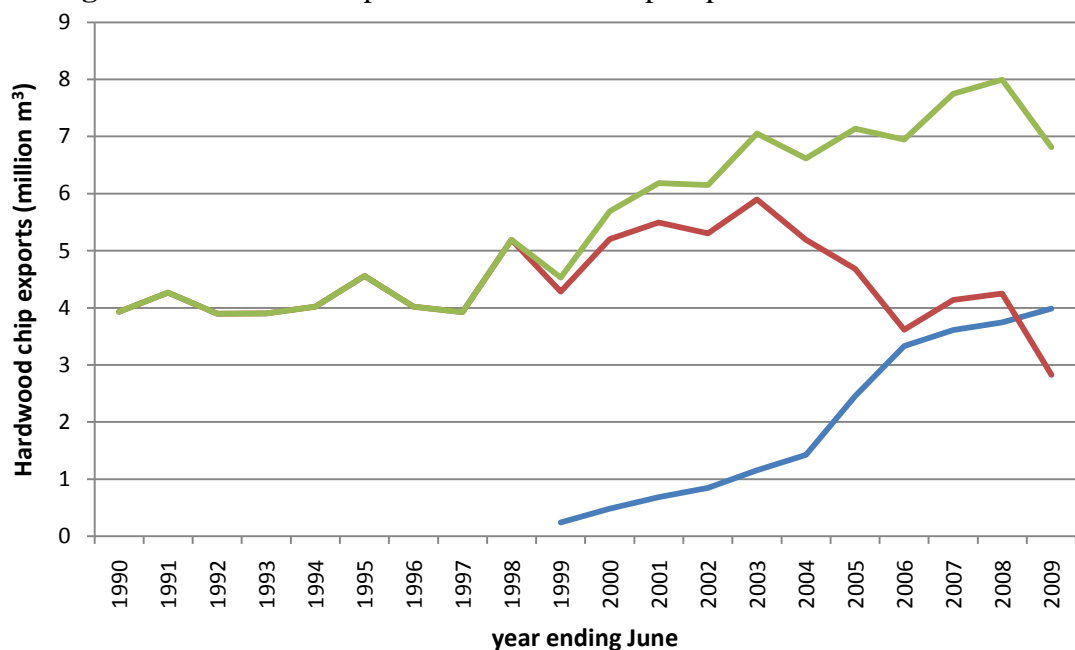
#### 4.2 Hardwood chip exports

The hardwood chip export sector is perhaps one third through a substantial resource-driven structural change: akin to the sawn timber sector in the 1980s and 1990s with maturing softwood plantations driving sawmilling productivity increases and associated elimination of much native forest sawn timber from the market. The structural change now occurring in the hardwood chip sector is proceeding even more rapidly because of the combined intensity of

the managed investment scheme (MIS) tax-driven (not wood market-driven) hardwood planting and the collapse of the Japanese market. Environmentalists have leveraged this market reality and campaigned strongly for Japanese chip importers to source from plantations, not native forests.

In Australia, hardwood plantation chip exporting effectively commenced in the late 1990s with exports increasing by an average 32% pa over the following decade: year ending June 1999 to 2009. Native forest chip exports over this period declined by an average 4.2% pa (Figure 18). Despite the strong contraction in native forest chip exports, Australia’s hardwood chip exports from all sources reached an unprecedented high in 2008.

**Figure 18** Australian exports of hardwood chips – plantations and native forests



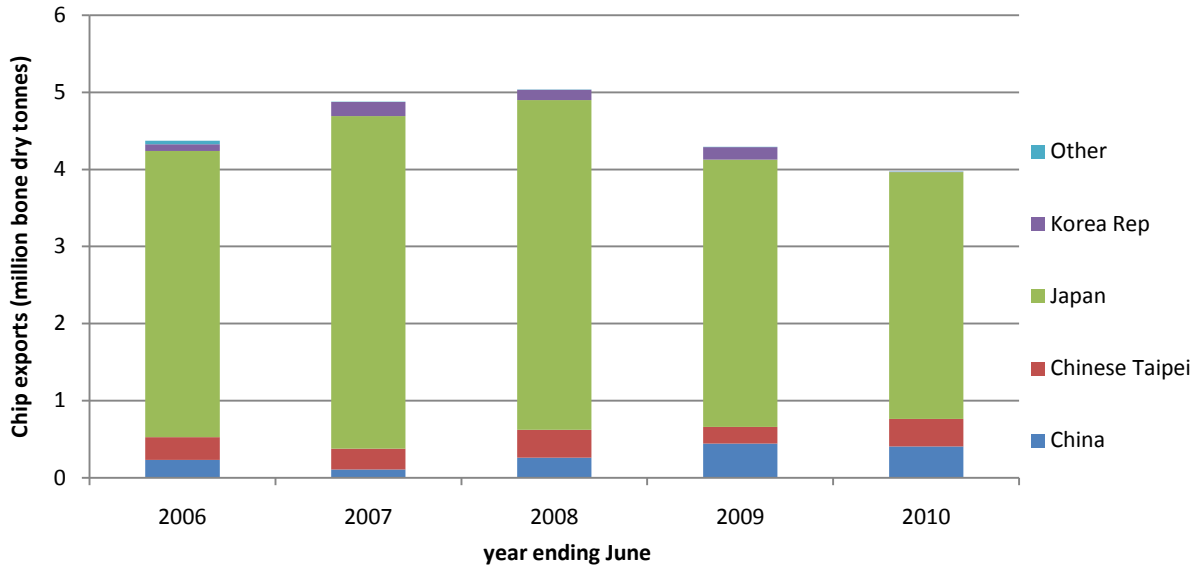
— Hardwood plantation chip exports — Native forest chip exports — Total hardwood chip exports

Source/methods: Chip exports from ABS *International Trade Australia* Cat. No. 5465.0 reported in ABARES *Australian Commodity Statistics*. Bone dry tonnes converted to m<sup>3</sup> using basic density for softwood of 415 kg/m<sup>3</sup> and hardwood 630 kg/m<sup>3</sup> (Jaakko Poyry Consulting 1999, p. 70). Hardwood plantation chip exports separated from hardwood total using ABARES *Australian Forest and Wood Products Statistics* and assuming for years (YEJ) 1999 to 2001 that 200 000 m<sup>3</sup> of hardwood plantation logs were used for domestic paper making.

Japan remains the prime market for plantation and native forest hardwood chip exports (Figure 19).

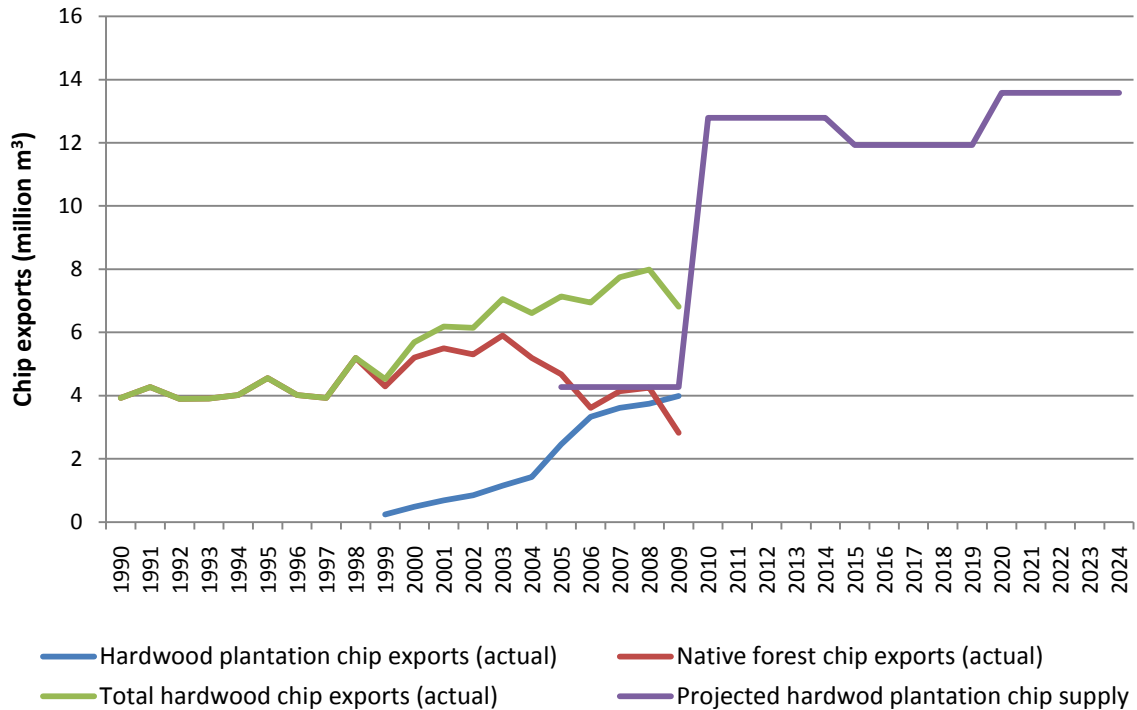
Australia’s one million hectare hardwood plantation estate is now coming on stream fully. ABARES’ projections of hardwood chiplog supply indicate a potential immediate tripling in annual plantation chip supply from 2010 levels (Figure 20). The inevitable continuing contraction in native forest chip exports is expected to intensify over the next few years.

**Figure 19** Australian hardwood chip exports (plantation and native forest)  
– country of destination



Source: ABARES *Australian Forest and Wood Products Statistics*. Country of destination data before 2006 is not reported.

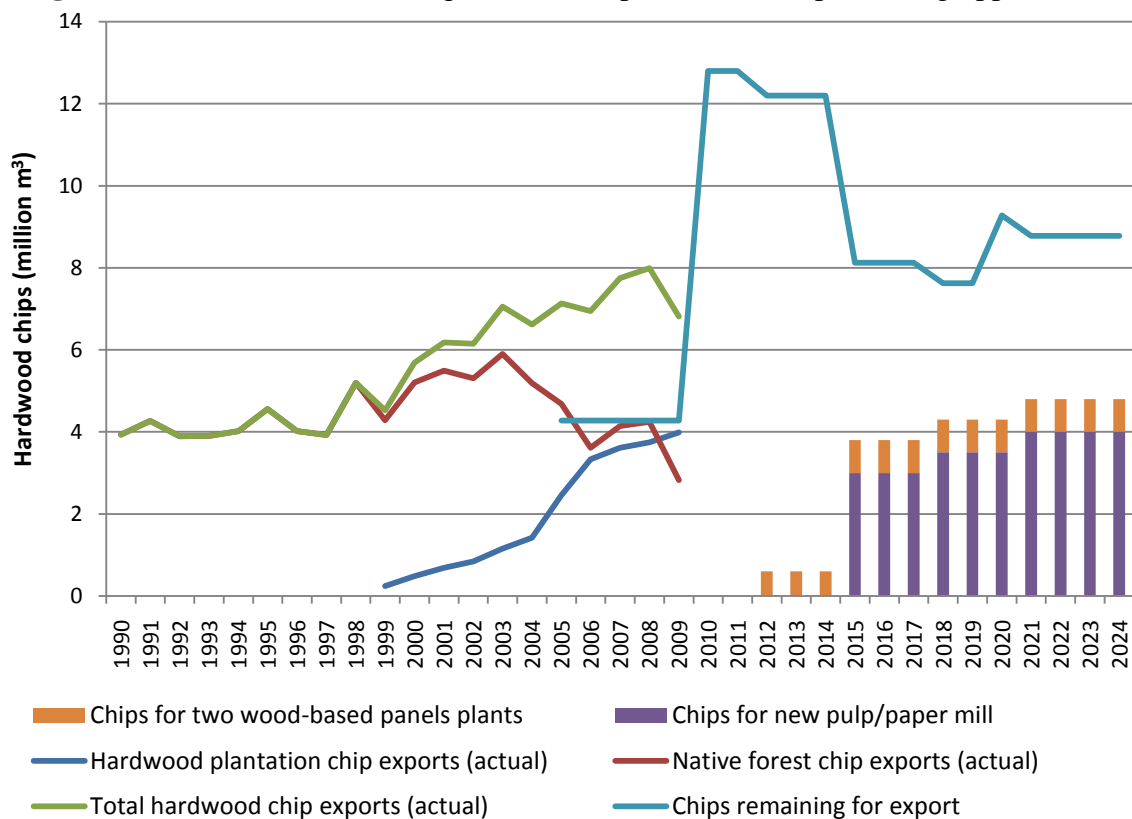
**Figure 20** Australian hardwood chip exports and projected plantation supply



Source/methods: Chip exports from ABS *International Trade Australia* Cat. No. 5465.0 reported in ABARES *Australian Commodity Statistics*. Bone dry tonnes converted to m<sup>3</sup> using basic density for hardwood of 630 kg/m<sup>3</sup> (Jaakko Poyry Consulting 1999, p. 70). Hardwood plantation chip exports separated from hardwood total using ABARES *Australian Forest and Wood Products Statistics* and assuming for years (YEJ) 1999 to 2001 that 200 000 m<sup>3</sup> of hardwood plantation logs were used for domestic paper making. Bureau of Rural Sciences 2007 for projected supply with 7% reduction for chip losses and fines.

The hardwood plantation resource presents near unlimited processing opportunities. Figure 21 presents just one example and should be read as an opportunity passing just the first hurdle, namely plantation wood availability. It incorporates two world scale wood-based panels plants for immediate construction and reaching full production by 2015 and one 4 million m<sup>3</sup> pa wood input pulp/paper processing facility with mill start up in 2015 and fully commissioned by 2021. According to government projections (Bureau of Rural Sciences 2007), hardwood plantation resources for such a pulp/paper mill are available in sufficient volumes in this time frame in three regions: Western Australia, Tasmania and the Green Triangle.

**Figure 21** Australia’s hardwood plantation chip resource and processing opportunities



Source/methods: Chip exports from ABS *International Trade Australia* Cat. No. 5465.0 reported in ABARES *Australian Commodity Statistics*. Bone dry tonnes converted to m<sup>3</sup> using basic density for hardwood of 630 kg/m<sup>3</sup> (Jaakko Poyry Consulting 1999, p. 70). Hardwood plantation chip exports separated from hardwood total using ABARES *Australian Forest and Wood Products Statistics* and assuming for years (YEJ) 1999 to 2001 that 200 000 m<sup>3</sup> of hardwood plantation logs were used for domestic paper making. Bureau of Rural Sciences 2007 for projected supply with 7% reduction for chip losses and fines. Processing scenario comprises 2 wood-based panels plants each processing 0.4 million m<sup>3</sup> pa of wood coming on stream in 2012 and reaching full production in 2015 and one 4 million m<sup>3</sup> pa wood input pulp/ paper facility with mill start up in 2015 and fully commissioned by 2021.



## 5. Policy

### 5.1 Industry trends – summary

Describing Australia’s wood and wood products industry as a ‘forestry’ industry is a misnomer. Forests – widely understood in Australia to mean native forests – are self-regenerating ecosystems dominated by native species. Native forests are fundamentally different to plantations (an agricultural cropping regime) and now provide relatively small volumes of wood for Australian sawn timber, pulp/paper and wood panels production. Today, plantations supply 82% of the wood for solid wood products manufacturing (sawn timber and wood panels) in Australia. Production of native forest solid wood products has contracted by an average 2% pa over the past two decades (Figure 7). In this intense period of industry structural change, buyers have not shifted to hardwood-based imports, including from tropical regions. Instead, consumption of hardwood solid wood products, domestically produced and imported, has continued to contract (Figure 10).

We can expect increasing plantation-based production, even without any expansion to Australia’s plantation estate (Figure 1), as softwood saw and veneer log supply is maintained (Figure 9) and work to increase plantation productivity is set in train; as the projected supply of hardwood plantation saw/veneer logs increases steadily over 2010 to 2030 (Figure 10); and, in particular, as supplies of hardwood and softwood plantation pulp logs and saw/veneer mill residues soar above the volumes required for new wood-based panels and pulp/paper mills even beyond industry dreams (Figure 15).

These past and continuing trends are the outcome of increasing plantation wood supply and wood manufacturers’ strong preference for an agriculturally grown resource, with its scale economy and other cost reduction attractions relative to native forest wood. The structural change has and continues to occur through the market with plantation made products out-competing the incumbent native forest competition. This is despite state government subsidies on native forest logs (state forestry agencies are marginally profitable at best with most running losses in the more recent past) which have frustrated and delayed, but not prevented, the transition to plantations.

The plantation-native forest displacement now taking place in the hardwood chip export market is unprecedented in its intensity. The widespread contraction in native forest sawmilling over the 1980s and 1990s drew more native forest resources into the chip export market. Now, hardwood plantation chips are decimating native forest chip exports, the single biggest market for native forest wood. The competition effectively commenced in the late 1990s as hardwood plantations in Western Australia matured. Within a decade, hardwood plantation chip exports broke through the 50% market share and ABARES’ plantation wood supply projections indicate an **immediate** tripling in hardwood plantation pulp log supply (Figure 20). On current trends, we can expect a near complete displacement of Australian native forest chip exports within the next few years.

For too long the false argument, that native forest logging is sawlog-driven and that most sawn timber would survive the plantation competition because of its successful shift to high appearance products, has held sway in state and federal policymaking circles. Reliable sawn timber production data capable of verifying, or otherwise, this view has been lacking. Using data compiled for the National Carbon Accounting System that tracks native forest biomass from saw log to finished sawn timber suggests that nearly 80% of current native forest sawn

timber is used for framing, pallets and palings (Table 2) and therefore highly vulnerable to plantation competition. A proportion of the remaining 20%, namely flooring and board products, is also vulnerable. If 50% of flooring and board production is vulnerable to plantation competition (or non-wood products competition), the market for hardwood sawlogs from native forests for high appearance products may be near 260 000 m<sup>3</sup> pa. This is equal to 3.3% of native forest wood production in 2009. It is a sad reflection on Australian wood and wood products industry policy that a minor product devoid of reliable quantification has stymied coherent forest and wood industry policy for so long.

No doubt calls will be made for more publicly funded hardwood sawlog plantations accompanied by two supporting but weak arguments. Firstly, such plantings are a necessary condition for retiring native forests from wood production. The depth and breadth of competing softwood solid wood products is often ignored when presenting this argument. If the 3% grey area currently requiring an estimated 260 000 m<sup>3</sup> pa of hardwood saw/veneer logs for high appearance products is to be maintained (without addressing why), policy makers can look to the supply potential and timing from the hardwood plantation estate (Table 6). In volume terms, it appears Australia's existing hardwood plantations can more than accommodate the appearance market and that Tasmania is well placed in this regard. At a very minimum, the volume and quality of the plantation resource demands further investigation before any consideration of additional publicly funded plantations.

**Table 6** Projected hardwood plantation saw/veneer log supply (000 m<sup>3</sup> pa)

	Australia (000 m <sup>3</sup> pa)	Tasmania (000 m <sup>3</sup> pa)
2005-09	224	21
2010-14	358	193
2015-19	582	446
2020-24	1110	746
2025-29	1238	904

Source: Bureau of Rural Sciences 2007.

The second argument uses an incorrect interpretation of market failure to call for government funding to do the job the private sector apparently is not interested in – investing in long lead-time plantations. Long lead times are not in themselves a market failure. Rather, investors in long rotation plantations require higher returns to compensate for the increased risk.

Hardwood sawmillers, however, appear unwilling to pay the higher wood prices to attract the plantation investment and expect the public to keep subsidising their wood costs. The well-established trend decline in Australia's consumption of hardwood solid wood products, comprising mainly sawn timber, (Figure 10) turns-off private investors but does nothing to temper the calls for government subsidies to plant trees for a market in decline.

In summary, Australia's wood products industry is now heavily plantation based and economically more robust as a result. The rapid exit of native forests from the chip export market, as more hardwood plantations come on stream, will continue over the next few years and bring to a close a highly contentious era in Australian forestry. Virtually all native forest markets are vulnerable to plantation competition, including within the relatively small high appearance sawn timber and veneer market. Australia's two million hectare softwood and hardwood plantation estate can immediately meet virtually all Australia's wood needs. In the

wood-based panels and pulp/paper sector, plantation resources are now running well in excess of industries' dreams for processing capacity expansion.

### 5.1.1 The 'forest products' trade deficit

Australia's 'forest products' trade deficit has received considerable attention, although product trade deficits are necessary for countries wishing to export. Given that this is understood, an economically rational concern about Australia's 'forest products' trade deficit can only lie in a belief that Australia has unrealised comparative advantage opportunities in the sector. Unrealised either because of insufficient raw materials (for example, native forests allocated to conservation, inadequate plantation establishment, low plantation productivity and wasted recycled paper resources) or market failure factors undermining processing competitiveness or preventing investment.

Australia's quoted 'forest products' trade deficit has hovered around \$2 billion pa over the more recent past (Figure 22), meaning that in real (inflation adjusted) terms, it has trended down slightly. The \$2 billion is the difference between annual imports (valued with freight and insurance costs and customs and other duties included) and annual exports (valued with freight and insurance costs and any customs and other duties imposed by the importing country excluded). These measurement units work to negatively bias the wood and wood products trade situation.

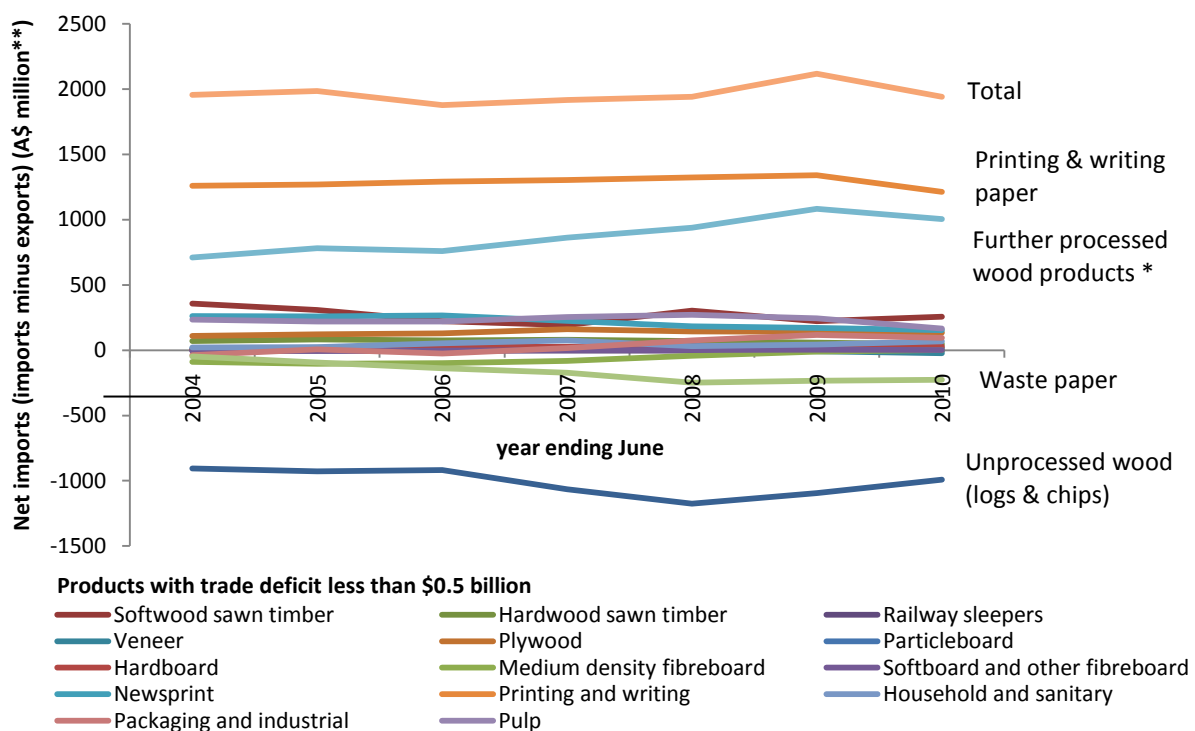
The primary data source for the \$2 billion trade deficit figure is The ABS' international trade statistics. (The ABS presents disaggregated data and does not report product trade deficits/surpluses.) ABARES extracts the import and export data for each of the products it considers to be 'forest products' trade. ABARES does not actually report the 'forest products' product deficit but presents import data in one table followed by export data and notes in a footnote the measurement units. It is the users of ABARES' statistical publications that incorrectly compare imports with exports.

The product groups ABARES' includes in its statistics relating to the 'forest products' trade deficit are presented in Figure 22. Most product groups are insignificant, even before allowing for the export and import measurement differences. There are only three notable items: further processed wood products, printing & writing papers and unprocessed wood. Further processed wood products include such items as wooden doors, mouldings, packing cases, parquet flooring, builders carpentry, cork, gums, resins, eucalyptus oils, boxes, bags, account books, note books, letter pads and other paper stationery and other miscellaneous wood articles and exclude wooden furniture. Individually, they are insignificant but in aggregate accounted for 52% of Australia's 'forest products' trade deficit in the year ending June 2010 (Figure 22). The trade deficit using the traditional classification of wood and wood products (sawn timber, wood panels, pulp and paper) was only \$0.9 billion in the year ending June 2010 (leaving the import-export measurement bias aside).

The only significant item in Australia's wood and wood products trade deficit is printing & writing paper: \$1.2 billion in the year ending June 2010. All other paper groups (newsprint, packaging, tissues) are close to in balance. Whilst VISY's Tumut softwood plantation pulp/recycled paper/paper facility establishes that new pulp/paper mill investments are possible, a new hardwood pulp mill remains unrealised in Tasmania and the 'forest products' trade deficit is frequently employed in arguing the case for government facilitation. The Tasmanian pulpmill debate is polarised on environment grounds, however lying in the

background is an important industry concentration problem that pulpmill advocates have not confronted. In 1993, Amcor became Australia’s monopoly producer of printing and writing papers with substantial merchanting interests after the ACCC approved its APPM acquisition. Today, Nippon owns those paper assets including substantial merchanting interests in copy and light weight coated papers. This industry concentration forces new hardwood pulp and paper mill proposals into the highly risky export market, rather than the domestic market with growth based on substantial opportunities for import replacement. Tackling printing & writing paper industry concentration should be the highest priority for people and organisations wishing for a hardwood pulpmill and reduction in the ‘forest products’ trade deficit.

**Figure 22** Australia’s ‘forest products’ trade deficit (imports minus exports)



\* Further processed wood products include such items as wooden doors, mouldings, packing cases, parquet flooring, builders carpentry, cork, gums, resins, eucalyptus oils, boxes, bags, account books, note books, letter pads and other paper stationery and other miscellaneous wood articles and excludes wooden furniture.

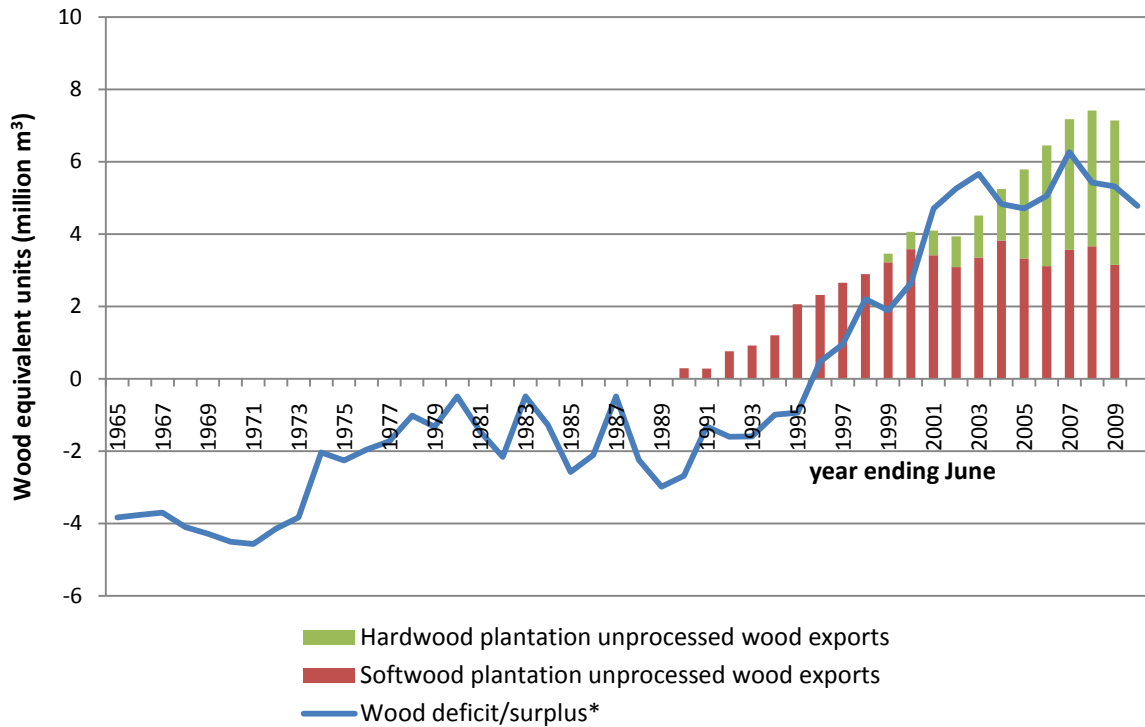
\*\* Duty or customs values for imports and fob from Australian ports for exports.

Source: ABS *International Trade, Australia*, Cat. No. 5465.0 as presented in ABARES *Australian Commodity Statistics*.

Australia’s ‘forest products’ trade deficit is not due to a wood shortage. Figure 23 presents the trade deficit/surplus in volume units rather than monetary units. The blue line is ABARES’ estimate of the amount of wood (estimated log equivalent) in all our exports of unprocessed wood, sawn timber, wood panels, pulp and paper minus the amount of wood in all our imports of these products. The difference between the two is the wood and wood products trade deficit/surplus in volume terms. Since the mid 1990s, Australia had recorded wood surpluses: in volume terms, we export more wood than we consume. This is largely due to increasing exports of softwood plantation logs over the 1990s followed in the 2000s by

increasing hardwood plantation chip exports. We can expect monetary expressions of Australia's 'forest products' net trade (exports minus imports) to remain negative while we export low value plantation wood (unprocessed logs and chips) and import higher value processed wood products. This is an industry policy matter concerning plantation processing, separate to the native forest–conservation debate.

**Figure 23** Australia's wood surplus\*

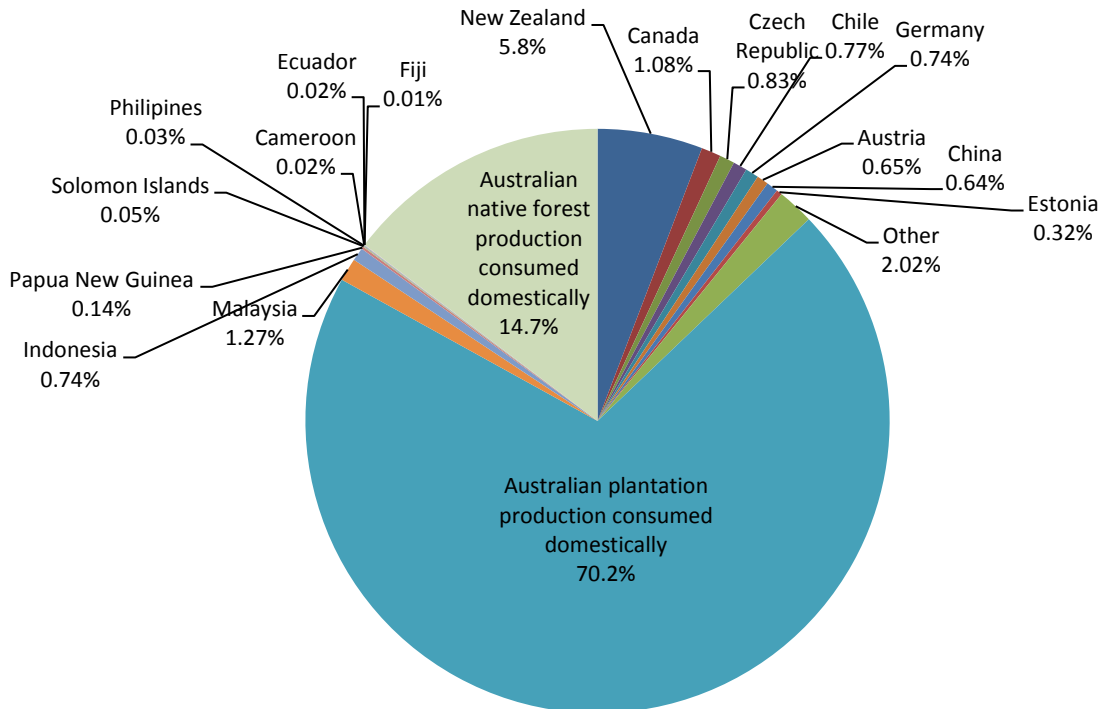


\* Exports minus imports of estimated log equivalent of processed wood products (sawn timber, wood panels, pulp and paper) and unprocessed wood products (chips and logs).  
 Source/methods: ABARES *Australian Commodity Statistics* for wood deficit/surplus. Softwood chip exports from ABS *International Trade Australia* Cat. No. 5465.0 reported in ABARES *Australian Commodity Statistics*. Bone dry tonnes converted to m<sup>3</sup> using basic density for softwood of 415 kg/m<sup>3</sup> (Jaakko Poyry Consulting 1999, p. 70). Hardwood plantation chip exports from ABARES *Australian Forest and Wood Products Statistics* and assuming for years (YEJ) 1999 to 2001 that 200 000 m<sup>3</sup> of logs were for domestic paper making. Log exports from ABS *International Trade Australia* Cat. No. 5465.0 reported in ABARES *Australian Commodity Statistics*. In the wood source disaggregation, softwood and other (minor) log exports were allocated to plantations and no hardwood log exports were allocated to plantations.

### 5.1.2 Tropical timber imports

Like the 'forest products' trade deficit and the importance of high appearance native forest sawn timber, tropical timber imports are engulfed in misrepresentation. Australia's imports of sawn timber and wood panels from tropical countries accounted for an estimated 2.3% of Australia's consumption of solid wood products in 2008/09 (Figure 24). Insignificant levels of consumption do not mean Australia should do nothing about ending tropical timber imports. Rather it means we as a nation can do so with little effort. And even with an immediate retirement of native forests from wood production, we can expect softwood products, not hardwood products, to fill the vacancy as they have for the past two decades.

**Figure 24** Country of origin source of Australian consumption of solid wood products (sawn timber and wood panels) 2008/09



Source/methods: Import data from ABS *International Trade Australia* Cat. No. 5465.0 reported in ABARES *Australia Forest and Wood Products Statistics*. Wood panels includes veneer, plywood, particleboard, medium density fibreboard, hardboard and other softboard and other boards. Australian sawn timber production data from ABARES *Australian Commodity Statistics* and *Australian Forest and Wood Products Statistics* with cypress sawn timber production allocated to native forests and hardwood plantation sawn timber production estimated with a 0.38 recovery factor. Sawn timber exports ABS *International Trade Australia* Cat. No. 5465.0 reported in ABARES *Australia Forest and Wood Products Statistics* with all softwood exports allocated to plantations and all hardwood to native forests. Wood panels production from ABARES *Australian Commodity Statistics* and export data from ABS *International Trade Australia* Cat. No. 5465.0 reported in ABARES *Australia Forest and Wood Products Statistics*. Production and exports were disaggregated into plantations and native forests as follows: veneer (0.0:1.0); plywood (0.5:0.5); particleboard (1.0:0.0); medium density fibreboard (1.0:0.0); hardboard (0.0:1.0); other (1.0:0.0).

## 5.2 Forest and wood and wood products industry policy

Pandering to economically and environmentally inferior incumbents characterises Australia's forest policy. Missed opportunities abound as the benefits of biodiversity conservation/carbon store opportunities for native forests (Keith *et al.* 2009 & 2010), new industry players, products and technologies lie unrealised. The softwood plantation sawmillers' decades-long struggle for market share against the heavily subsidised native forest sawmillers is largely over, but not before substantially weakening the plantation processing corporates engaged in the battle. Many exited the industry, selling softwood sawmilling and wood panel assets often to overseas buyers with a branch office mentality. Similarly, in the printing and writing paper sector, where Nippon, Australia's monopoly producer of printing and writing papers, has substantial merchanting interests in copy and light weight coated papers produced in its

overseas and Australian mills. Its Australian production strategies play second fiddle to Nippon Group interests.

Maybe the time for a coherent wood and wood products industry policy focussed around plantation processing has passed. Such a policy would completely free the market of state-subsidised native forest competition and also refocus policy away from unending plantation expansion via tax-based subsidies devoid of rigorous market analysis. Instead, it would set the prime objective to encouraging commercially viable domestic plantation processing. The package would include research and development programs, worker and management skill development and transport strategies with a focus around regional hubs with a critical plantation mass for scale economy processing.

Forest and wood products industry policy making today is like being back in the 1970s. The native forest logging interests calling for approval to enter the vast energy and other biomass feedstock markets are the new woodchippers. Their successful lobbying on carbon accounting details and classifying native forests as renewable and therefore eligible for renewable energy certificates works to propel these commercially marginal new opportunities for native forests across the profitability line. The behaviour is akin to the 1970s chip export proposals that depended on low priced native forest logs for profitability. Even the calming sounds of ‘sawlog-driven’ or additional to ‘high value’ processes are familiar, as is the argument that only ‘waste’ will be used.

The 1970s was also the era of government subsidies (Commonwealth grants and low interest loans) for softwood plantations followed, a few decades later, by tax minimisation plantation managed investment schemes. The plantation managed investment arrangements remain in place and tax minimisers keep subscribing despite the predicted and subsequently realised widespread collapse within the sector. Forestry lobbyists have carbon sink plantings, either separate or tacked onto wood producing plantations, on the agenda. With the public purse open, it seems there is no end for plantation expansion in Australia. Even the plans for state forest agencies to manage areas of native forests for carbon stores are familiar. It was called ‘multiple-use management’ in the 1970s.

There is one difference: we can choose to learn from past policy mistakes.

Public interest outcomes are compromised when policy is dominated by the interests of economically and environmentally inferior incumbents. Engineering commercial viability into wood based energy suits the native forest sector: but it is not an efficient energy production system. Planting carbon sinks, especially with single or limited species, suits the plantation lobby: but such plantings are not efficient carbon stores. Tasking state forest agencies with managing native forests as carbon stores suits the incumbent state forestry agencies: but they are not skilled in biodiversity conservation which is critical for maintaining and restoring native forest carbon stocks.

Quite possibly, government will not resist the lobbying that prevents Australia having a coherent forest and wood products industry policy where each land sector is allocated to the job it does best: plantations for wood products and native forests for biodiversity conservation/carbon stores/water. If government facilitates native forests into the energy and other biomass feedstock markets, Australia’s forest conflict will continue raging. The public can wish to avoid this outcome, but only governments can make that happen.

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Climate change policy distortions in the wood and food market

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## Abstract

The widespread shift of Australia's wood products industry away from native forests to an agricultural regime—wood plantations—has enhanced forestry industry competitiveness. Wood now competes against food for agricultural land, water and other resources (including government support). New plantings have increased substantially since the mid 1990s via plantation managed investment schemes (MIS), arousing protest in the traditional agricultural sector and claims of unfair government policy treatment. This claim is investigated in an analysis that integrates the taxation treatment of plantation MIS with economics and forestry industry knowledge. Three methods are developed, and applied, to estimate the plantation MIS tax-based subsidy. Preliminary estimates indicate a tax-based subsidy to forestry through plantation MIS of between \$0.9-1.2 billion over the five years ending 2008. The estimated subsidy is then incorporated in the Productivity Commission's calculations of the effective rate of assistance (ERA) to industry groups from tariff, budget outlay and tax-based government policy. The ERA to Forestry & logging in 2008 was estimated to be 41.8 per cent: government assistance is equivalent to 42 per cent of Forestry & logging's unassisted value added. The estimated plantation MIS tax based subsidy accounted for 77 per cent of the assistance. Assistance to Forestry & logging exceeds substantially the assistance (including drought related payments) to food growers: 7.2 per cent to Grain, sheep & beef and 17.3 per cent to Dairy cattle farming (a significant proportion was assistance that ceased in April 2008). A detailed examination of Australia's proposed climate change policy concerning the land use sector indicates that agricultural resource use distortions created through plantation MIS arrangements are lightly to intensify.

## 1. Introduction

The debate over agricultural managed investment schemes (MIS) and plantation MIS in particular has attracted high media coverage, four parliamentary inquiries and a Treasury review. While the Government worked to close non-plantation agricultural MIS, plantation MIS remain immune. The debate about whether plantation MIS distort resource use, particularly in agricultural land and water markets, is bogged in tax law and its implementation. Advancing the debate requires integrating tax aspects with economics and forestry industry knowledge to clarify the nature of the subsidy and develop methodologies to estimate the size of the subsidy.

In a paper presented on Australian Taxation Office (ATO) web pages, the former plantation MIS lobby group, Treefarm Investment Managers Australia (TIMA), argued that plantation MIS do not receive special tax incentives. They operate under the same basic tax regime as other agricultural enterprises (Cummine 2004). The paper concludes that, because plantation MIS investors do not receive special tax incentives, there are no tax-based subsidies.

This conclusion is understandable if we leave to one side the detail of tax law implementation and economic efficiency as distinct from tax interests. Amendments to the *Income Tax Assessment Act* (ITAA) to address potential tax evasion through plantation MIS investment have generated today's situation where the outstanding issue, from a tax perspective, is the potential for plantation MIS investors to minimise

their tax (not an illegal act) by deferring tax liabilities until income is received (for forestry, a decade or more into the future) which may be when the investor's income falls into a lower tax bracket. If this aspect of tax minimisation is significant in the decision to invest in plantation MIS, the matter should be placed in a wider taxation context. Progressive tax systems have the potential to impose a higher average rate of tax for a taxpayer whose income fluctuates significantly between years as compared to a taxpayer with the same average income received at a constant rate per annum, such as some agricultural producers and artists (Lacey and Watson 2004).

Agricultural producers and artists have special tax treatments to address this situation (e.g. tax averaging and income equalisation deposits). Lacey and Watson (2004) argue that the Government take a wider view of the role for 'taxation products' to enable taxpayers to smooth taxable income, thereby increasing competition with MIS in the market for tax deferral. Plantation MIS could be viewed as a complicated, high cost and inefficient de facto 'taxation product' to address period inequity.

We now bring economic efficiency interests into the debate. The plantation MIS 'taxation product' flows into the economy as a potential distortion in agricultural land and water use. The Parliamentary Joint Committee on Corporations and Financial Services *Inquiry into Aspects of Agribusiness Managed Investment Schemes* explained how:

*'..., there is currently potential for MIS to use unprofitable high cost structures to provide greater tax deductibility to investors, while directing a proportion of this tax-related investment to related entities charging above commercial rates for project services. While investor focus is on minimising tax, rather than investing in the most profitable venture, this directs capital away from profitable uses and disadvantages traditional farming enterprises by increasing natural resource costs and encouraging oversupply.'*

(Parliamentary Joint Committee on Corporations and Financial Services 2009 pp. 45-6).

The aim of this paper is to integrate tax issues with economics and forestry industry knowledge to establish whether plantation MIS embody a tax-based subsidy and to clarify the effect of plantation MIS tax arrangements on resource allocation (mainly agricultural land and water) between food and wood growing. Three methods of estimating the plantation MIS subsidy to wood growing are presented and tested empirically. The estimates are then integrated with the Productivity Commission's effective rate of assistance (ERA) measures to gauge the potential for plantation MIS tax arrangements to distort agricultural land and water use, away from food to wood growing. The discussion applies this analysis to examine the potential for amplified inefficiency in agricultural resource use with the government's proposed emissions trading system and related climate change policy measures for forestry.

Recommendations conclude the paper.

## **2. Plantation MIS**

### **2.1 Background**

Investors (growers) in plantation MIS pay fees to a plantation MIS Responsible Entity to have trees planted and receive a share of the harvest revenue after specified costs

have been deducted. Investors do not purchase capital items, notably land, thus enabling their expenditure to be fully tax deductible. (The Responsible Entity acquires land—through freehold purchase or leasing through a third party—which is sub-leased to investors.) Investors can offset their expenditure against taxable income received from other activities. Borrowing money (the interest being a tax deductible cost) to purchase the MIS investment enables investors to claim a tax deduction greater than the amount they invest personally.

Plantation MIS are focussed heavily to growing hardwoods for the woodchip market with Responsible Entities offering varying cost-structured products. Table 1 presents an indication of the spread.

**Table 1** Eucalypt chip log plantation MIS costs

	WA Blue Gum Project 2009 (Product Ruling 2009/35)	Great Southern Plantations 2007 Project (Product Ruling 2007/27)	Gunns Plantation Woodlot Project 2009 - Option 1 (Product Ruling 2208/66)
Establishment fee (\$/ha)	5 500	10 000	7 480
On-going costs (\$/ha/yr)	600 for tending & land rent, indexed		
Other costs	<ul style="list-style-type: none"> <li>▪ 15% fee when chip sales revenue exceeds \$17 050 indexed.</li> <li>▪ Unforeseen expenses for fertiliser or insect control.</li> <li>▪ Fire insurance.</li> <li>▪ Fee on credit card payments of fees.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Management fee of 3.3% of net proceeds from chip sales (revenue less costs of logging, cartage shipping &amp; sales costs).</li> <li>▪ Rent/lease fee of 2.75% of net proceeds from chip sales.</li> <li>▪ Insurance premiums.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Management fee 8.8% of net wood sale proceeds.</li> <li>▪ Rent - 5.5% of net wood sale proceeds.</li> <li>▪ Sales commission - 2.2% of net wood sale proceeds.</li> </ul>
Rotation length	Clearfell at approx. 10 years	Clearfell at approx. 10 years	Clearfell at year 13 & thinning at year 9
Assumed wood yield (m <sup>3</sup> /ha)	340	250	322
Assumed woodchip price (\$fob/bdt)	not reported	\$181	\$207.40

Source: ATO 2009b, c and d; GPL 2009; Great Southern Plantations 2007; WA Blue Gum Ltd. 2009.

In 2009, the Australian Securities and Investment Commission (ASIC) reported 198 registered plantation MIS, accounting for slightly over half of all agribusiness MIS (ASIC 2009 p. 47). The accountancy/financial services sector established most of the early plantation MIS companies, not companies engaged directly in wood growing. It is incorrect, however, to consider that the plantation MIS tax arrangement is assistance to just the specific plantation MIS companies and associated investors and not the wood growing industry. With the Government retaining the plantation MIS tax arrangements, despite the persistent public debate and numerous Parliamentary inquiries that it could have used to end the arrangements, wood growing companies (in a traditional industry sense) started establishing subsidiary plantation MIS companies and wood processing companies became potential wood buyers linked to specific MIS. The strength of forestry industry support for plantation MIS is clear in

the united and forcefully argued calls to retain the tax arrangements by all the national forestry lobby groups in their submissions to the Parliamentary inquiries. Plantation MIS accounted for 34 per cent of Australia's plantation estate in 2008 (Gavran and Parsons 2009).

Of the three projects presented in Table 1, the Great Southern Plantations 2007 Project is the best suited for examining whether plantation MIS are unprofitable high cost structures providing greater tax deductibility to investors and distorting agricultural resource use. The Great Southern Plantations product required most of the investor's money paid as a pre-determined establishment fee, meaning relatively less is paid at harvest time in fees on net woodchip sale proceeds, the amount of which is heavily dependent on two unknown variables—the actual wood yield and the woodchip price. Using Great Southern Plantations' assumed wood yields, costs, prices and various conversion rates presented in their 2007 and 2008 Product Disclosure Statement and assuming all costs and prices remain unchanged in real terms over the 10 year investment, reveals that investors would receive a 1.9% per annum nominal return on their investment: a loss in real terms (taking the average in Great Southern Plantation's expected inflation rate) of -0.6% per annum. At least for products with high front-end loading of costs, the concern that plantation MIS may direct capital away from profitable uses is valid. Products with lower establishment fees but with the Responsible Entity sharing a greater proportion of the net sales proceeds are more difficult to evaluate because of the uncertainty about future wood yields and woodchip prices. Many analysts have claimed the projections are overly optimistic for both variables (for a history of the debate see Ajani 2007 pp. 254-258), but the proof is in the pudding.

Plantation MIS Product Disclosure Statements typically do not include any direct statement or information about forecast project returns (ASIC 2009). Rather, relevant information is presented in an independent (forestry consultant) expert's report included in the Product Disclosure Statement, but limited to forecast wood yields and prices. This arrangement, which meets ASIC's requirement that Responsible Entities have reasonable grounds for any forecast statement (otherwise remain silent), means that investors have to calculate the return on investment or seek financial advice.

The plantation MIS subsidy issue revolves around establishing whether investment in plantation MIS is inherently profitable. It is time to move into tax law and the ATO treatment of plantation MIS to examine how the ATO has deemed plantation MIS a commercial activity, thereby enabling investors to deduct costs against income earned elsewhere. These arrangements are crucial for plantation MIS viability.

## **2.2 Taxation aspects—plantation MIS commerciality**

Following its loss in the courts over Budplan MIS, the ATO introduced Product Rulings in June 1998. Product Rulings allowed MIS Responsible Entities to provide relevant information for the ATO to rule on deductibility of scheme payments for investors. As long as the MIS was implemented according to the information on which the ATO made its decision, investors could be certain about the deductibility status of their claims. Obtaining a Product Ruling requires the Responsible Entity to supply the ATO with, amongst other things, an extensive amount of information supporting the profitability of the project—cash flow forecasts, budgeted profit and

loss statements and expert reports on these forecasts (ASIC 2009). Much of this information is not presented in the publicly available Product Ruling documentation. Plantation MIS Product Rulings (see for example ITC 2008) list clear factual information about the project, like establishment costs, fixed fees, location, species, plantation area etc., but not forecast returns, wood yields or prices. When it comes to scheme commercial viability, the ATO distances itself and advises investors to ‘form their own view’ and emphasises that Product Rulings do not guarantee commercial success:

*‘[T]he Commissioner **does not** (ATO emphasis) sanction or guarantee this product. Further, the Commissioner gives no assurance that the product is commercially viable, that charges are reasonable, appropriate or represent industry norms, or that projected returns will be achieved or are reasonably based.’*

In 2000, the Government responded to the Ralph Review of Business Taxation with, amongst other things, Division 35 amendments to the ITAA. The amendments aimed to remove the practice of presenting consumption expenses for non-commercial activities (for example, hobby farms) as business expenses. After first passing the business (as distinct from hobby) test, individuals or partnerships seeking to claim deductions for investments in new businesses against income earned elsewhere had to pass Division 35 rules for commerciality. The tests being that the business passes one of the following:

1. has an assessable income from the activity of at least \$20 000, or
2. has produced a profit in three out of the past five years, or
3. uses real property or an interest in real property worth at least \$500 000 on a continuing basis, or
4. uses other assets worth at least \$100 000 on a continuing basis.

Leaving aside very important arguments about the commerciality tests’ arbitrary and inequitable nature and scope for improvement (Lacey and Watson 2004), a review of matured (ex post) hardwood plantation MIS investments would probably find that most failed the first test and probably no plantation MIS investor would pass the other three tests (Test 2 is inappropriate for most hardwood plantation MIS with income received in the final year of a ten year investment).

Plantation MIS investors have received dispensation from Division 35 with the ATO Commissioner exercising discretionary powers in specified areas. One being to give dispensation where the business has a lead time between the commencement of the activity and the production of assessable income and because of this is yet to pass one of the four tests but there is an expectation that it will do so. The example given by the ATO is an activity involving the planting of hardwood trees for harvest where many years would pass before the activity could reasonably be expected to produce income (ATO 2009a). To make the connection: the commercial loss provisions, which are specifically addressed in product rulings, require the ATO to consider the commercial viability of plantation MIS. In using his discretionary powers to give plantation MIS investors the right to deduct investment costs against income earned from other activity, the Commissioner must have judged that plantation MIS investments are inherently commercial by some criteria.

Lacey and Watson (2004) report that there is no publicly available data on the ATO's operation of Division 35. Within the ATO's system are tax returns from thousands of plantation MIS investors containing the key ex post information on deductions claimed and income declared for plantation MIS investments. A survey would clarify the return on their investment—the single most important piece of information in establishing the commercial viability of plantation MIS. It is also apt for the ATO to periodically (say five yearly) review the process and information used to rule on plantation MIS dispensation from Division 35 commerciality tests.

### **2.3 Market evidence of plantation MIS profitability**

Doubts about the profitability of plantation MIS investments surfaced in the mid 2000s, with early plantings coming on stream. Great Southern Plantations purchased all the wood from its 1994 project for \$6.4 million, thereby meeting the investors' expected returns, and sold the wood into the chip market for \$2.1 million (Anon. 2006).

The collapse and subsequent sale of Timbercorp's plantation assets to an international forestry investment fund provides further market valuation of plantation MIS investments. The sale included a \$198 million payment to investors and the termination of MIS arrangements (KordaMentha 2009). With Timbercorp's 90 000 hectares of plantations (including large areas approaching maturity), this equates to an average \$2 200/hectare, significantly less than the establishment costs of any plantation MIS product currently on offer. In late December 2009, Gunns received Great Southern Plantation MIS investor approval to become Responsible Entity for approximately 122 000 hectares of their predominantly hardwood plantations established through the now collapsed Great Southern Plantations (excluding Tiwi Islands plantations). At the time of writing, Gunns' costs exclude any freehold land owned by Great Southern Plantations but include approximately \$8.7 million for property, plant and equipment, water licences, insurance payment receivables and inventory and additional sums for managing the plantations over their first rotation. These costs are not expected to exceed approximately \$20 million in any given year (Gunns 2009). Gunns also established flexibility over the age when plantations will be harvested (and therefore when investors will receive income) to allow for drought and market conditions. Investors in Great Southern Plantation 1998 to 2005 schemes will receive net harvest proceeds of an (area weighted) average of 63.4 per cent (Gunns 2009). Investors in Great Southern Plantation schemes expected to receive 94.5 per cent of net harvest proceeds. In addition to the reduction in their share of net harvest sales revenue, investors are likely to have revised downwards their expectations of total harvest revenue to more realistic levels.

The above mentioned 2009 Parliamentary Joint Committee on Corporations and Financial Services inquiry into agribusiness MIS drew submissions relevant to the potential inflated cost problem. A corporate lawyer with 15 years experience in MIS advised of his 1995 plantation costing \$1 200/hectare to establish on his farm through a forestry contractor. At the time, Great Southern was selling product at \$9 000/hectare (Smart 2009). Smart's establishment costs align with those reported by Adrian de Bruin, former managing director Auspine Ltd. and a plantation forester

(Ajani 2007, p. 254). de Bruin also considered that as little as 25 per cent of the money raised through plantation MIS would be returned to the investor (Anon 2001).

In contrast to this public evidence of substantial losses to plantation MIS investors, there appears to have been no public counter examples of profitability presented by Responsible Entities, TIMA or investors. Perhaps there is a valid explanation. Alternatively, perhaps investors have remained silent about any losses, fearing that declared losses may invalidate their earlier deductions (for expenditures on a business the Tax Commissioner judged to be commercial) against income earned from other activities. And a related point: investors may also be comforted knowing the tax office generally requires records to be kept for audit purposes for only five years—less than the time between plantation costs being declared and income received.

## **2.4 Estimating subsidies for plantation MIS**

The Productivity Commission advises that their estimated effective rates of assistance to industry exclude subsidies through the plantation MIS arrangements, with the exception of an estimate for a now removed taxation provision, originally called the 13-month rule (Productivity Commission 2009). Quantifying the assistance measures is complicated by the complexity of the financial and taxation arrangements of the schemes and severe data limitations. An ATO investigation of ex post plantation MIS investment performance, as discussed earlier, would fill a substantial information gap: as could ASIC in its work to make Australia's financial markets fair and transparent so that investors and consumers make informed decisions. ASIC's information transparency role is discussed in more detail below.

The approach taken in this paper to estimate the subsidy to forestry through plantation MIS is to first simplify the task by limiting the investigation to the major product—MIS investment in hardwood chip plantations. This will underestimate the subsidy by excluding the relatively small investments in softwood and hardwood saw and veneer log plantation MIS. Three approaches, as detailed below, were developed and the subsidy for each estimated using the following information and assumptions:

- New MIS hardwood plantings over the five years 2004 to 2008 inclusive are estimated to cover 290 000 hectares (calculated using ABARE (2009) for total hardwood plantation area and Gavran and Parsons (2008) for ownership mix based on 2007 data). It is assumed that 90 per cent of the area is for chip production managed over rotations of around ten years—260 000 hectares.
- \$3.7 billion invested in hardwood and softwood plantation MIS over the past five years (ASIC 2009 p. 49).
- From the above, and deducting investment in longer rotation saw or veneer plantations with an arbitrary adjustment (because there is no publicly available data), the average hardwood plantation MIS investment over this five year period is assumed to be \$10 000/hectare.



- The actual cost of planting a hectare of trees and managing them over the approximate 10 year rotation was estimated at \$2 000/hectare (Ajani 2007 p. 255).
- All investors are in the top marginal tax rate.

**Approach 1:** Tax deduction for true costs only

If deductions on income were limited to the true cost of plantation establishment and management over the rotation<sup>1</sup>, the difference between this amount deducted and that under the plantation MIS arrangements represents the investor's assessment of the tax benefits of the higher cost MIS arrangements.

This approach generates an estimated tax-based subsidy of \$0.9 billion over the five years to 2008, \$187 million per annum.

**Approach 2:** Investor informed of return reality

The tax benefit to the MIS investor is the tax deferral, but only if the MIS investment generates a positive return at the investor's opportunity cost of capital. If not, the MIS investor would have been better off paying the tax rather than investing in the scheme.

At this point, the complexity surrounding the investment return is revealed: as is the importance of the ATO/ASIC making available ex post return on investment data. Conceptually, plantation MIS have three returns to investors:

- the prospectus forecast return (which the investor must determine from the information in the Product Disclosure Statement which is heavily dependent on wood yield and chip price assumptions),
- the actual return (which may or may not have a Responsible Entity cross subsidised component as practiced, for example, by Great Southern Plantations for its 1994 plantings), and
- the 'true' return (not known, but may be possible to estimate through linking an ATO survey of tax returns with Responsible Entity financial accounts).

While the actual and 'true' return should align eventually, the potential for tax-based subsidy in the intermediate term may be substantial following the Timbercorp and Great Southern Plantations collapses. Just as Great Southern Plantations had a commercial incentive to subsidise the returns to its 1994 investors (therefore maintaining confidence in plantation MIS to attract new high fee-paying investors), the same motivation applies to other Responsible Entities. If another Responsible Entity acquires a collapsed scheme at significantly below cost, this will enhance the Responsible Entity's capacity to engage in this internal to the company cross-subsidy strategy.

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<sup>1</sup> This should be read as hypothetical. How much a taxpayer ought to spend in obtaining income is the taxpayer's commercial decision and not for the ATO to say (ATO 2009).

Information asymmetry through moral hazard and principle-agent relationships are a feature of plantation MIS. Investors face the moral hazard reality that Responsible Entities, who act on their behalf, have more information and are also more insulated from the risk of their decisions: Responsible Entities may behave differently if they were exposed to the risk equally.

It is likely that no investment in hardwood chip plantation MIS would have occurred if investors expected a 1.9% per annum return (nominal), as calculated earlier in this paper for Great Southern Plantations. Investors, most with their opportunity cost of capital many times higher than 1.9%, would be better off paying the tax rather than investing in the plantation MIS.

In this case, all the tax deduction on plantation MIS would be a direct subsidy to the forestry industry. Extending across all hardwood plantation MIS, the tax based subsidy to forestry over the five years to 2008 is estimated at \$1.2 billion, \$234 million per annum.

### **Approach 3: Opportunity cost**

The difference between the MIS investor's expected return and the yield on risk-free 10 year Treasury bonds gives a highly conservative estimate of the investor's valuation of the tax benefits of plantation MIS.

On the basis that investors did their own calculations on a plantation MIS and estimated a return of 1.9% per annum (using the earlier Great Southern Plantations example) and proceeded with the investment, we can take the difference between the 1.9% and 5.35% (current 10 year Treasury bond yield) as the investor's valuation of the tax benefit of plantation MIS. This is a highly conservative estimate because most investors have a higher opportunity cost of capital than risk-free Treasury bonds.

The tax based subsidy to forestry through plantation MIS investments over the five years to 2008 is estimated at \$1.0 billion.

## **2.5 Summary**

The estimates of the subsidy to forestry through the plantation MIS using the three approaches range narrowly between \$0.9 to \$1.2 billion over the five year period ending 2008. Obtaining actual return to investor data is the single most important piece of information for enhancing the quality of the subsidy estimate. In addition, such information would improve substantially on that currently available to investors and go some way to addressing the asymmetric information problem.

## **3. Effective rate of assistance to growers of wood and food**

### **3.1 Introduction**

Governments of fossil fuel powered societies, confronted with the catch up effects of the resultant green house gas pollution, seek politically attractive approaches to the climate change problem. Offsetting fossil fuel emissions using land-based

sequestration, through tree planting in particular, appears to be gaining traction in countries with relatively large agricultural land assets, such as Australia. A potential risk lies in the diversion of resources away from food production to carbon uptake. Because human survival requires climate security, food security and water security, prudence is required in formulating climate change policy to avoid such unintended consequences as food shortages. The Productivity Commission's effective rate of assistance (ERA) measure is apt for evaluating and monitoring government climate change policy effects on agricultural land and water use.

The Productivity Commission (2009 p. 18) advises that the ERA measure for the industry sector 'Forestry & logging' is a significant underestimate because it excludes under-priced native forest wood and tax based assistance through plantation MIS. The plantation MIS subsidy estimates presented in the previous section of this paper fill one gap, leaving outstanding the assistance to Forestry & logging through state government native forest wood pricing policies. As argued in the next section, it is important to fill the gap concerning subsidised native forest wood even though most plantations are now established on cleared agricultural land.

Although beyond the scope of this paper, it should be noted that unpriced access to water by plantations is another form of assistance with trees using water from a much deeper soil profile than annual crops, which impacts on groundwater flows into rivers and streams.

### **3.2 Wood stumpage price subsidies**

Historically, a range of statutory marketing arrangements, regulations and price support schemes made up the bulk of the measured assistance to agriculture. Most have now ceased in food growing (Productivity Commission 2009 p. 14), but native forest wood remains subsidised through state government stumpage (log price less logging and haulage costs) policy. This assistance escapes measurement because state and territory government assistance to industry, other than designated agricultural marketing arrangements and rural support programs, is not covered in the Productivity Commission's assistance estimates (Productivity Commission 2009 p. 4). Based on ABARE sawmill survey data (Burns *et al.* 2009 p. 9), approximately 80 per cent of native forest wood sold in Australia was sourced from public land in 2006/07. Although plantation products continue to displace native forest wood products in all major markets (Ajani 2009), it is incorrect to conclude that the distortion created by subsidised native forest wood will eventually resolve itself. Rather, new native forest wood opportunities, most notably bioenergy, are being sought. If realised, the resource use distortion from subsidised native forest wood will broaden into the energy sector. This issue is discussed later in the paper.

Native forest wood underpricing may have also influenced the heavy concentration of plantation managed investment schemes to the hardwood chip market. Due largely to low wood stumpages, native forest chip exporters appear to have enjoyed many decades of extraordinary profits (Ajani 2007). These profits are rarely reported: the information integrated with other business activities, like sawmilling and pulp production. The Eden based South East Fibre Exports (SEFE) is the exception with its business, until recently, virtually entirely concentrated on native forest chip exporting. SEFE's after tax profit on equity averaged 34 per cent over the three decades to 2005

(Ajani 2007 p. 245). An easing in this long period of very high profits emerged from the late 1990s with SEFE's after tax profits on equity tracking slightly above 20 per cent (Financial statements lodged with the Australian Securities and Investment Commission). Implicit in the 1990s structuring of the plantation managed investment schemes is the assumption that the historical profit sharing arrangement built up between the (Japanese) chip buyers and the Australian native forest chip exporters (Ajani 2007 pp. 110-113) would remain. In other words, all hardwood plantation chip buyers would behave like the post WWII resource security-conscious Japanese paper industry and not use their buying power to forcefully drive real chip prices down. On paper, the architects of plantation MIS switched the high profits saturating Australian native forest chip exporters to the plantation MIS investors. The reality of this implicit assumption about market power is questionable, especially if Responsible Entities expect China to become a major buyer of Australian hardwood chips.

Evidence of state government subsidised native forest wood and its extent has been researched periodically (see for example Byron and Douglas 1981, Dragun 1995). The research, however, is constrained by substantial information gaps in forestry agency financial reporting and the complexities in valuing 'multiple-use' public native forests for the purpose of determining returns on net assets (Forests Advisory Committee to the Minister for Economic Development 1983). In the near three decades since the Victorian Forest Advisory Committee's report, there has been no advance in overcoming these information gaps in Australia's main native forest wood supply states, with the exception of Victoria. Table 2 lists the basic information required to investigate native forest stumpage price subsidies and checks this off against the information provided in the latest financial accounts of the forestry agencies of Tasmania, Victoria and New South Wales—together accounting for 89 per cent of Australia's native forest wood production in 2007/08 (ABARE 2009). Only Victoria gets to first base—presenting separate native forest financial accounts—the unintended consequence of privatising its plantation business in 1998. Forestry Tasmania, Australia largest native forest wood supply business, does not report its profit (loss) for native forest business activities separate from its plantation activities; the same for Forests NSW. For these two states, not even native forest stumpage revenue is reported.

Theoretically, plantation parity pricing offers a way through these financial reporting gaps. Applying plantation parity pricing, however, runs into problems. In excess of 80 per cent of the log cut in Australia's major native forest logging regions is geared to woodchip production (Ajani 2007) and most of the substitutable hardwood plantation chip production is linked to MIS. Therefore, using plantation MIS log stumpage price assumptions is likely to generate a significant over-estimate of the native forest stumpage price subsidy. An alternative approach is to answer the question: what native forest stumpage price would Vicforests (the only state reporting on the profit performance of its native forest wood production business, see Table 2) need to cover its costs? The answer sets a lower limit to the estimated subsidy because there is no allowance for any dividend to the state of Victoria for its native forest business activities.

**Table 2** Transparency in stumpage prices and financial reporting for public native forest wood production in Victoria, Tasmania and NSW

	VicForests (2008/09)	Forestry Tasmania (2008/09)	Forests NSW (2007/08)
Average native forest stumpage price	\$16.50/m <sup>3</sup>	not reported <sup>5</sup>	not reported <sup>7</sup>
Net profit (loss) on native forest operations (\$ million) <sup>1</sup>	(\$5.0 million)	not reported <sup>6</sup>	not reported <sup>8</sup>
Native forest log production. (million m <sup>3</sup> <sup>2</sup> )	1.9 million m <sup>3</sup>	2.4 million m <sup>3</sup>	1.1 million m <sup>3</sup>
% pulplogs <sup>3</sup>	66% <sup>4</sup>	77%	41%
Area of public native forest available for wood production (million hectares)	3.2 million ha	1.0 million ha	2.0 million ha

Source: VicForests 2009; Forests NSW 2009; Forestry Tasmania 2009; Audit Office NSW 2009; ABARE 2009.

1. Profit (loss) after market adjustments, asset revaluations and tax.
2. Quantities reported in tonnes converted to m<sup>3</sup> using 1.1t = 1m<sup>3</sup>.
3. Unquantified proportion of sawlogs are used in pulplog based products.
4. 2007/08 estimate calculated by deduction using ABARE reported sawn timber production and sawn timber recovery factors.
5. Annual stumpage price data is collected and used in forest asset valuations but reporting is limited to annual changes in stumpage.
6. Forestry Tasmania reported a \$32 million profit, which includes profit (loss) on plantation activities. 2008/09 profit is a marked turn around from previous year loss of \$38 million despite an 11% volume decline in log sales from 2007/08 to 2008/09.
7. Stumpage revenue is reported for all log sales—68% was from the plantation estate.
8. Audit Office NSW (2009) reported a loss of \$14.4 million.

Eliminating Vicforest's \$5 million loss in 2008/09 requires a 16 per cent increase (\$2.60/m<sup>3</sup>) in its native forest stumpage price. Extending this \$2.60/m<sup>3</sup> increment to Tasmania and NSW generates an increased annual stumpage revenue across the three states of \$14 million. This is considered a conservative estimate of the subsidy on wood from public native forests.

### 3.3 Effective rates of tariff and budget assistance to food and wood growers

The shifting of wood production to plantations has brought new competition to certain food growers for agricultural land and water. This competition aligns approximately to the Productivity Commission's industry classifications 'Dairy cattle farming' and 'Grain, sheep & beef', which includes wool and omits fisheries, horticulture and fruit growing and other crop and livestock farming. From here on, these activities are referred to as food growing.

The Productivity Commission's estimated assistance to food growing, including drought related payments, is presented in Table 3. Also presented is the estimated assistance to Forestry & logging totalling \$272.5 million in 2007/08. This comprises the Productivity Commission calculated net tariff assistance of \$12.9 million (Productivity Commission 2009 p. 17), estimated state government native forest wood pricing assistance (calculated in Section 3.2), Productivity Commission estimated Commonwealth Government outlay assistance of \$35.6 million (Productivity Commission 2009 p. 17) and the estimated assistance through plantation MIS taxation arrangements of \$210 million (calculated using the average of the first two approaches in Section 2.4).

**Table 3** Effective rate of tariff and budgetary assistance for wood and food growing 2007/08 (%)

	Net tariff assistance (\$ million)	Budget based assistance (\$ million)	Tax based assistance (\$ million)	Net combined assistance (\$ million)	Unassisted value added (\$ million)	Effective rate of combined assistance (%)
Forestry & logging	12.9	49.6	210.0	272.5	652.6	41.8
Grain, sheep & beef	-15.9	937.7	107.2	1 028.9	14 290.3	7.2
Dairy cattle farming	-3.6	300.3	21.8	438.7 <sup>a</sup>	2 535.8	17.3 <sup>a</sup>

a. Combined assistance includes \$120.1 million for agricultural pricing and regulatory assistance that ceased in April 2008. Source: Productivity Commission 2009 with gaps in Forestry & Logging filled using the analysis presented in Sections 2.4 and 3.2 of this paper.

The estimated effective rate of combined assistance to Forestry & logging is 41.8 per cent: government assistance is equivalent to 42 per cent of Forestry & logging's unassisted value added. This exceeds substantially the assistance (including drought related payments) to food growers (Table 3). At such significant differentials, government assistance works to redirect agricultural land, water and other resources away from food growing to wood growing relative to an unfettered market outcome.

## 4. Policy discussion

### 4.1 Who bears the risk?

Australia's Constitution, which saw the states retain responsibility for Crown land, has influenced greatly the nature of government assistance to the wood and wood products industry. State public servant foresters managed public native forests to supply wood to private industry. This arrangement continues today with subsidised wood contributing to the losses of government native forest wood production businesses (Table 2 including note 8) to the advantage of native forest wood processors. Because competing forest land uses (largely native forest conservation) operate outside the market, land use contests play out in the democratic competition for votes. Effective rates of assistance measures cannot easily bridge the two markets: the market for votes and the market for profits. Long-entrenched subsidised native forest wood has slipped under the radar in industry policy.

Australian forestry changed fundamentally with the introduction of agriculture for wood production—plantations. It brought new players and technology into the industry's manufacturing arm and raised productivity and competition. The associated substantial Commonwealth Government assistance for tree planting over the 1970s and 1980s—mainly softwoods for sawlog production (Ajani 2007)—did not however generate new competition for agricultural land because most of the land for planting was obtained through clearing native forests. In this situation also, effective rates of assistance measures are marginalised.

Clearing native forests for plantations, however, triggered waves of protest (Plumwood and Silvan 1973) and now all states have policies restricting, to varying degrees, clearing native vegetation for plantations. Australia's adoption of the Kyoto protocol carbon accounting system is likely to further reduce planting on native forested land because, under Kyoto accounting, the land is considered to remain 'forested': therefore, tree planting can not be recorded as CO<sub>2</sub> removal to earn credits. Plantation wood growing in Australia is now focussed largely to agricultural land and the importance of generating realistic ERA measures for forestry shifts from being of marginal value to highly valuable in quantifying the distributional effect of government policies on agricultural land, water and other resource use.

Over Australia's 130-year plantation wood growing history, many arguments have buttressed the case for government assistance for plantation establishment: self-sufficiency and by implication the trade deficit, addressing land degradation, as countervailing assistance to low native forest log stumpages, regional development, to address market failures associated with long rotation times, rural jobs and more recently CO<sub>2</sub> removals. Leaving to one side CO<sub>2</sub> removal that is discussed below, the argument that retains traction concerns the linkage of long plantation rotations to capital market failure (see for example Parliamentary Joint Committee on Corporations and Financial Services 2009 p. 46). There appears, however, to be no evidence of capital market failure resulting in plantation investors not being able to access finance. Higher interest rates may accompany finance for planting, but this is normal for any long-term and therefore more risky investment.

Government engagement in native forest wood production originally linked the public sector to the risk associated with long lead-time forestry. Wood buyers—the manufacturing arm of the industry—have become accustomed to this arrangement for well over a century. When state governments started investing in plantations, the risk-sharing arrangements generated oversupplied wood markets, again highly attractive to cost-conscious commodity wood buyers (Ajani 2007). When state governments began scaling down their plantation investments from the early 1990s, new plantation investment flattened for a decade before the revival by plantation MIS. Under plantation MIS, the market risk remained deflected from wood buyers with tax minimising investors joining the public purse to bear most of the risk. Decades of successful risk avoidance explains forestry's high effective rate of assistance measure as presented in Table 3. The challenge for governments seeking to bring forestry's effective rate of assistance into line with that of competing agricultural land and water users is to encourage the wood and wood products industry to grow up economically. This means, in particular, an industry whose managers and boards are able to manage risk and governments who prevent industry deflecting risk onto the public purse.

If the ERA differential between forestry and food growing remains significant, agricultural land and water will be allocated inefficiently to wood and away from food. Some in the forestry industry may see this as correcting for past land clearing for agriculture: ignoring that plantations are agriculture not native forests. Whilst the tension between forestry and traditional agriculture has dissipated since the days when forest agencies were branches within land departments that facilitated extensive land clearing, it would be wrong to conclude that growers of food and wood are partners in the Australian agricultural enterprise with resources, especially land, allocated through unfettered market price signals. Today, government forestry policy (notably

at the national level) is integrated within the agriculture portfolio but the forestry industry lobbyists continue their historical practice of remaining outside the agriculture club. This brief historical policy background, combined with the ERA analysis, establishes the context for examining the role the Australian Government is now creating for plantations in climate change policy.

#### **4.2 Plantations and the proposed emissions trading system, renewable energy targets and tax arrangements for carbon forest sinks**

Tree planting ('reforestation' or 'afforestation' using Kyoto protocol terminology) is the only land use CO<sub>2</sub> removal activity able to participate in Australia's proposed emissions trading system (ETS).<sup>2</sup> Opting-in 'reforestation' participants would be required to establish a Kyoto 'forest' for 100 years, this being a 0.2 hectare or greater area of trees that have the potential to reach two metres in height with a 20 per cent or more canopy (Australian Government 2008). Opting-in participants face two 'reforestation' options:

- not for harvest projects—trees grown for carbon storage and not harvested over the 100 years, or
- wood and biofuel production projects—with logged areas replanted to maintain the land as Kyoto compliant 'forest' for 100 years.

It is unlikely that productive food producing land will be used in the 'not for harvest option' given its opportunity cost of a century of income from food growing. (The efficiency of planting and maintaining an area of trees for 100 years relative to other carbon storage options like not clearing native vegetation, restoring degraded native forests or establishing criteria to ensure the planted 'forests' are multi-species and have self-regenerating capacity is a very important issue but out of the scope of this paper.)

The second option—establishing new areas of Kyoto 'forests' for wood, biofuels and other products—will bring increased competition for agricultural land and water and highlights the importance of comprehensive ERA measures for wood and food growing. Under this option, the Government proposes to issue permits (CO<sub>2</sub> credits) for tree planting on an average crediting basis (Australian Government 2008). Permits would be issued for net greenhouse gas removals up to a limit. For a 25 year rotation plantation, for example, opting in growers would receive permits over the first half (approximately) of the first of the four rotations. By limiting permits to the average of the carbon stored in the 'forest', growers will not be required to buy permits for the

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<sup>2</sup> Using land based CO<sub>2</sub> removals to offset fossil fuel emissions is double-dipping, made possible in the setting of the base year for carbon accounting. Most of the carbon emissions from earlier land clearing, in Australia and globally, remain as a stock in the atmosphere. Replanting trees will draw down that stock, but Australia's proposed ETS has tagged the drawdown as an offset against fossil fuel emissions (Brendan Mackey pers.comm.). Globally and from a science perspective, the base should be set pre the industrial revolution because emissions since the industrial revolution remain in the atmosphere as a stock. Combining this base with rigorous carbon accounting (incorporating carbon stocks and all major flows from the land sector measured in gross terms (Blakers 2009) as is done for financial accounts), would establish scientific rigor to the treatment of land-based offsets. The funding of efficient and effective land based climate change mitigation activities can still be linked to carbon trading/tax revenue but not via offset credits against fossil fuel emissions.



emissions on logging or for any emissions through fire so long as the 'forest' is replanted after these events. This arrangement means that, once the 'forest' is established, the CO<sub>2</sub> price signal to growers is blocked for the next 100 years. It effectively ensures that the 'forest' will be harvested for wood (or biofuels) despite movements in CO<sub>2</sub> prices relative to wood. In addition, it is unclear to what extent the public will bear the risk if a plantation is destroyed or otherwise fails to store carbon for the required period and it appears the public bears the emissions cost if the plantations are not re-established after the 100-year expiry date.

In unfettered markets however, plantation owners are likely to forgo wood production and preference carbon production at relatively low CO<sub>2</sub> prices. This is because only half the plantation biomass is suitable for wood production but all the plantation biomass is suitable for selling into a carbon market (Wood and Ajani 2008). The average crediting approach ensures that a CO<sub>2</sub> price signal works to stimulate plantation investment, but once the plantation is established, average crediting eliminates the CO<sub>2</sub> price signal and therefore the risk to wood buyers of growers preferring the carbon market and keeping plantations unlogged.

In August 2009, Australia adopted a 20 per cent renewable energy target. Renewable sources would account for 20 per cent of grid-based electricity production by 2020. Wood from both native forests and plantations was classified as a renewable energy source. The Government considers that provided the land remains forested, logging for wood and/or biofuels is carbon neutral and therefore should be CO<sub>2</sub> cost free. Leaving aside the issue of the ecological soundness or otherwise of using native forests for electricity, the carbon neutrality ruling ignores the temporal dimension of carbon flows in a plantation wood growing regime. The CO<sub>2</sub> emissions from biofuels made from say 20-year-old plantations will be CO<sub>2</sub> cost free for the 20 years of regrowing required to drawdown the emissions (In reality the removals are offsets to earlier land clearing, see footnote 2). These arrangements work against efficient resource use in the energy sector by disadvantaging renewable energy systems that have no temporal risk for climate change mitigation. So far, there are a limited number of plantation MIS that include biofuels in the product mix (see for example ATO Product Ruling 2007/45).

Completing this description of the regulatory framework for plantations in Australia's climate change policy requires mention of the still contested interpretation of subsection 40-1010(3) of the ITAA. Senator Milne, on the basis of legal advice that capital expenditure 'in relation to' the establishment of trees in carbon sink forests means that land purchase costs and other associated capital costs are fully deductible upfront from 1 July 2007 to 30 June 2012, moved to disallow the guidelines relating this part of the ITAA (Senate Hansard 1 December 2008 p. 7716). The motion generated a long debate, which on reading appears not to clarify the taxation treatment of capital expenditure for carbon sink forests. Perhaps the legislation could have been drafted more clearly, but Milne's legal advice warns that the near unimaginable may be a legal reality: that capital expenditure 'in relation to' the establishment of trees for carbon sink forests may be fully deductible. If correct, the amended legislation would be a fundamental change from the ordinary taxation treatment of capital expenditure.

Research into the effect of the ETS on agricultural land use change has ignored the plantation MIS tax-based subsidy, although the MIS arrangement is likely to be the

implementation mechanism. Lawson *et al.* (2008) estimate that at a CO<sub>2</sub> commencement price of \$20.88/t in 2010 increasing by an average 4 per cent per annum to 2050, around 5.8 million hectares of agricultural land may shift into ‘forested’ land: around 3 million hectares as commercial plantations and 2.7 as environmental plantings. At a commencement CO<sub>2</sub> price of \$29.10/t, Lawson *et al.* (2008) estimate a 26 million hectare ‘forestry’ land use change between 2007 and 2050 comprising slightly over 4 million hectares of additional commercial plantations with the remainder being environmental plantings. The CSIRO, based on work they describe as “prospecting’ for opportunities”, reports that 17 million hectares of agricultural land may be suitable for carbon ‘forestry’ through a combination of biodiverse carbon sink plantings and commercial plantations (CSIRO 2009 p. 12 & 112). Like Lawson *et al.* (2008), the research ignores the plantation MIS arrangement and complementary measures to classify wood as a carbon neutral renewable energy source. The omissions reinforce the importance of incorporating plantation MIS arrangements into the Productivity Commission’s ERA measures.

## 5. Recommendations

The preliminary ERA estimates presented in this paper incorporating government assistance to Forestry & logging through the plantation MIS suggest substantial distortion in resource use in Australia’s agricultural industries, away from food to wood. The plantation MIS, combined with emerging climate change policy for the land use sector which privileges tree planting as the sole land-based offset in the proposed ETS and assumes away temporal issues in classifying wood as a carbon neutral renewable energy, is likely to exacerbate the distortion.

To create the information for policy debate and policy making, evaluation and monitoring, it is recommended that:

1. Treasury and the ATO conduct five-yearly reviews (with the first to be undertaken immediately) of the process and information used to rule on plantation MIS dispensation from Division 35 commerciality tests.
2. The ATO, ASIC, Treasury and Productivity Commission establish a publicly accessible plantation MIS reporting and monitoring system where, at a minimum, the key variables—return on investment, wood yield and woodchip prices—are tracked over time for each project.
3. The Productivity Commission’s ERA estimates be expanded immediately to include assistance through plantation MIS using, in the first instance, Approach 1—tax deduction for true costs only.
4. Failing State Government engagement in Tasmania and New South Wales in particular, the Australian Government intervenes to ensure greater transparency in state native forest wood production businesses, including separate financial reporting of native forest wood production profits (losses), stumpage revenues and log sales for major product groups (saw/veneer log, chip log and bioenergy).

To assist in policy development aimed at food and climate security, it is recommended that:

5. The Australian Government initiate a major investigation into the land use sector's potential contribution to climate change mitigation, setting as the first task the compilation of a coherent system of land use sector carbon accounts that includes carbon stock measures together with separately reported emissions and removals.

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