

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

---

## Working Paper

**Dr Judith Ajani**

**Fenner School of Environment and Society  
The Australian National University**

**February 2011**

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.

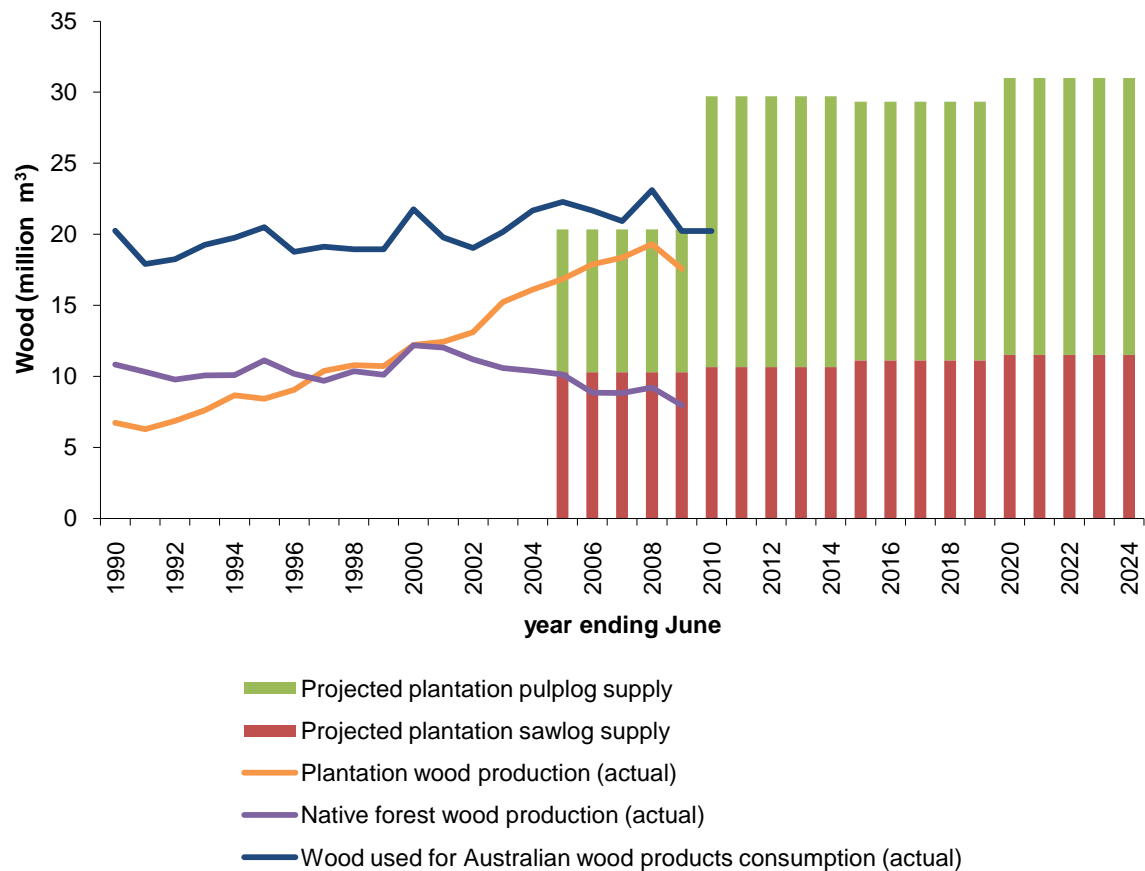
The data sets used in the analysis are close to entirely sourced from ABARES (the merged Australian Bureau of Agricultural and Resource Economics and the Bureau of Rural Sciences) and the Australian Bureau of Statistics (ABS). This includes actual production, import, export and consumption data and projected 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.

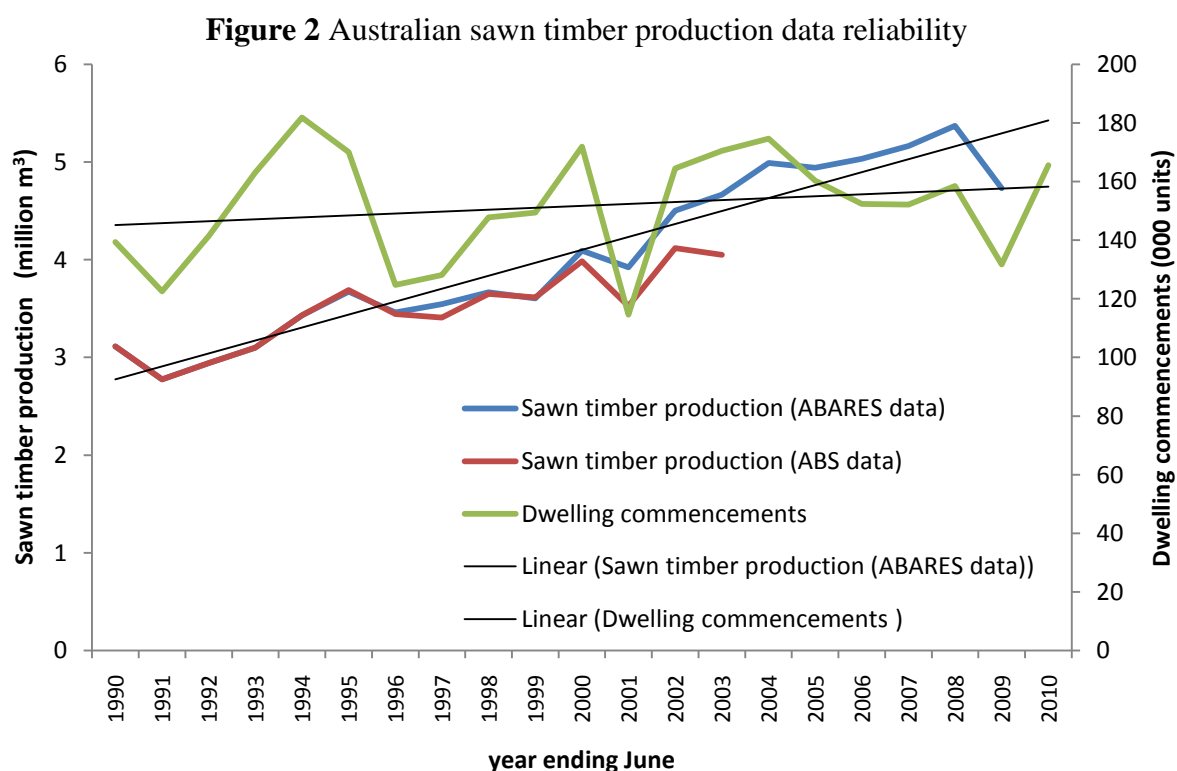
### 3. Processed wood products

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.

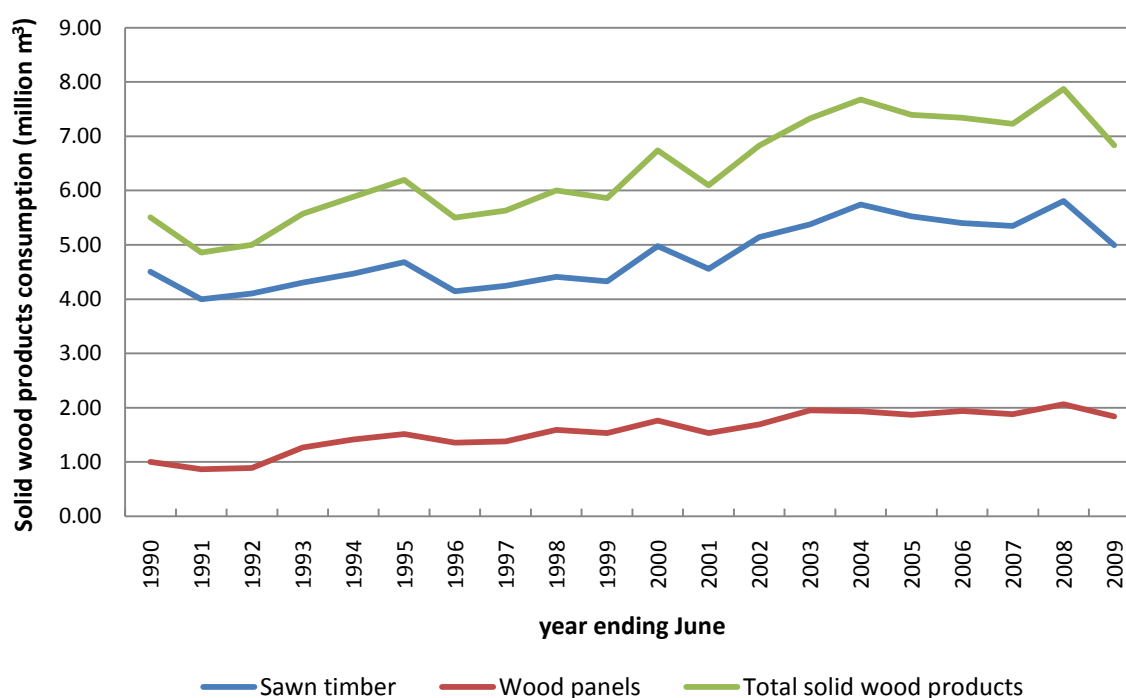
ABARES sawn timber production and consumption data are used in the following analysis with the understanding that both data sets may be overestimates.

### 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.

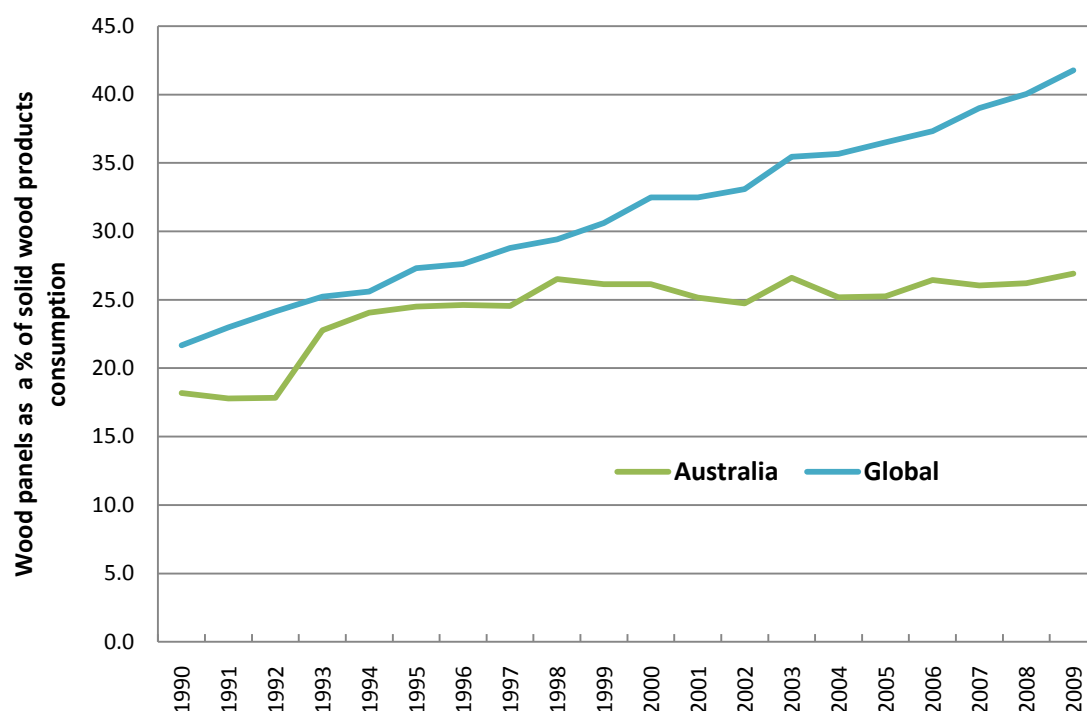
**Figure 3** Australian consumption of solid wood products



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 m³ 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

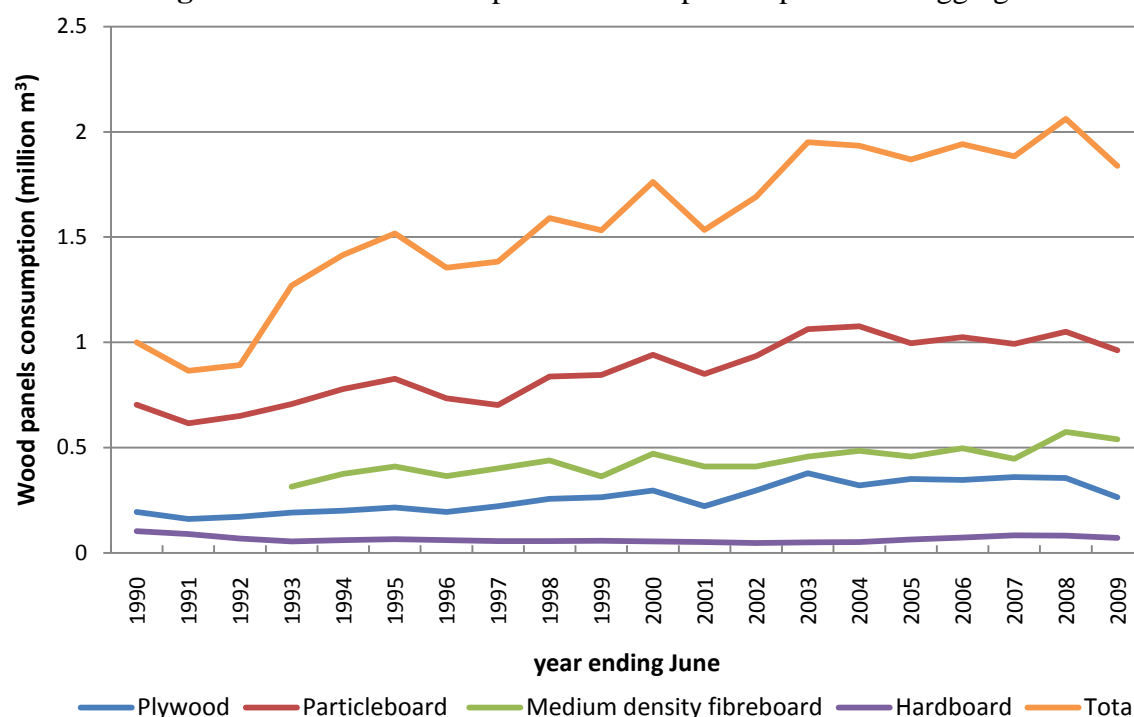


Source: Australian data as for Figure 3; global data from FAO FAOSTAT.

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.



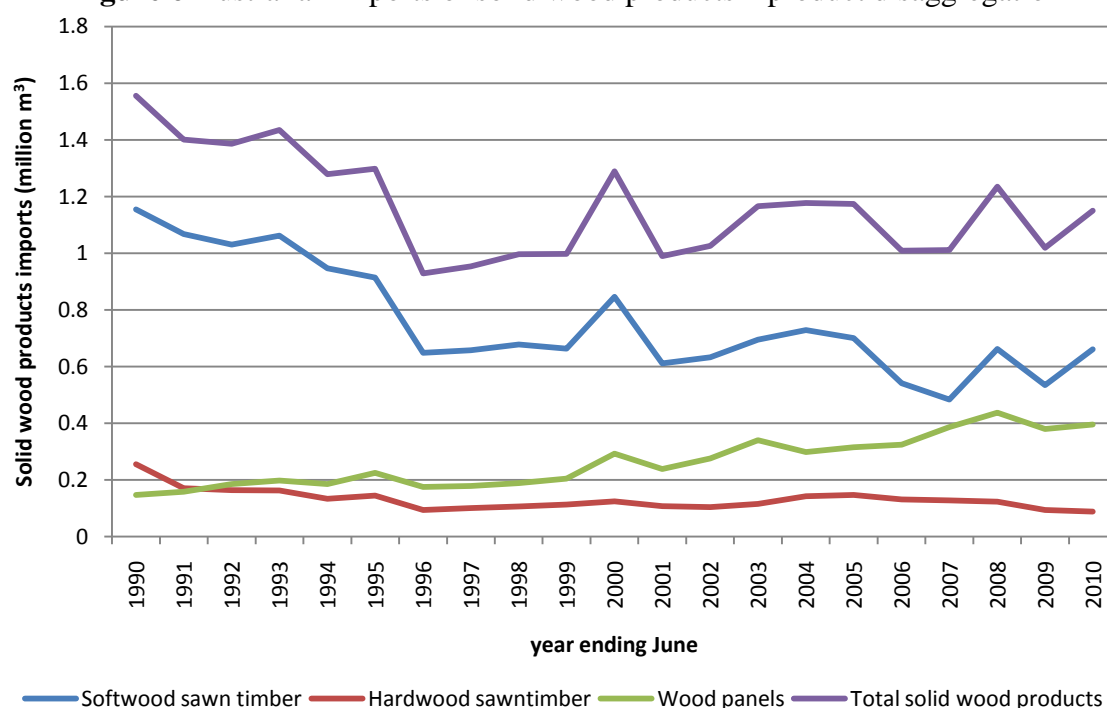
**Figure 5** Australian wood panels consumption – product disaggregation



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



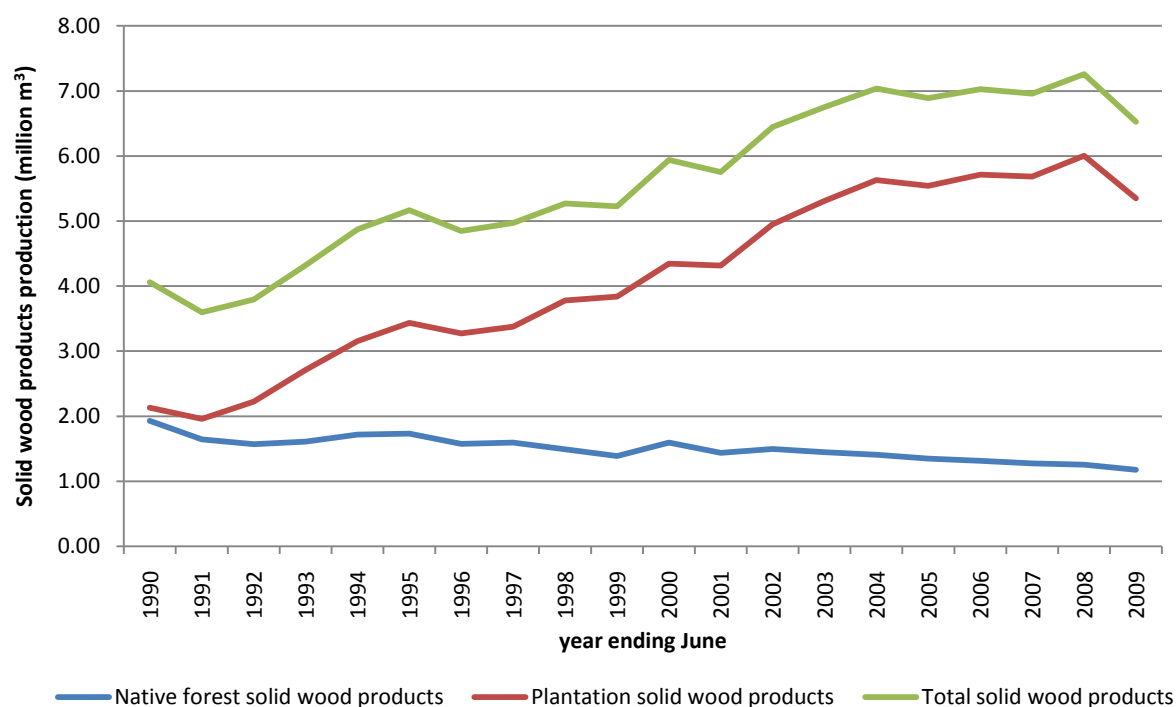
Source: ABS *International Trade, Australia* Cat. No. 5465.0 as reported in ABARES *Australian Forest and Wood Products Statistics* and *Australian Commodity Statistics*.

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

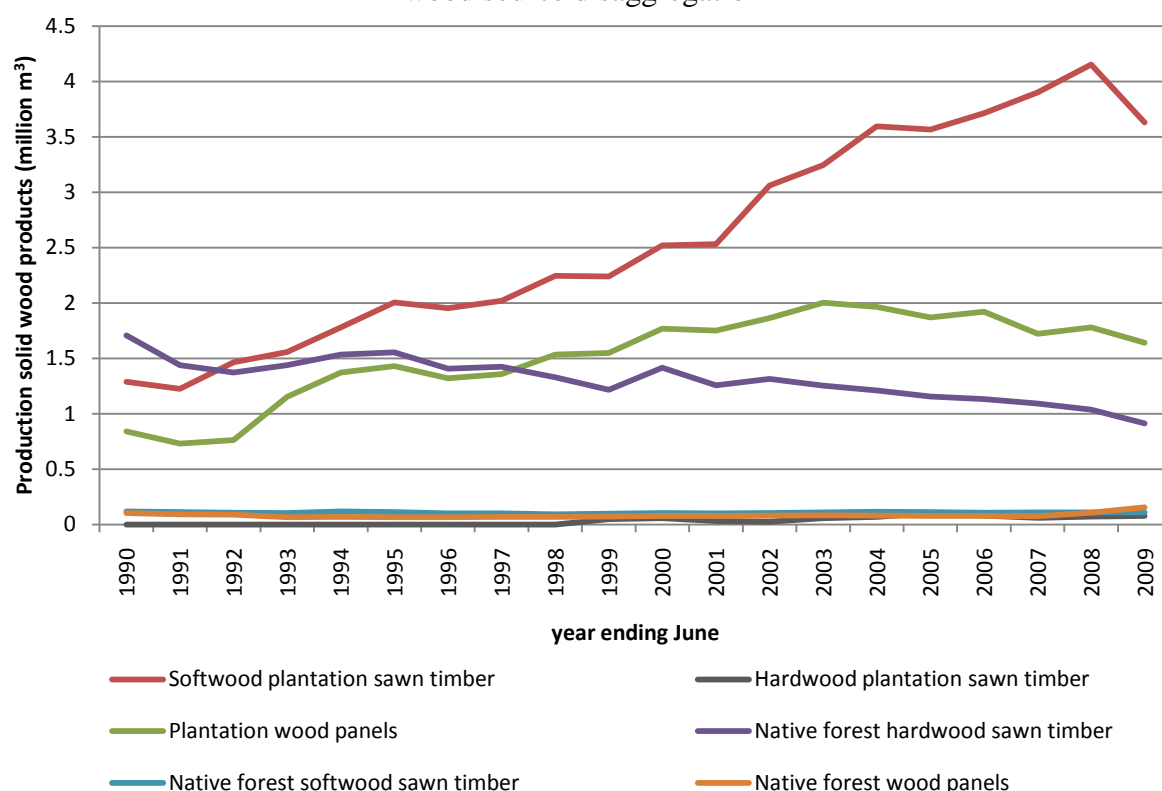


Source/methods: Production data from ABARES *Australian Forest and Wood Products Statistics* and *Australian Commodity Statistics*. Native forest sawn timber includes cypress production. Hardwood plantation sawn timber was estimated using a 0.38 recovery factor applied to hardwood plantation sawlog data 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.

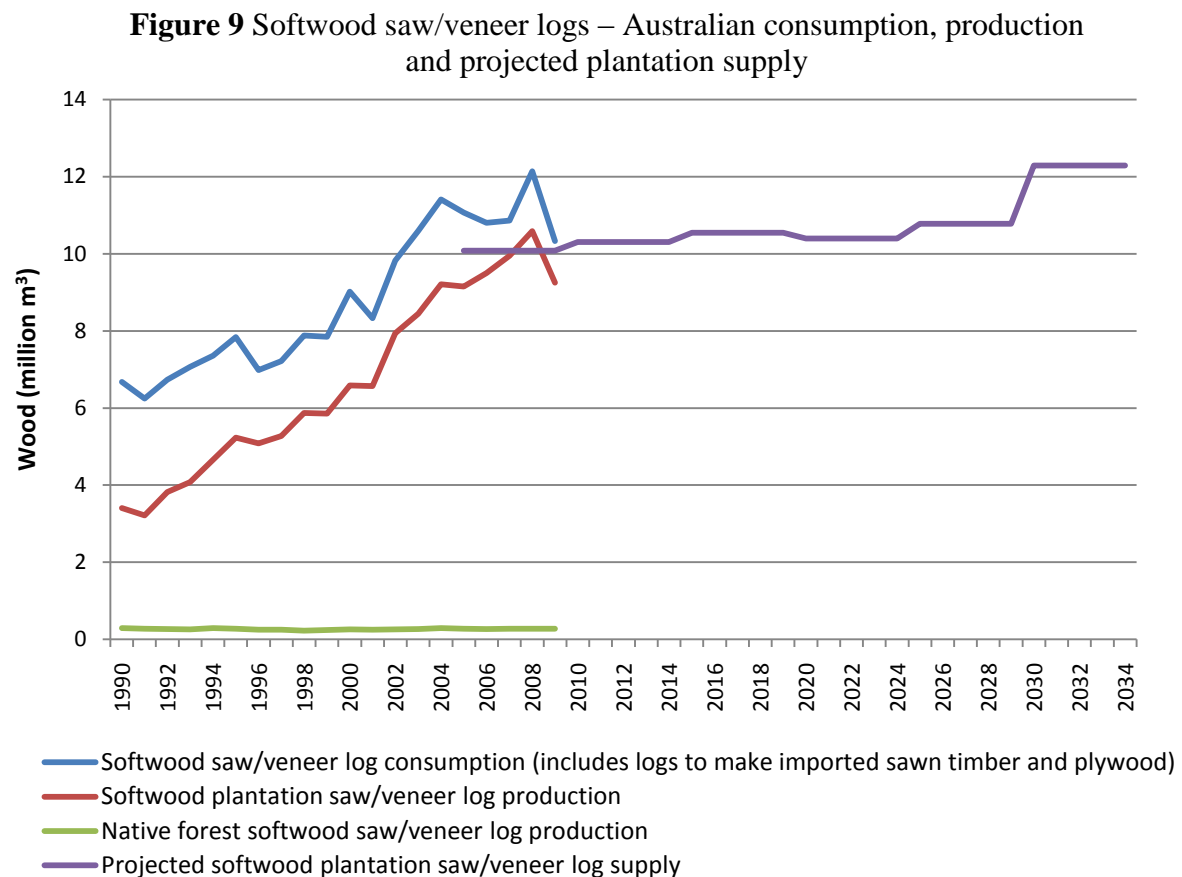
### 3.1.5 Solid wood products – plantation supply capability

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).



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).

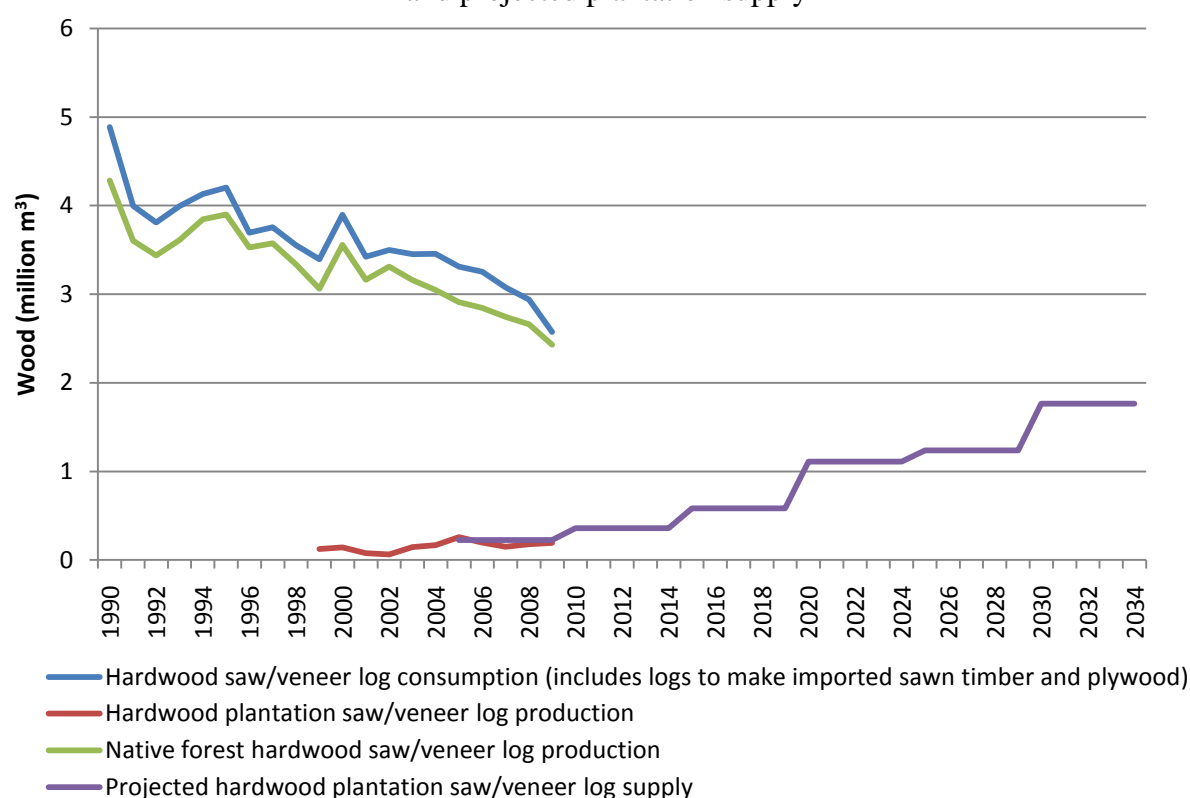
Whether self sufficiency is maintained depends on the demand and wood supply outlook. Growth in the demand for saw/veneer logs will flatten if the consumption mix shifts more to reconstituted wood-based panels – in line with global trends. On the supply side, if realised, plantation productivity improvements 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

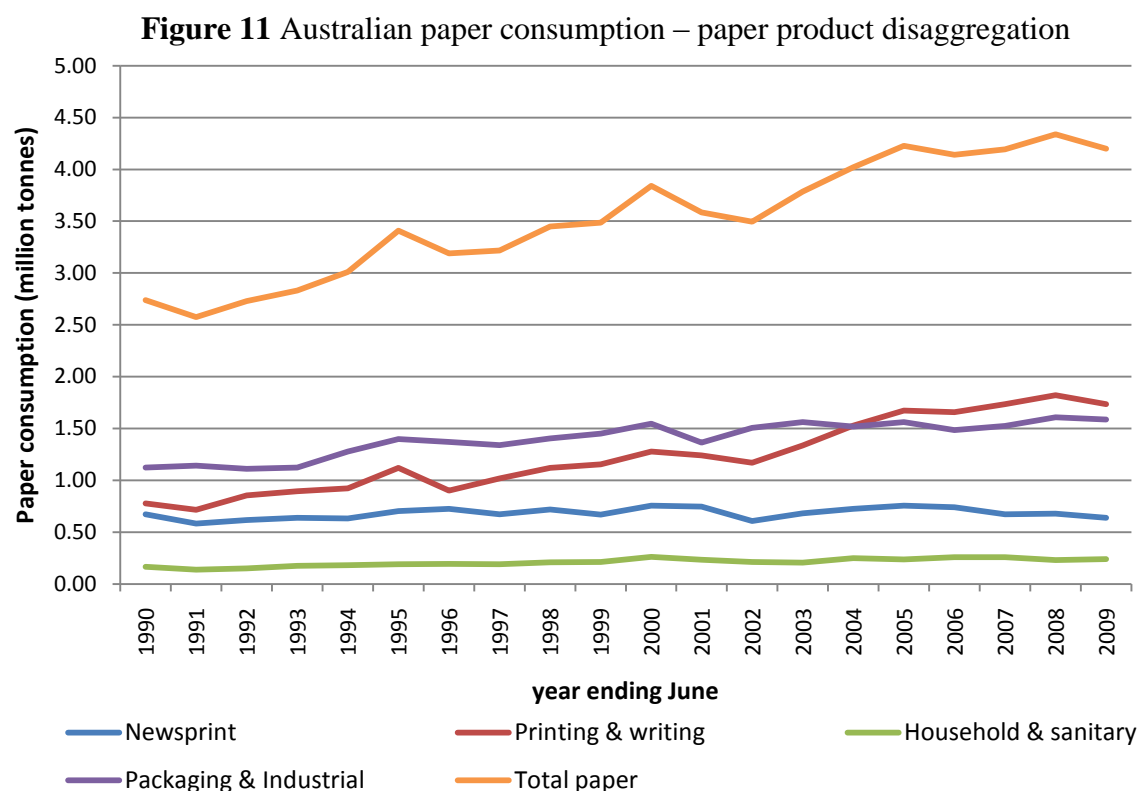
The total sawn timber production figure presented in Table 2 that was estimated using Jaakko Poyry Consulting (1999) recovery factors and product shares applied to ABARES reported native forest sawlog production in 2009 is 7% lower than ABARES' estimated native forest hardwood sawn timber production 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.

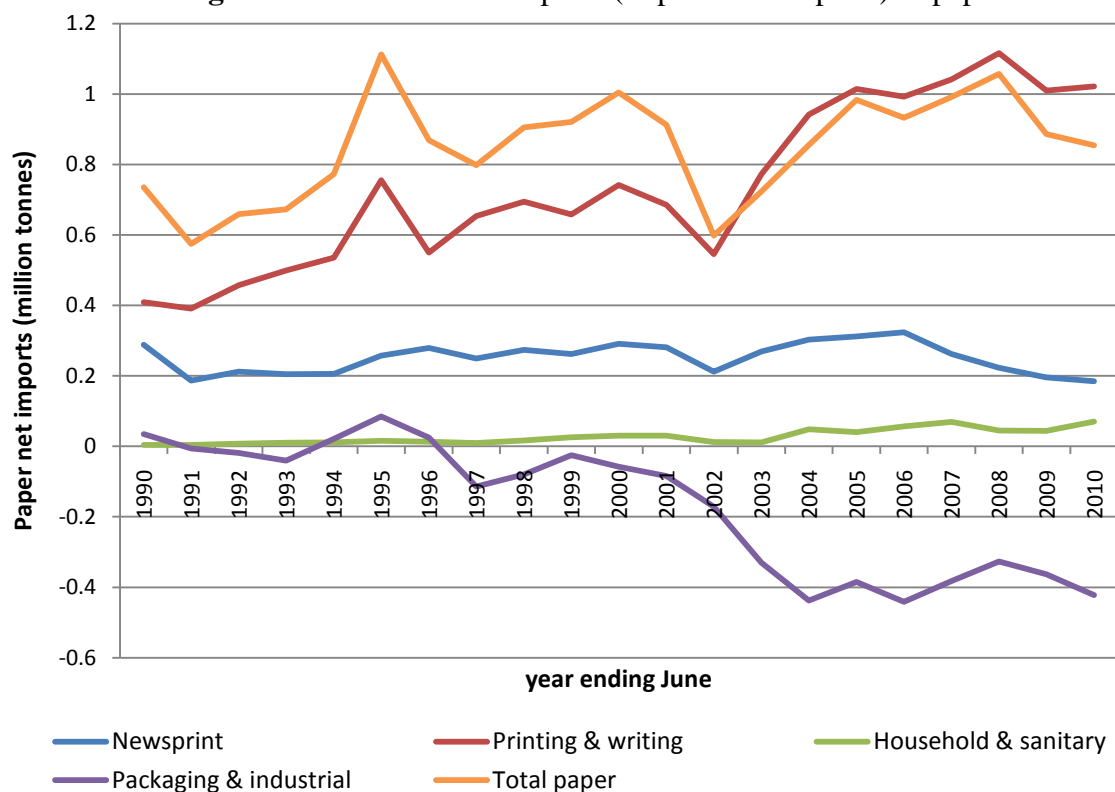


### 3.2.2 Paper – net imports (imports minus exports)

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



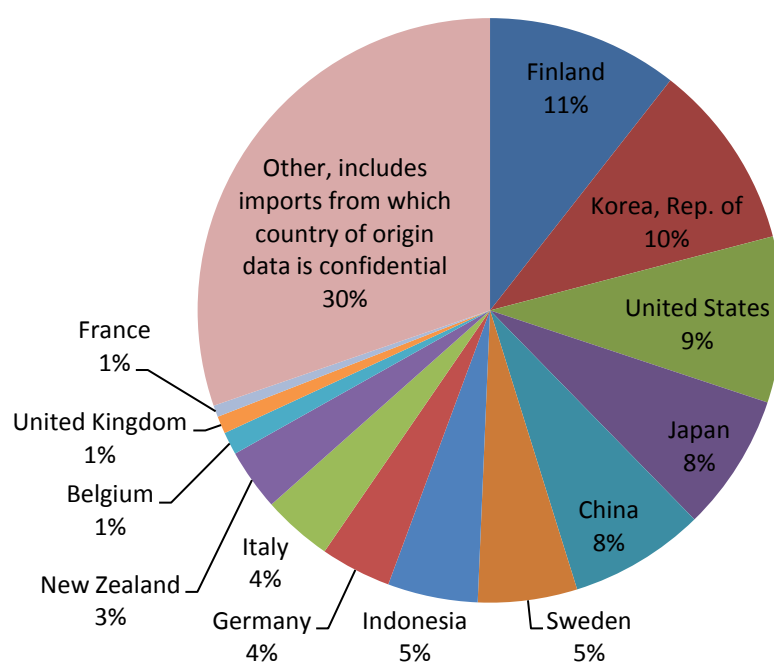
Source: ABS *International Trade, Australia* Cat. No. 5465.0 as reported in ABARES *Australian Forest and Wood Products Statistics*.

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.

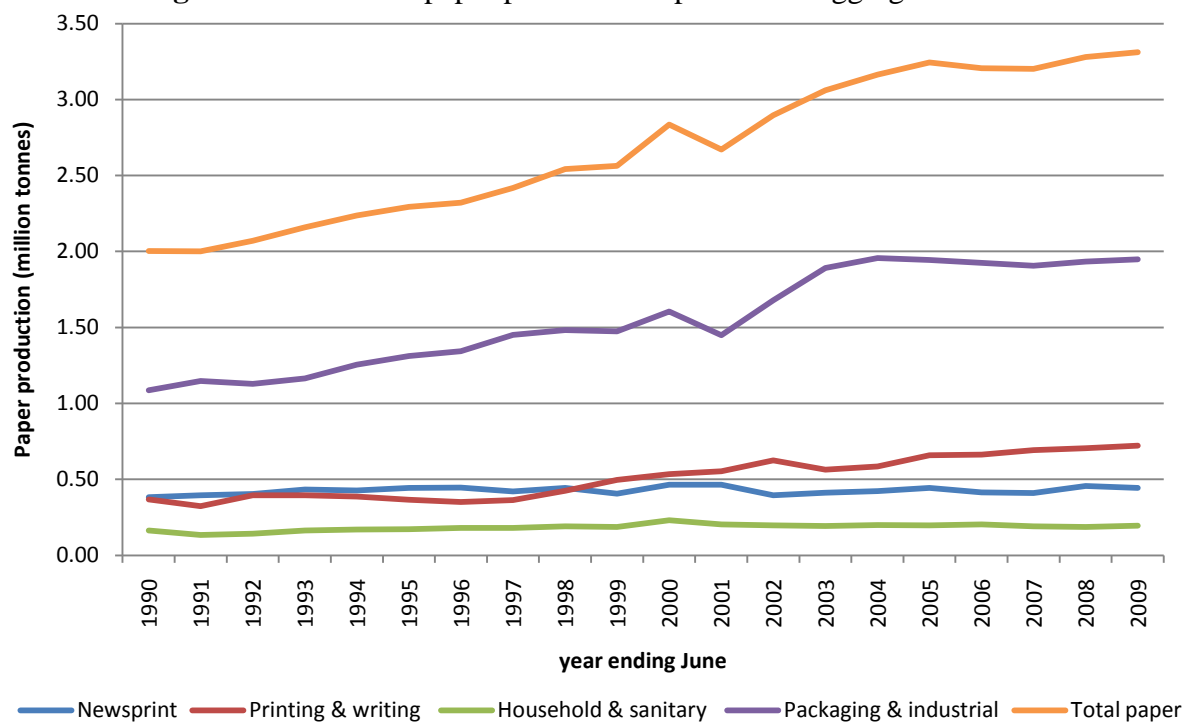
**Figure 13** Australian imports of printing & writing paper by country of origin – 2009/10



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

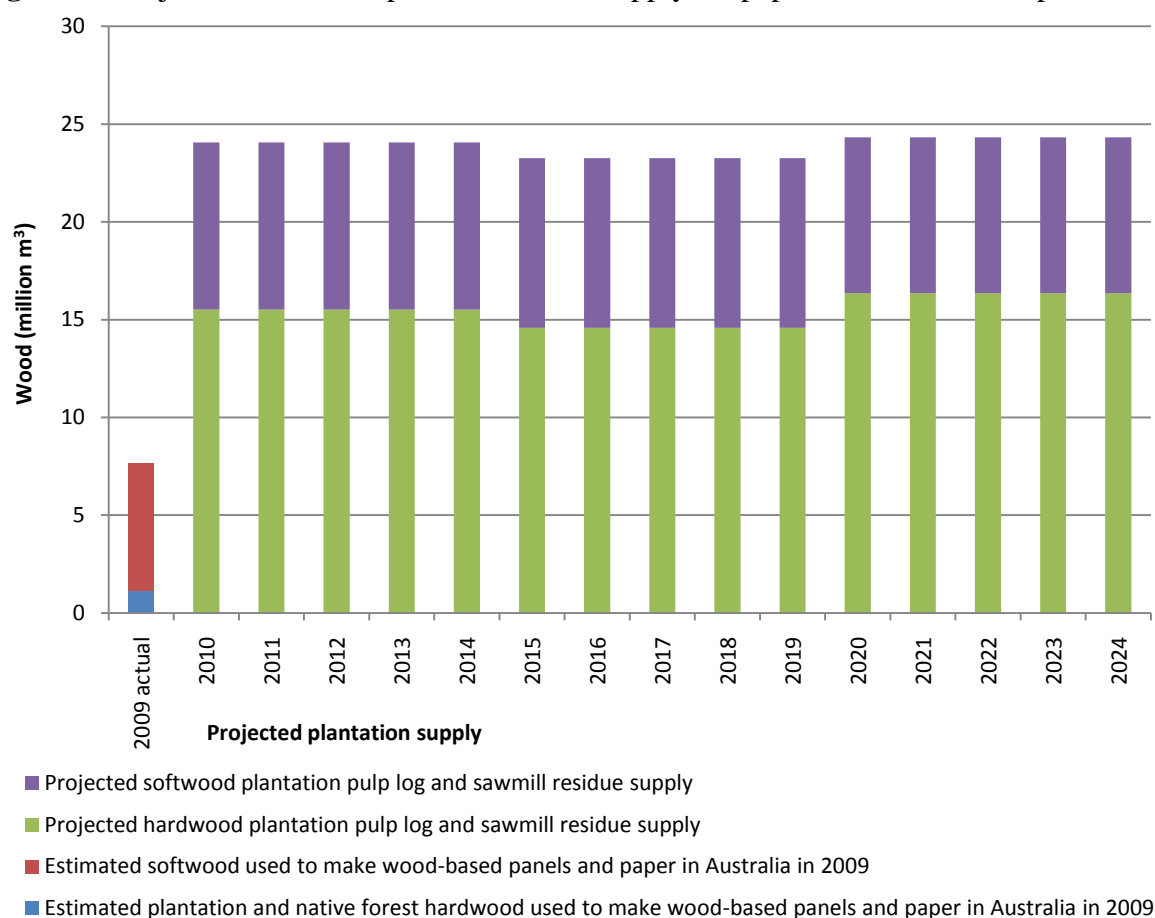
Based on the specified input mixes and conversion factors (Table 3), the 4.2 million tonnes of paper consumed in Australia in 2009 was estimated to have been made using recycled paper (33%), softwood and hardwood pulp (61%) and fillers and additives (6%) in domestic or overseas pulp and paper production. 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



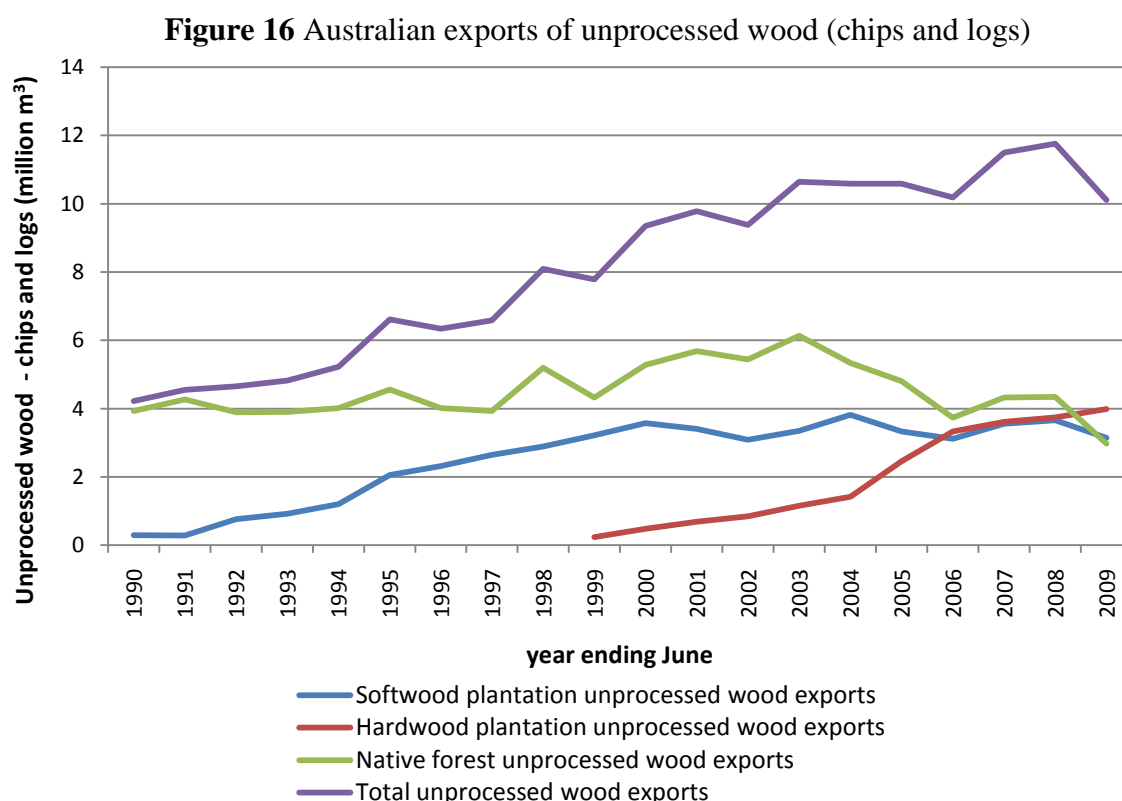
Source/methods: Wood used for wood-based panels production in Australia in 2009 estimated using ABARES *Australian Commodity Statistics* and applying a 0.67 recovery factor for particleboard (all softwood based); 0.57 for MDF (all softwood based); 0.56 for hardboard (all hardwood based). Wood used for 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.

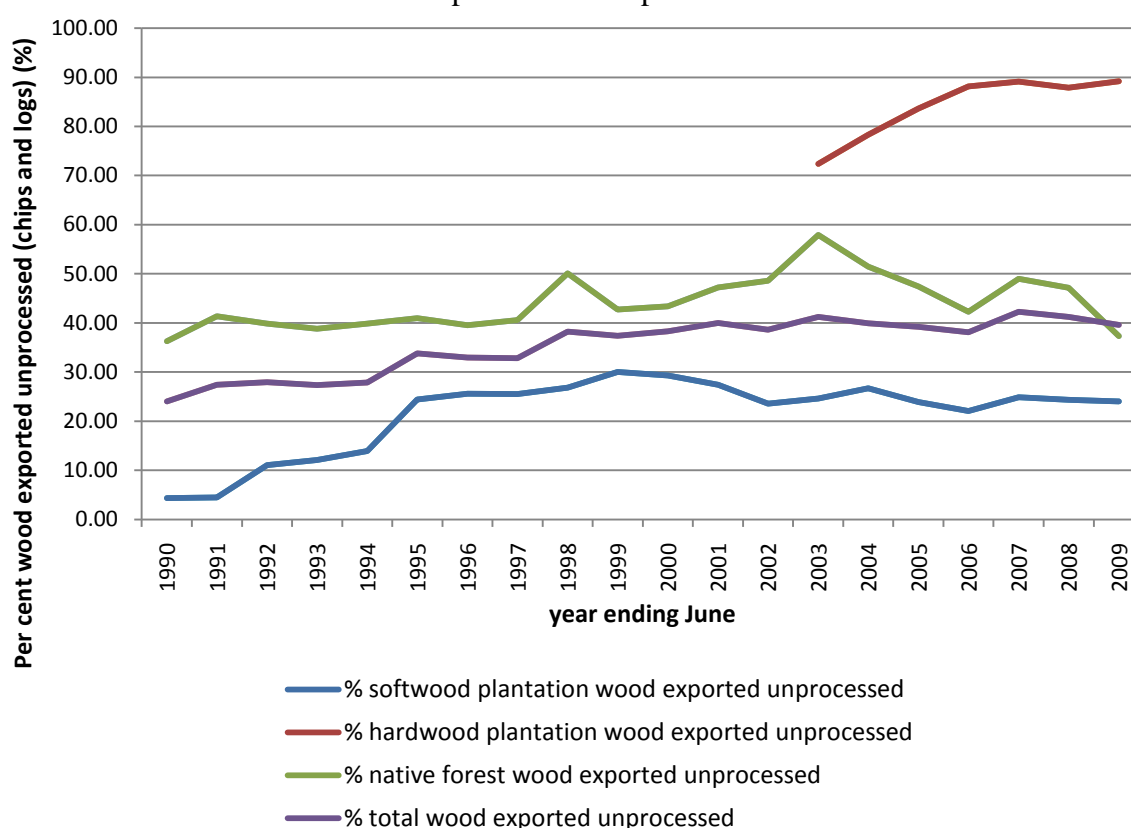
The year ending June 2009 was a historically significant year for Australian forestry: hardwood plantation chips became the single biggest source of unprocessed wood exports (Figure 16).



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.

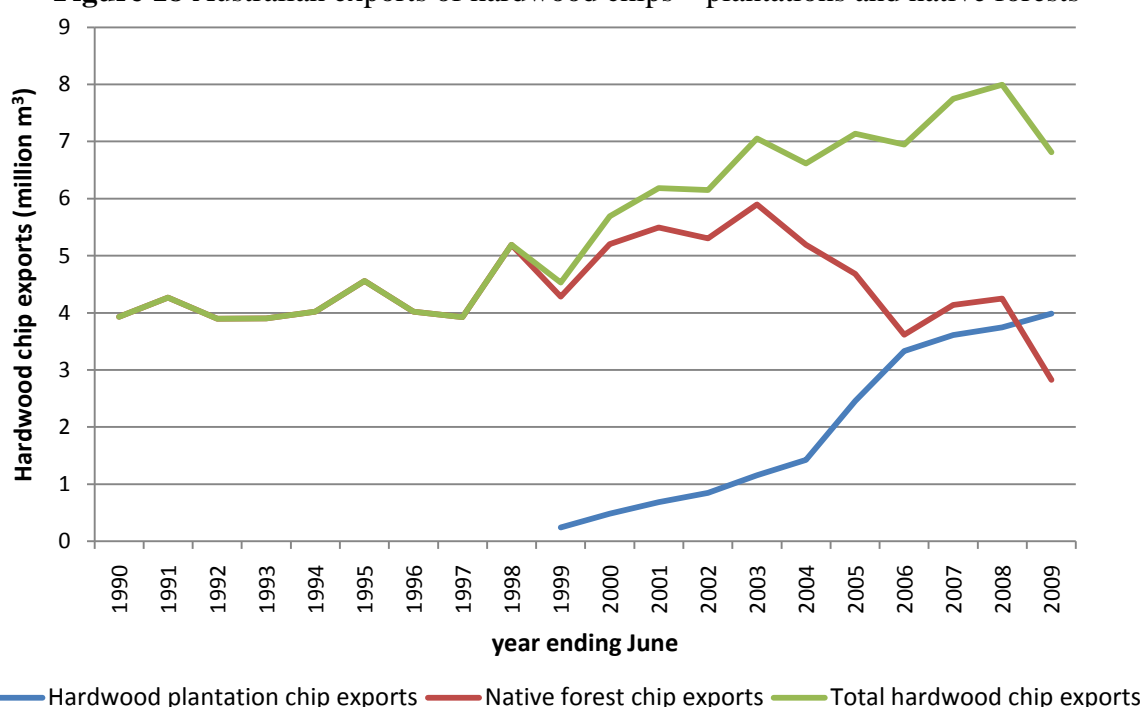
## 4.2 Hardwood chip exports

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



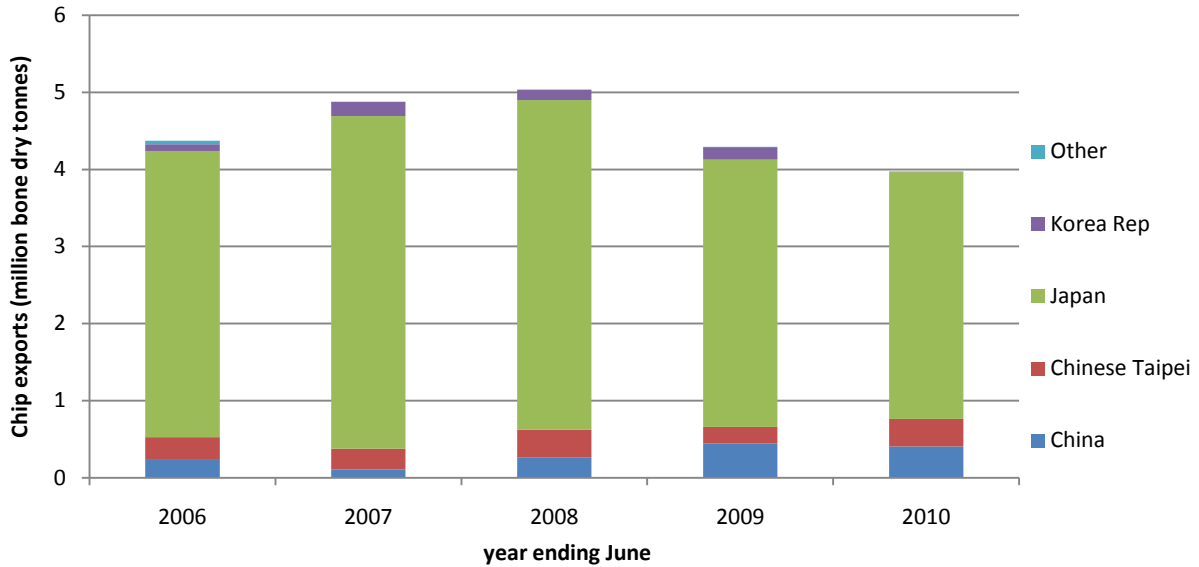
Source/methods: Chip exports from ABS *International Trade Australia* Cat. No. 5465.0 reported in ABARES *Australian Commodity Statistics*. Bone dry tonnes converted to m<sup>3</sup> using basic density for softwood of 415 kg/m<sup>3</sup> and hardwood 630 kg/m<sup>3</sup> (Jaakko Poyry Consulting 1999, 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.

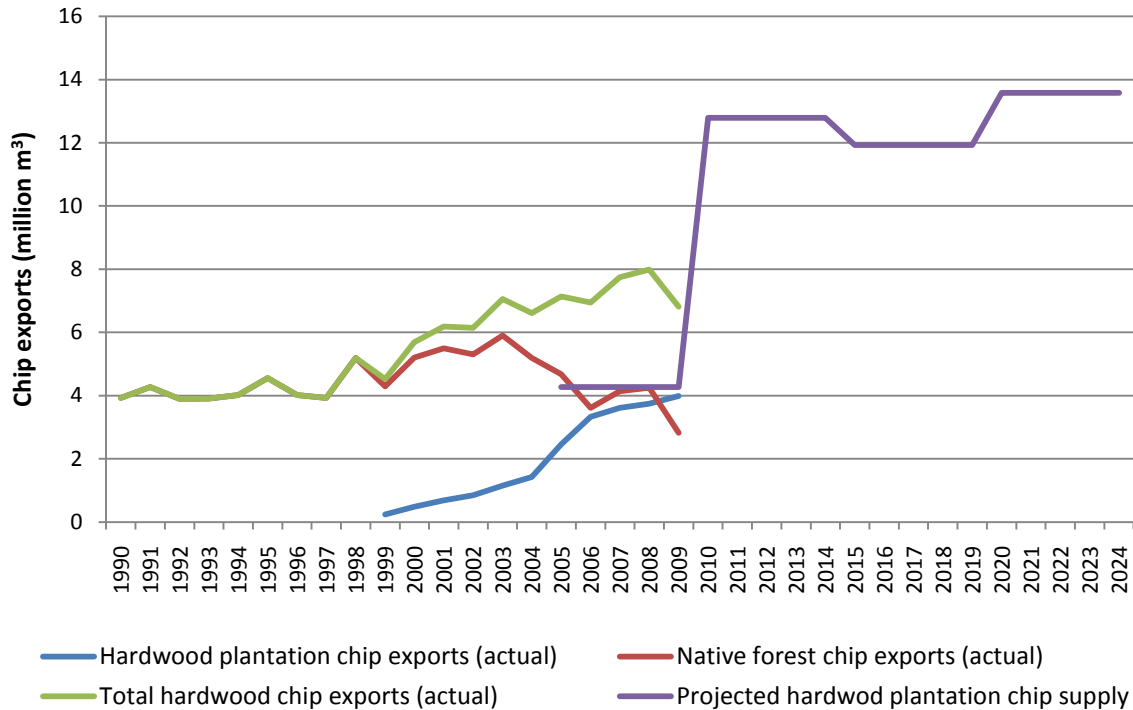


**Figure 19** Australian hardwood chip exports (plantation and native forest)  
– country of destination



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

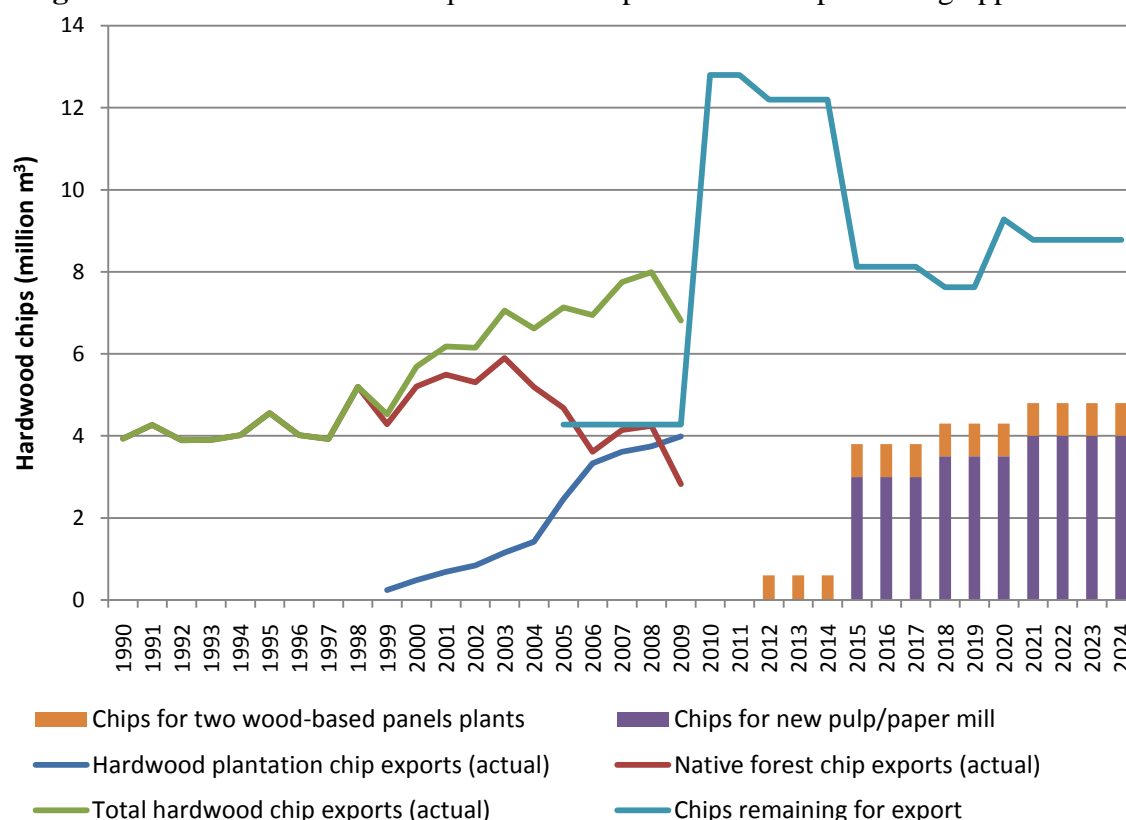
**Figure 20** Australian hardwood chip exports and projected plantation supply



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.

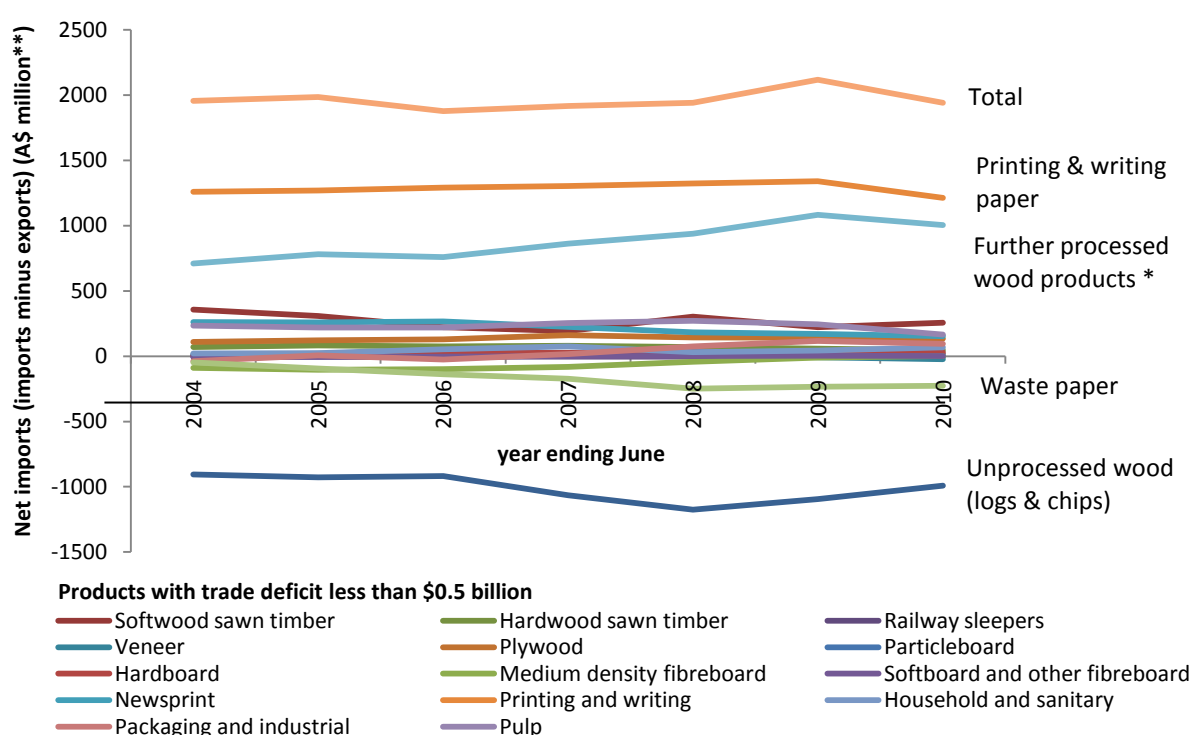
The primary data source for the \$2 billion trade deficit figure is The ABS' international trade statistics. (The ABS presents disaggregated data and does not report product trade deficits/surpluses.) ABARES extracts the import and export data for each of the products it considers to be 'forest products' 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.

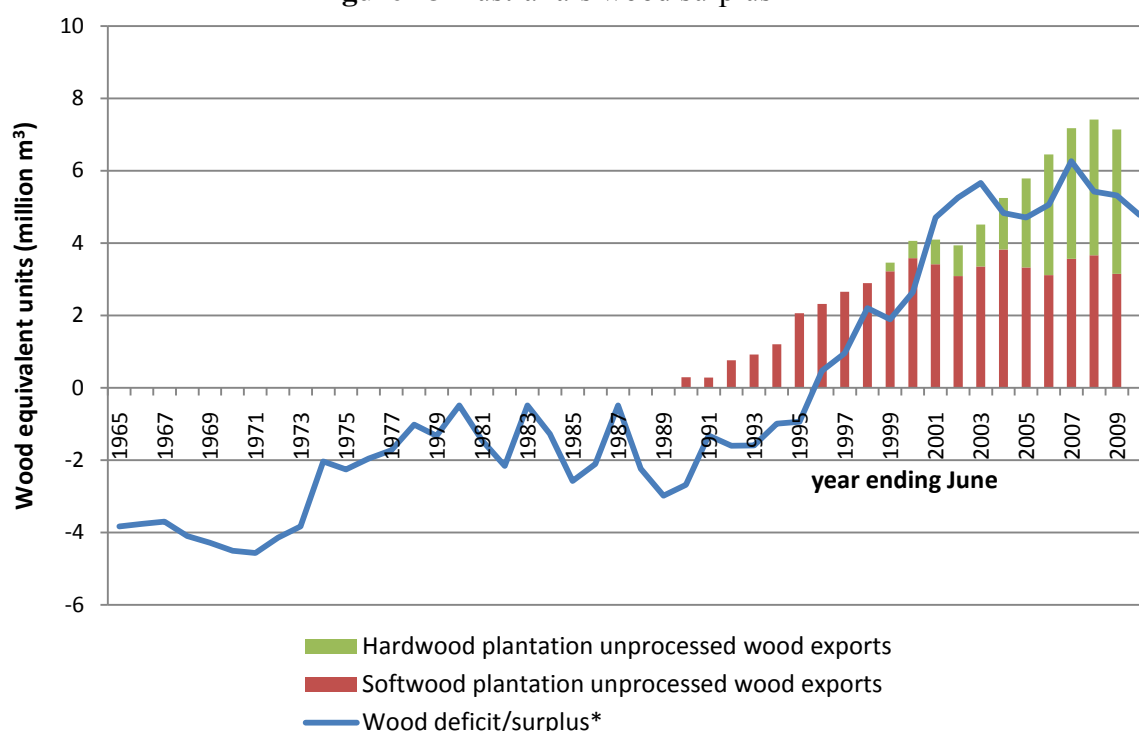
\*\* Duty or customs values for imports and fob from Australian ports for exports.

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).

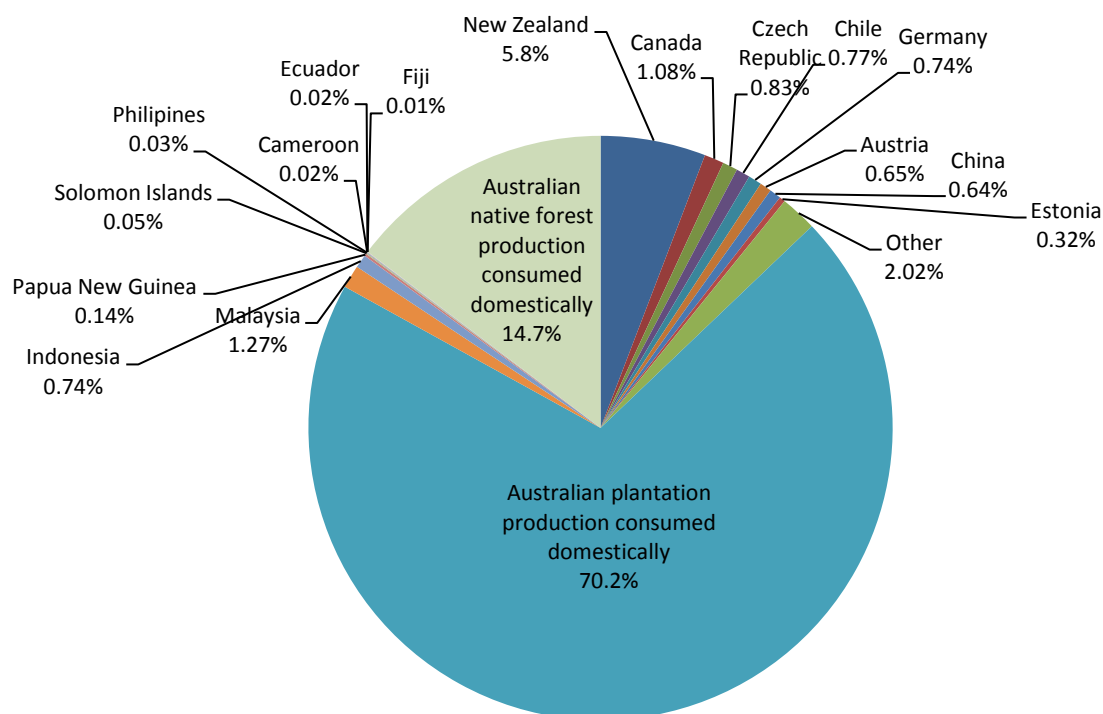
Source/methods: ABARES *Australian Commodity Statistics* for wood deficit/surplus. Softwood chip exports from ABS *International Trade Australia* Cat. No. 5465.0 reported in ABARES *Australian Commodity Statistics*. Bone dry tonnes converted to m<sup>3</sup> using basic density for softwood of 415 kg/m<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.

## References

ABARE (various issues) *Australian Commodity Statistics*

ABARE (various issues) *Australian Forest and Wood Products Statistics*

Ajani J. 2007, *The Forest Wars*, Melbourne University Press.

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.

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  
<<http://journals.cambridge.org/action/displayJournal?jid=ENC>>

Australian Plantation Products and Paper Industry Council, *Australian Paper Industry Statistics 2005-06* <http://www.a3p.asn.au/facts/proposed%20new%20index.html>

Bureau of Rural Sciences 2007, *Australia's Plantation Log Supply 2005-2049* <  
[http://adl.brs.gov.au/brsShop/data/log\\_supply\\_final.pdf](http://adl.brs.gov.au/brsShop/data/log_supply_final.pdf)>

Burns K., Sledge P. and Wicks S. 2009, *ABARE 2007 Sawmill Survey Report*, ABARE report to the Australian Government Department of Agriculture, Fisheries and Forestry and Forest and Wood Products Australia <  
[http://www.abare.gov.au/publications\\_html/forestry/forestry\\_09/09\\_Sawmill.pdf](http://www.abare.gov.au/publications_html/forestry/forestry_09/09_Sawmill.pdf)>

Jaakko Poyry Consulting 1999, *Usage and Lifecycle of Wood Products*, Technical Report No 8, National Carbon Accounting System, Australian Greenhouse Office.

Keith H., Mackey B.D. & Lindenmayer D.B. 2009, Re-evaluation of forest biomass carbon stocks and lessons for the world's most carbon dense forests, *Proceedings of the National Academy of Sciences of the United States of America*, published online before print 24 June. [WWW document] URL <http://www.pnas.org/content/106/28/11635.short>

Keith H., Mackey B., Berry S., Lindenmayer D. & Gibbons P. 2010, Estimating carbon carrying capacity in natural forest ecosystems across heterogeneous landscapes: addressing sources of error, *Global Change Biology*. [WWW document] URL  
<http://www3.interscience.wiley.com/journal/123215818/abstract?CRETRY=1&SRETRY=0>

NAFI 2011, NAFI welcomes new inquiry into forestry industry, media release, 10 February.

Resource Assessment Commission 1992, *Forest and Timber Inquiry Final Report*, Volume 2A, AGPS.

Gavran M. and Parsons M. 2009, *Australia's Plantations Inventory Update 2009*, National Plantation Inventory, Bureau of Rural Sciences, Canberra.