



21 August 2020

Committee Secretariat  
Standing Committee on Agriculture and Water Resources  
Timber Supply Chain Constraints  
PO Box 6021  
Parliament House  
Canberra ACT 2600

## ONLINE SUBMISSION

Dear Committee Secretariat

### **House of Representatives' Standing Committee on Agriculture and Water Resources inquiry into timber supply chain constraints in the Australian plantation sector**

Pentarch Forest Products Pty Ltd (Pentarch) appreciates the opportunity to provide comments to the Standing Committee on Agriculture and Water Resources.

## INTRODUCTION

Pentarch has been involved in the forest industry since 1996 with previous associated entities back to 1992. This submission will concentrate on specific areas of supply chain analysis which builds on the submission of the Australian Forest Products Association (AFPA).

This submission concentrates on supply change issues in changing markets looking at the market back through the supply chain. If changes occur in export and or domestic markets, this will have implicit effects on the supply chain. In these uncertain times the ability to create or adapt to new product trends that increases market share into the future will create a more resilient supply chain and the economics that underpin the plantation industry.

## EXECUTIVE SUMMARY

The world has changed since the Standing Committee on Agriculture and Water Resources commissioned requests for submissions on Timber Supply Chains. The geopolitical world and in turn the economics of the pre COVID-19 era could be the paradigm of the past. Economic assumptions ranging from levels of total debt, the comparative strength of currencies, the emergence of trading blocks and the devolvement of global supply chains is a new potential paradigm that requires our attention. All of us would like to think we can go back to our previous world however it is prudent to explore constructively "Plan B", while simultaneously salvaging our world from a few short months ago.



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This document explores the following:

- Analysis of 2019 export data of raw materials derived mainly from plantations with some natural forest residues;
- The need to develop new markets in Southeast Asian and Indian Ocean countries;
- The current state of domestic processing of plantation timbers;
- Engineered wood product development to enable younger softwood trees and the mass inclusion of hardwood plantation species;
- Possible strategic implications of factory assembled housing and construction with emphasis on bush fire and insulation standards for new building products (FWPA, CSIRO, other industry hubs, etc.);
- Bioenergy and bioproducts from wood fibre;
- The development of an integrated farm forestry strategy incorporating woodlots or plantations combined with shelter belts and the pursuit of Natural Sequence Farming strategies as a way of improving all agricultural activities on a given piece of agricultural land;
- The currently underutilised arisings from natural forest harvesting that would augment plantation volumes.

## CURRENT PLANTATION RESOURCE

The gross growing stock of both softwood and hardwood is approximately 2 million hectares. For the purposes of this document we assume 1 million ha of softwood and 1 million ha of hardwood.

Gross figures are heavily affected by non-linear planting years by area. In many cases large age classes of both hardwood and softwood have various levels of maturity. In the main both softwood and hardwood plantations have historically benefitted from periods of intensive plantation establishment followed by periods of little or no new plantings apart from replanting recently harvested sites. In softwood an average rotation length is around 30 years of age, while the effective rotation length of hardwood plantations is around 15 years. For softwood either one or two thinning's are undertaken, utilising immature wood fibre for a range of products. The remaining trees are then grown to an age where the wood fibre is suitable for domestic construction and engineering requirements. In the case of hardwood plantations a vast majority is grown then harvested at around age 15 with only small areas thinned for longer rotation lengths and targeted for domestic processing.

## FIRES AND CYCLONES

When invasive fire and/or cyclone damage to plantations is overlaid on the gross areas and in combination with skewed age classes, then significant impacts are projected on both hardwood and softwood processing volumes.

Since 1990 approximately 15% of softwood plantations have been burnt and reduced to replanting and therefore resetting the clock for a 30-year rotation. A consequent reduction in the targeted volumes available for processing has been locked in due to this fact. Most burnt softwood areas can be salvaged and utilised within 12 months but are then unsuitable for domestic construction usage. The last fire season has created the largest volume in need of salvage harvesting in our history and this is currently underway.

In hardwood plantations fire has achieved a similar level of damage. Here the damage is worse as the wood fibre is generally then not suitable for export pulp/paper-based processing. Many burnt hardwood forests are written off and restarted.

Reliance on export markets up to this point is a critical aspect of the salvage component of fire and cyclone damage.

Fire and weather damage must be factored into the strategic gross plantation data and therefore offtake. Industries relying on mature 30-year-old pine plantations and therefore the economies of scale required to produce certain product ranges, will be adversely affected unless new product ranges are created.

## CURRENT DOMESTIC AND EXPORT MARKETS

Domestic processing of softwood is a mature industry with sawmills, MDF/particle board plants, pulp mills, and veneer/plywood mills consuming the arisings from a harvesting base which is effectively utilising maximum volume offtake. This situation is augmented by the export volumes that are either independent of domestic utilisation or a part of the supply chain usage of domestic processing.

Domestic processing of plantation hardwoods for manufactured items is confined to a very small percentage by area and effectively is consigned to small regions. Most of the plantation hardwood is harvested for export wood chips (7 million tonnes) or export logs (500,000 tonnes). The export log component is universally used in destination countries for veneers for plywood, and engineered wood components, with some sawn for lower grade packaging products.

Hardwood processing therefore is based on woodchip mills, port loading facilities and the export of woodchip on large vessels. Approximately 40% of the volume is sold to China with the remaining volume in order of usage sold to Japan, Indonesia, Taiwan, South Korea and India. The export log component is basically the larger logs produced as a consequence of the harvesting volume of woodchips. When the export woodchip market undergoes a market downturn then the export log market volumes are also reduced.

## THE IMPORTANCE OF EXPORT MARKETS - IMPLICATIONS

The softwood export sector is heavily reliant on the export of logs to China. The hardwood sector is heavily reliant on the export markets of Southeast Asia and the Western Pacific. This situation has evolved gradually over the last 30 years and is a bedrock for the economics of plantations. The obvious question is: *what happens if export markets have a long cyclical downturn or more relevant, a structural change?*

The 2019 data below quantifies the large volumes of plantation wood that is exported. This has been a major factor in the economic development of the Plantation sector since the Global Financial Crisis.

## 2019 EXPORT DATA LOGS AND WOODCHIP

### Logs 2019

Exporting Country	Importing Country	Volume (tonnes)	Species
Australia	China	3,873,157	Softwood
Australia	China	377,755	Hardwood
Australia	Malaysia	131,989	Hardwood
Australia	Vietnam	10,448	Hardwood
<b>Total</b>		<b>4,393,349</b>	

  

Port	Bulk	Softwood	Hardwood
Albany	18,500	18,500	-
Bell Bay	35,300	35,300	-
Burnie	362,586	160,406	202,180
Eden	247,494	247,494	-
Gladstone	447,942	447,942	-
Hobart	189,513	99,742	89,771
Melville	68,263	68,263	-
Portland	1,268,552	1,268,552	-
<i>Subtotal (Bulk)</i>	<i>2,638,150</i>		
<b>Bulk</b>	<b>2,638,150</b>		
<b>Containers</b>	<b>1,755,199</b>		
<b>Total</b>	<b>4,393,349</b>		

*Source: Pentarch research*

Note 1. Container exports are largely conducted from Melbourne port, Port of Botany, Port of Brisbane and Fremantle Port in that order with Melbourne the largest

### Raw woodchip data including Plantation hardwood, softwood and natural forest

Port	Hardwood	Softwood	Acacia	Grand Total (BDMT)
Albany	676,513			<b>676,513</b>
Bell Bay	983,022	57,500		<b>1,040,522</b>
Brisbane	52,147	57,000		<b>109,147</b>
Bunbury	678,603	62,000		<b>740,603</b>
Burnie	608,941			<b>608,941</b>
Eden	174,228	44,232		<b>218,460</b>
Esperance	145,004			<b>145,004</b>
Geelong	378,673	118,132		<b>496,805</b>
Gladstone		9,500		<b>9,500</b>
Melville Island			70,191	<b>70,191</b>
Portland	1,272,064	103,446		<b>1,375,510</b>
<b>Grand Total (BDMT)</b>	<b>4,969,195</b>	<b>451,810</b>	<b>70,191</b>	<b>5,491,196</b>
<b>Hardwood GMT approx.</b>	<b>7,220,994</b>			
<b>Softwood GMT approx.</b>		<b>923,339</b>		

*Source: Pentarch research*

Note 1. The GMT data is assumed, it will have a margin of error.

Note 2. The ports of Bell Bay, Bunbury, Burnie, Eden and Geelong have a natural forest woodchip sales component comprising approximately 1.1 million GMT of the above data.

Note 3. All data will have a large component of sawmill residues within the raw figures and is not round log equivalent.

The 2019 data shows the vibrant nature of exports. The 2020 data is likely to show an increase in softwood log exports of salvaged pine and a decrease in chips exports at this stage due to cyclical downturn.

## AN UNCERTAIN WORLD

In the analysis of supply chains based on the markets, it is impossible to have a meaningful analysis if the market fundamentally changes. Our collective “crystal balling” of markets in December 2019 would have a different and cloudy crystal ball now. The array of economic and geopolitical change wrought by the COVID-19 pandemic must evoke a pivot in strategic thinking to allow for large negative impacts to be turned around and redressed positively for the future.

Pentarch notes that business as usual and hence the current supply chains reliant on export markets are now in need of review. When this situation is overlaid by skewed age classes and fire damage the first conclusion must be to consider more domestic processing of raw materials and or the creation of new export markets for the raw fibre.

## KNOWN KNOWNS – EXTERNAL

The following points are factors that are all relevant and must be considered in conjunction with the recommendations that follow.

- Imports of sawn timber in both hardwood and softwood occur in large quantities.
- Imports of plywood, paper products and reconstituted board products also occur in large quantities.
- Australia has a structural AUD 2 billion trade deficit in forest products.
- A large proportion of imported products are derived from countries that have fully integrated policies on renewable energy. In some cases the imported products are available to compete with domestic production due to profit centres of renewables in the country of origin.
- The pulp and paper markets of China and SE Asia are still a fundamental target market.
- The demographics of Japan and South Korea show an aging population and a decline in domestic consumption.
- The demographics of China is now heavily influenced by a declining labour force brought about by the one child policy and an increasing oversupply of housing (50 -65 million vacant properties).
- The current Chinese floods, large locust swarms and adverse weather is causing the largest loss of annual crops in modern times. This could impact the economy in many ways.
- Due to floods in China, South Korea and Japan there is an unquantified impact on buildings and factories along the Yangtze, Yellow and Pearl Rivers along with significant economic impact on these countries as a whole.
- SE Asian countries have highly developed solid wood processing centres with good underlying technologies and a very competitive labour force.
- SE Asian countries are in an upward economic trend with consumption per capita increasing compared with other regions.

- SE Asian countries use our imported softwood and hardwood logs to make engineered wood products and timber for construction purposes.
- Many European and other Western countries have access to highly advanced engineered wood products and the technology that creates these products. The use of factory-made housing is increasing.
- The use of integrated bioenergy technology into an incentivised manufacturing supply chain has created new investment and income streams for advanced countries.
- Many advanced bioenergy technologies are becoming commercial and would be a fast track uptake for Australia.

## KNOWN KNOWNS – INTERNAL

- Australia's softwood sector is a mature market relying on a range of domestic products suitable for the construction sector.
- The construction sector is highly reliant on forest products supply chains and vice-versa.
- Pulp mills that require domestic raw fibre are limited in number in Australia but contribute a large percentage of forest product output in dollar terms.
- Harvesting of plantations is generally carried out by small to medium sized business that utilised advanced technological and high capital cost mechanised equipment creating a high barrier to entry.
- Harvesting contractors must have continuity of work to be competitive and to contain costs.
- The regional nature of forest industries mean the work undertaken within the supply chains has a high economic impact for the regions.
- Australia's hardwood plantation sector is highly geared to overseas demand for pulp and paper products and is subject to cyclical downturns.
- There is a minimal amount of domestic processing of solid wood products derived from the hardwood plantation sector, albeit in the knowledge that many of our plantation hardwoods are suitable for this.
- The plantation base is not increasing but decreasing due to some hardwood plantations being converted to agricultural uses.
- Fires and other natural events are creating a baseline loss that needs to be factored into the structure and assumptions of the existing industry.
- New plantation establishment is confined to cleared agricultural land in areas generally above 600mm per annum of rainfall.
- Agricultural land of this nature is generally achieving values that preclude new investments in plantations.
- There is a constant undercurrent of land use policy disagreement between traditional agriculture and plantation forestry resulting in disparate policy settings between governments, industry groups and regional communities. This is true widely but intensifies in the identified regional plantation hubs.
- There is a consequential hiatus in new plantation establishment.
- Arisings from natural forest operations comprising significant volumes are underutilised or left in the forest. This needs to be fundamentally included in plantation policy in a range of ways particularly biomass policies into the future.

## KNOWN UNKNOWN'S & UNKNOWN UNKNOWN'S

- The COVID-19 pandemic may have far reaching economic effects on the world's economy.
- Relative values of currencies as measured against the US dollar could affect trade in unknown ways. We have only to look at the previous low USD index period post 2011 where

the Aussie dollar reached a AUD 1.10 to USD 1.0 ratio, very low commodity prices in AUD ensued.

- The geopolitical environment can only be described as deteriorating and may impact on current export markets and or manufactured imported forest products.

## RECOMMENDATIONS

The following recommendations are specific in nature and follows along from the general recommendations contained within the AFPA submission. The general thrust is to make the markets for plantation timbers more widely based and resilient:

**Recommendation 1:** The Federal Government and peak forest industry bodies identify accessible wood processing centres near ports in SE Asian countries that are in wood supply deficit situations.

**Recommendation 2:** Establish trade missions with the identified countries and regions for the development of Australian plantation wood imports for processing in those countries.

**Recommendation 3:** Establish a strategic review of paper, packaging and tissue manufacture in Australia to determine whether new pulp mill projects are feasible in Australia.

**Recommendation 4:** After examining the current importation of wood pulp, determine whether bilateral agreements for the importation of wood pulp from countries that use Australian woodchips is a viable alternative and commercial strategy.

**Recommendation 5:** Co-ordinate established bodies in Australia to produce accepted standards for a bushfire rated engineered wood external cladding. This could combine say a cross laminated timber (CLT) product with a metal exterior as an example.

**Recommendation 6:** Incentivise investment into factory-made housing and construction components utilising engineered timber as the base substrate.

**Recommendation 7:** Prioritise strategic factory-made housing pods based on engineered wood products suitable for fast deployment in natural disaster or refugee situations. This could be either domestic and/or overseas aid.

**Recommendation 8:** Integrate all forms of bioenergy policy to include every facet of energy derived from wood products including natural timber.

**Recommendation 9:** Include renewable diesel from wood substrates in the strategic fuel reserve investigations currently being undertaken by the Federal Government.

**Recommendation 10:** Promote standards and specifications for the production of organic fertiliser products derived from biochar production utilising wood substrates. Combine other areas of carbon capture and storage policies into comprehensive incentivised schemes.

**Recommendation 11:** Fast track farm forestry loan schemes that combine the following integrated features for a given development:

- i. Woodlots or larger plantations;



- ii. Shelter belts and strategic plantings of trees and understorey;
- iii. The establishment of Natural Sequence Farming principles to increase the carrying capacity and water retention of the property on suitable landscapes.

**Recommendation 12:** Fast track biosecurity regulations to allow for the import of round logs into Australian ports to feed existing Australian processing capacity that may not be fully utilised due to domestic log supply no longer being available.

## DISCUSSION

The above recommendations fall into five major categories:

- i. Government and Industry trade delegations to create new export destinations;
- ii. Promotion and adoption of engineered wood products for the building industry;
- iii. Increased emphasis on bioenergy and bio product development;
- iv. The merging of plantation forestry policy with agriculture policies to increase productivity, biodiversity and the mitigation of land use issues surrounding one land use over another.
- v. Biosecurity and fumigation protocols for the importation of logs for processing in Australia

The main strategic importance of the above categories is to create a deeper earnings base for domestic processing and alternatives to current export markets.

### 1. Trade Delegations

Trade delegations are nothing new and have been effective at breaking down doors for industry and a point of discussion and contact for governments. For a new round of trade delegations, stratifying potential regions within countries is the most efficient way to start where existing high technically efficient industries are found. SE Asian countries and regions are a priority. Many of our neighbours have raw material deficits but advanced production systems. Pentarch has observed and been involved with new export destinations that are using plantation hardwood logs, replacing Light Mixed Tropical hardwoods as substrates for such things as plywood.



***E. nitens plantation HW from Tasmania being processed in modern Malaysian ply mill.***



***E. nitens logs cut to length ready to be processed into veneers, Malaysia.***

Trade delegations can also progress more government to government development potential. Some years ago Pentarch held discussions with government officials in Sri Lanka for a planned development of a timber manufacturing hub in Trincomalee. This is a large strategic port in Sri Lanka which has access to the Indian mainland. The Free Trade Agreement between Sri Lanka and India



offers the potential to create a manufacturing hub for wood products directed to the Indian and Sri Lankan markets. At the time the Sri Lankan civil conflict was underway and the opportunity lapsed.

This remains an example where trade delegations at this level can create new opportunities where both governments supporting a framework enables business to then develop the opportunity. In the case of Sri Lanka the Chinese controlled financed and constructed port in Hambantota has been a source of political tension between the countries.

The PowerPoint presentation provided in appendix 1 is from 2005 but remains relevant and even higher on a bilateral trade scale than at the time. This presentation is company specific to Pentarch but could represent an inter government and industry approach this time around.

## **2. Engineered Wood Products**

The evolution of this class of building material is progressing albeit constrained by the previous and recently current economic cycle. The advantages of producing a building materials that can be manufactured in a factory situation, then transported and erected has wide appeal and can confer theoretical savings in construction costs.

The development of this type of technology can incorporate both immature softwood of good quality or plantation and/or natural hardwoods into panels that can have all electric, plumbing and other services already contained and catered for within the panel. There could be either straight bulk panels or higher technical wall panels with doors and windows etc. already cut out and manufactured in a similar way to that of prefabricated timber frames and roof trusses.



***CLT manufactured in Tasmania by CLTP Tasmania Pty Ltd from E. nitens plantation hardwood***

Engineered wood products in combination with other materials could provide a very strategic range for temporary housing and/or products suitable for fire susceptibility particularly outside walls.

## **3. Bioenergy**

For the bioenergy and bioproduct sector, an abundance of knowledge and examples from existing programs within Australia and established or innovative programs from other countries, could be fast tracked into a comprehensive policy reformation. This could be done through existing government bodies such as Australian Renewable Energy Agency (ARENA) and the Clean Energy Finance Corporation.

The evidence from advanced countries is that a comprehensive policy framework allows all forms of biomass to be considered for renewable energy and or bioproducts.

Plantation and natural forest supply chains must have comprehensive policies that support bioenergy and bioproduct development in line with countries that export large quantities of finished products to Australia.

#### **4. Farm Forestry Turbo Charging Agriculture**

Industry and government has already identified plantation hubs with recommendations to expand plantations within the current hubs. Pentarch fully supports the increase in plantation base in these areas and equates such development as the expansion of the economic infrastructure for the region.

Within these hubs there are various combinations of commercial plantations and agricultural pursuits. Due to the rainfall required for plantation forestry the agricultural land use can be in many forms from horticulture to grazing with vineyards and the like coinciding with plantations. Pentarch has observed many land use battles in our long experience.

It has been a long-established practice to promote plantation forestry on agricultural properties to diversify the enterprise and for the support of the larger industrial plantation base in the region in question. It is also well understood that wind breaks, stream side rehabilitation or Natural Sequence Farming Practices deliver benefits on a landscape basis to agricultural land.

In 2019, Senator Colbeck, at the time Minister responsible for forestry, proposed a \$500 million low cost loan for plantation establishment. While this scheme is still to be officially launched it could be partitioned and widened to enable a given landowner to:

- i. Plant a minimum level of plantation;
- ii. Establish windbreaks;
- iii. Reclaim and rehabilitate riparian areas; and
- iv. Adopt natural sequence farming principles.

For Natural Sequence Farming the literature and previous reports, such as the CSIRO Land and Water 2002 special report on "*The natural sequence farming*. CSIRO Expert Panel Review", point to a case by case or sub regional use of the principles. Pentarch suggests that this practice needs to be further developed and incorporated into State based land services departments as a stand-alone practice. Where it is combined with plantation development then a comprehensive land improvement and economic result is conceivable.

Stratification of land within hubs to delineate areas suitable for the various land improvement strategies is relatively straight forward (with ground proofing).

In any event, the establishment of a plantation requires heavy machinery, fencing, roads etc. It is very straight forward to use heavy machinery to undertake any or all other works mentioned above in one operation and wrap up the whole endeavour into one capital outlay.

This policy is meant to augment any larger scale plantation establishment within the identified hubs. Various land tenure or joint venture systems have been deployed in the past to establish smaller scale farm-based plantations. The adoption of a farm improvement/plantation model within established plantation hub areas would create the conditions for land use matters to be dealt with in a positive fashion and promote farm forestry as a widely accepted land use.

## 5. Biosecurity and Importation of resource for processing

Due to the combined factors of lack of plantation expansion, the impacts of natural disasters and skewed age classes, the availability of mature softwood plantation resource will continue to become more constrained for local processors.

There are suitable resource profiles of structural grade logs of radiata pine that can be found in New Zealand and Chile. If biosecurity measures are analysed and an acceptable fumigation protocol agreed, then importation of suitable logs could be a large infiller for the industry in the looming resource constrained period ahead.

The world is also transitioning from methyl bromide as a fumigant, a suitable new fumigant is available and is being tested in view of adoption and replacement of methyl bromide. It is critical that this process is fast tracked by Biosecurity Australia to determine if this avenue is possible, and what additional protocols may or may not be needed for the importation of logs.

## CONCLUSION

Market based analysis of plantation supply chains in Australia point to an over reliance on raw material exports to deliver the necessary economic conditions for resilience and or expansion. Whether or not the preceding ten-year economic paradigm can be extrapolated into the next ten years is unclear.

Pentarch supports the AFPA submission and has outlined a set of specific recommendations that is required to support and grow the industry into the next cycle. This cycle is likely to be influenced by a range of externalities requiring new markets to be promoted.

Government and industry have developed many such strategies in the past and a dusting off of old policies that worked in combination with new initiatives in timber products, bioenergy/bioproducts and farm forestry is an specific way to create the conditions to pivot into the next economic and political cycle.

This submission has described specifics – in a general fashion. These items can be expanded in detail if requested.

Thank you for providing Pentarch with the opportunity to provide comment to the Standing Committee on Agriculture and Water Resources.

**Ian Sedger**

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Director, Pentarch Forest Products Pty Ltd*

## APPENDICES

- Appendix 1; 'Trincomalee Wood Industries Park', presentation prepared by I.K. Sedger, 2005.

## REFERENCES

- CSIRO (2002) *The Natural Farming Sequence*, CSIRO, Expert Panel Review, Canberra, [http://www.clw.csiro.au/publications/consultancy/2002/Tarywyn\\_Park\\_Upper\\_Bylong\\_Valley.pdf](http://www.clw.csiro.au/publications/consultancy/2002/Tarywyn_Park_Upper_Bylong_Valley.pdf)