

Forestry in Australia

A case study on Australia as a location for forestry investment

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Gresham House
Specialist investment

Background

Australia is home to some of the best timber growing regions globally, with large areas of the country receiving long sunlight hours, sufficient rainfall and fertile soils.

This allows excellent growth for hardwood and softwood forestry, which are mainly eucalyptus and pine species respectively.

The timber grown here is mostly needed domestically to supply a growing population, and particularly to provide for the housing sector as the demographic makeup and distribution of the country develops.

Softwood timber is the primary wood product used in Australia.

The domestic supply is at a tipping point, with forecast volumes from existing plantations predicted to fall significantly short of demand in key markets.

Fortunately, new forests grow relatively quickly in Australia, with some of the highest growth rates globally for softwood plantations, meaning that a new plantation can start to bring timber to the market in as little as ten to fifteen years.



Forestry regions

The ABARES[1] State of the Forest report demonstrates that Australian forestry develops around the coastline – benefitting from the maritime climate and associated rainfall.

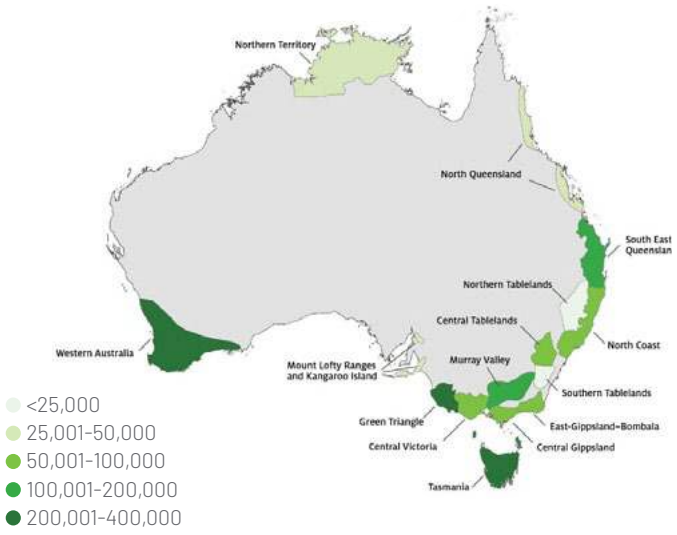
In maritime regions, the thermal sink of the sea or ocean tends to absorb and control large changes in temperature, while moisture is cycled from the water into rainfall.

1. Australian Bureau of Agricultural and Resource Economics and Sciences

Forestry thrives best in regions with > 600mm of rainfall annually – with the core commercial growing regions in Australia located in the temperate and sub-tropical areas of southern Queensland, New South Wales, Victoria, Tasmania and the southwest of Western Australia.

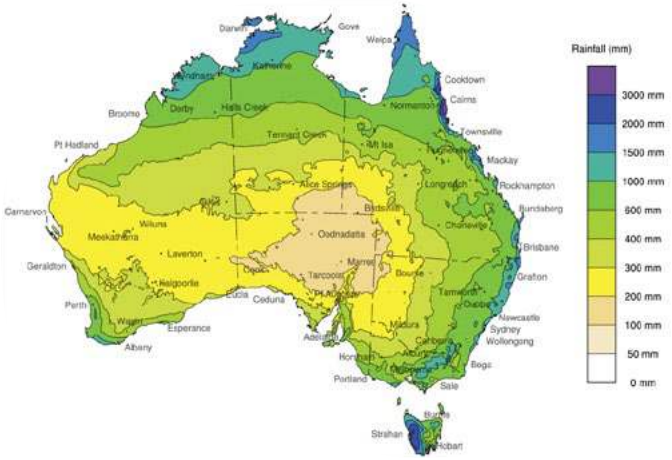
As the climate changes and extreme weather events become more common, these areas are expected to continue to benefit from these moderating factors.

Australia total plantation area NPI regions (2019-2020)



Source: ABARES

Average annual rainfall (1991-2010)



Native forests

Over half the land area in Australia is productive, used either for grazing, cropping, or for productive forestry.

There are 134 million hectares of forest in the country, with the vast majority (98%) being naturally occurring and dominated primarily by hardwood eucalyptus and acacia species. Of this, 24% is formally managed for conservation, with a larger area considered to be managed primarily for biodiversity.

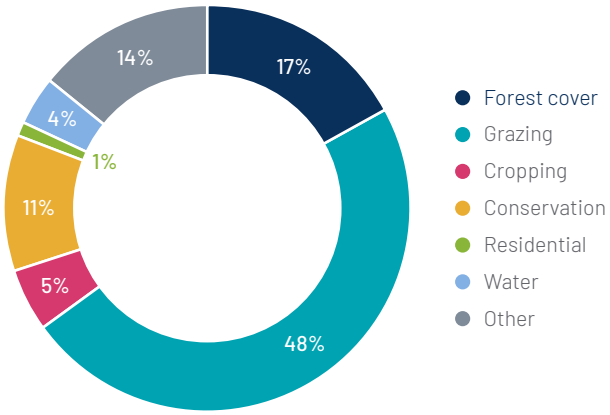
Although 28 million hectares is considered technically productive, much of this is rated as low commerciality, being isolated from markets and not financially viable for harvesting. As a result, only 12% of the logs harvested currently come form native forests, and this is likely to reduce.

This is partly regulation driven, with several of the Australian territories and states having recently moved to restrict or even ban native logging, though the timeframe for phasing this in varies across the jurisdictions.

The Western Australian state government has set a deadline of 2024 to end the practice; Victoria has set 2030; whereas the issue remains undecided in New South Wales, albeit intense pressure is placed on the New South Wales government to set dates.

In contrast, commercial forest plantations generally possess a positive social license from the Australian public.

Land use



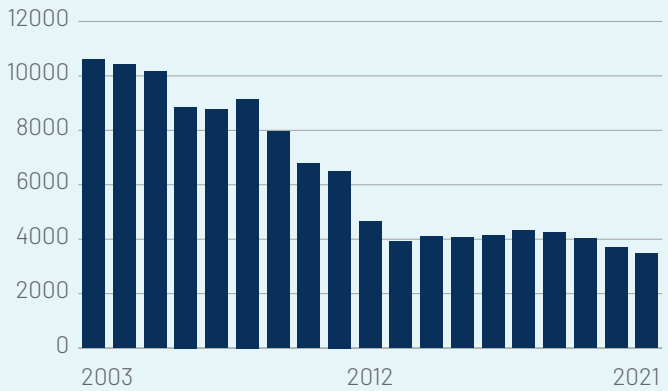
Source: ABARES



Forest types

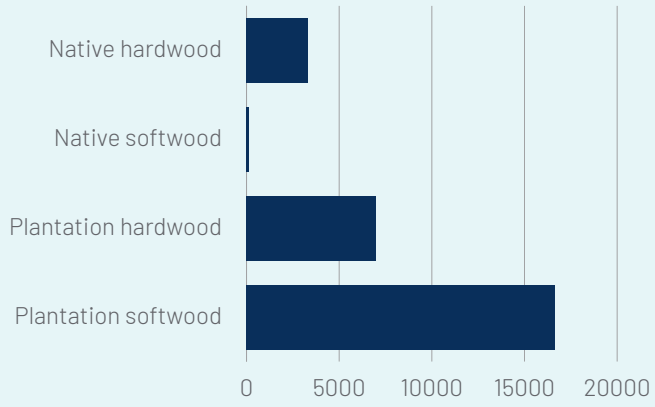
- 132,000,000 Ha / 98.5% Native
- 2,000,000 Ha / 1.5% Plantation

Volume of native logging (m^3)



Source: ABARES

2022 harvest volumes (m^3)



Plantation forestry

As illustrated, harvest volumes from plantation forests make up the lion's share of wood reaching the domestic market. The majority of these plantations are softwood.

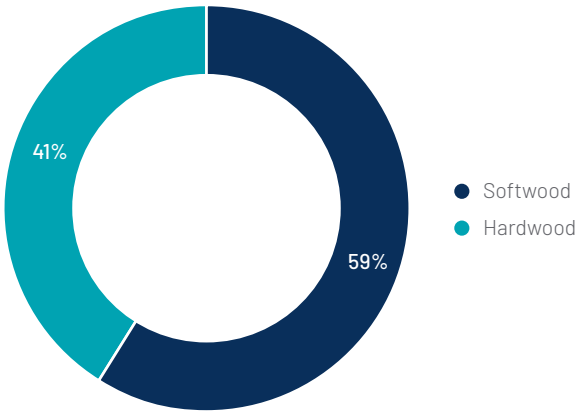
History

The establishment of plantation forests has followed a similar trend to other Commonwealth nations; with government subsidised and directed planting in the mid 1900's followed by a burst of activity towards the end of the century driven by tax incentives. As the incentives were withdrawn in Australia, not only did establishment slow down but it became apparent that a proportion of those established were uneconomic.

Industry surveys suggest that as a result of this, during the early part of this decade up to 300,000ha (c.15%) of plantation land in Australia will be harvested and not replanted. These are plantations that were established either too far from processing or port facilities, or on ground with more suitable uses.



Current plantation species



Source: ABARES

Current state

The majority of plantations are privately owned (79%) with the remainder being operated by state and territory run organisations. A significant proportion of the privately owned plantations are located on publicly owned land, and operate via long term lease arrangement with state or territory governments.

The key output from plantation forestry is construction grade timber capable of being processed into structural lumber. This requires straight, tall trees with minimal knots and defects. The core species planted in Australia for this purpose is Radiata Pine. This softwood tree is typically planted as a single species crop and subject to commercial thinning in order to produce the highest content and quality of sawlog. The average rotation length (the age when the final harvest occurs) for Radiata Pine in Australia is between 27 and 35 years.

However, species selection is also matched to the environment, with alternative species such as Maritime Pine planted in lower rainfall areas, and Southern and Hoop Pines in the more sub-tropical areas to the north.

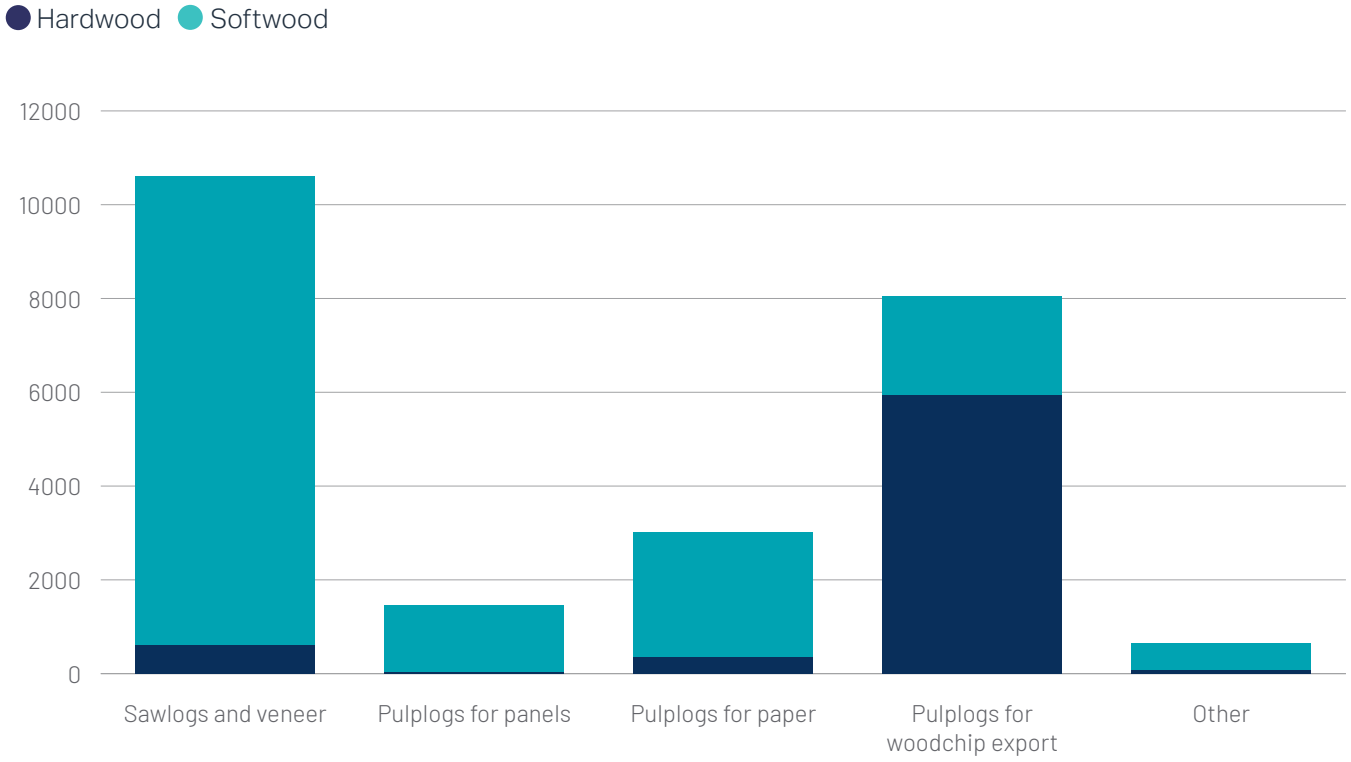
Hardwood plantation species can also produce structural timber; however this is primarily sourced from native forests at present – which as mentioned, are significantly reducing in terms of available harvest volume. In plantations the main hardwood product is pulpwood woodchips for export.

The most common species is the Tasmanian Blue Gum, a eucalyptus that produces volume quicky and can grow in locations less suited to softwood. These plantations tend to be located within reach of an export port.

The table below provides a more detailed breakdown of the products, expressed as cubic metre volumes, produced respectively from the softwood and hardwood plantations in 2022.

As well as producing the majority of commercial wood products, plantations are recognised for the environmental and community benefits they provide. This includes salinity and erosion control, improvement in water quality, native wildlife habitat, hunting, motocross, MTB and recreational walking.

2022 plantation output by product (m^3)



Source: ABARES

Missing piece of the puzzle

As mentioned, the softwood plantation estate has not kept up with population growth and demand. This has been driven by low levels of new establishment as well as conversion of existing plantations to alternative uses. As a result, the future of domestic softwood supply is uncertain.

The Australian Forest Products Association has highlighted this in its proposal termed 'Missing Piece of the Puzzle', putting forward the case for a successful wood processing sector backed by sufficient plantation timber, supporting the wider economy.

In short, this requires significant areas of new plantation establishment.

The Australian Government's 'Plantation Vision 2020' had originally worked towards a target of 3 million hectares of plantation forestry by 2020.

However, this target fell short by around one million hectares. Since then, various state and territory governments have responded to concerns, such as the Western Australia government recently dedicating AU$350 mn to softwood establishment in order to overcome the state's particularly pronounced establishment shortfall.

In the absence of sufficient softwood resource, it is likely the construction sector will become more reliant on imported sawn wood. Relying on imports can bring uncertainty, highlighted in the recent global supply chain disruption.

Further, as this is a high value end product, relying on imports effectively offshores the economic benefits from processing – with jobs and investment retained in the originating nation.

Weather events

Extreme weather events have a direct impact on the forests in Australia, such as high temperature driven drought stress, tropical cyclones and wildfire.

The first preventative step is the careful selection of planting sites in higher rainfall regions and specific location that minimise these risks.

Effective plantation management is essential during periods of heightened risk of wildfire – with significant resources dedicated by local fire response teams and woodland managers to mitigate potential ignition, and to respond rapidly to any developing situation.

The financial risk from wildfire can be mitigated though non-contiguous properties, landscape design, and insurance, though this is clearly an additional challenge for the development of a well invested plantation resource.

It is of interest to note, that once a plantation is of commercial age, 'salvage' logging after a wildfire will generally recover some 85% of the standing volume prior to the fire.



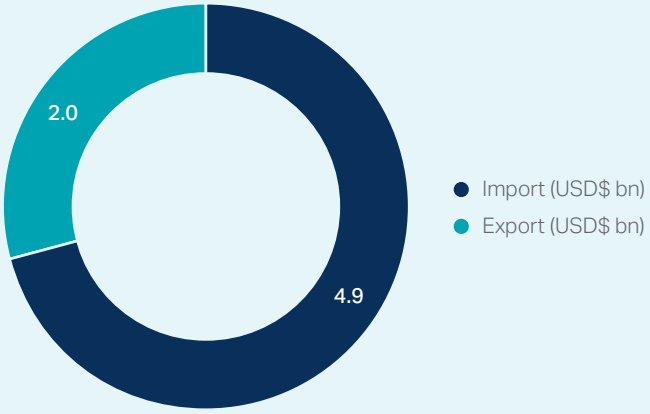
Trade

Australia has a significant trade deficit in wood products, importing slightly more than double its exports.

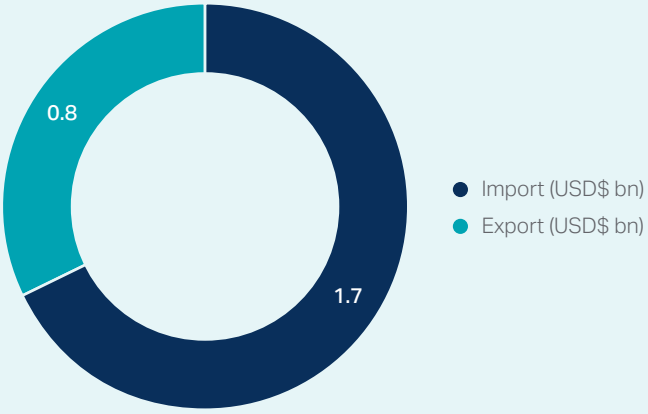
In 2020, its largest trade partner was China, which took 41% of Australian wood product exports. The majority of exports are hardwood logs and chips.

In the year following the reporting of the above data, China imposed sanctions on many imports from Australia, including certain wood products, which contributed to a 70% reduction in log exports. However, it is noted that while this represents a 3.4mn m^3 reduction in log exports, a significant portion of those were instead processed domestically and exported as chipwood, which saw a 1.5mn m^3 increase in exports. These sanctions have recently been lifted after more than two years of restrictions.

Wood products total



Wood products top trade partner: China



Source: World Bank

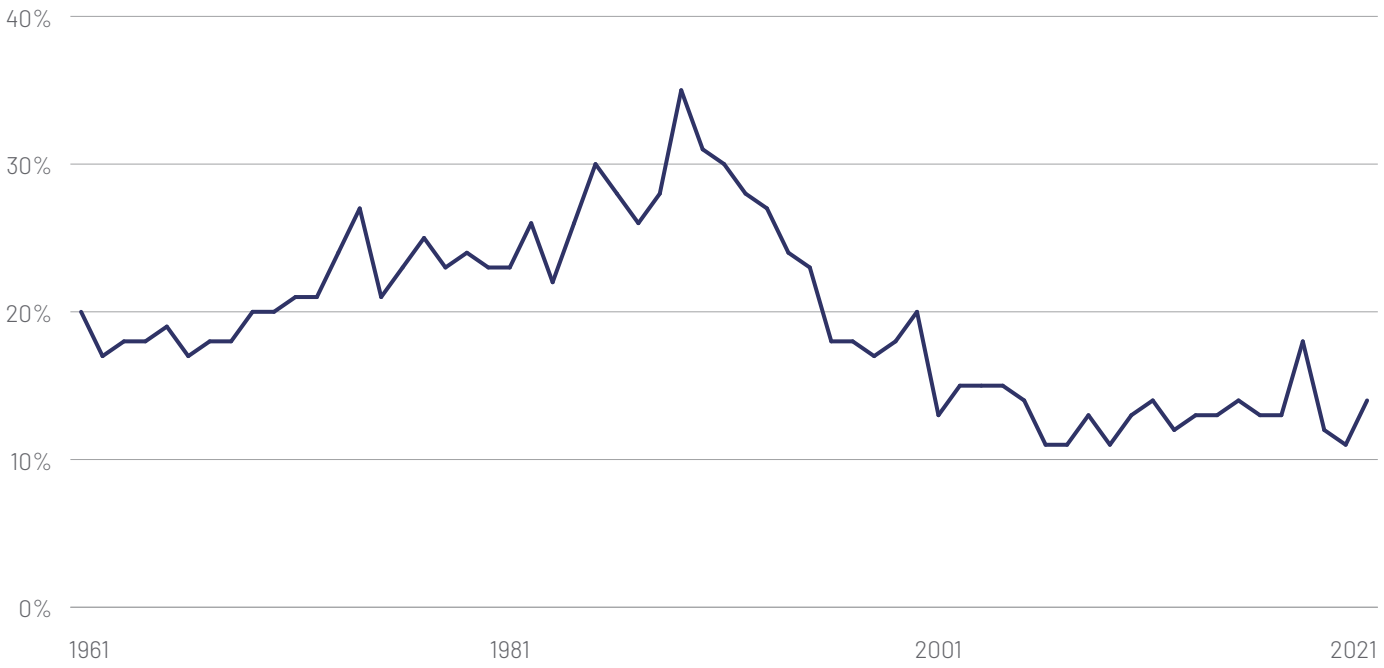


Sawnwood

The most important wood product for Australia's construction sector is sawnwood, which is used in house frames, internal joinery, and throughout the housing development process. Of the 5 million m^3 of sawnwood that Australia consumed in 2021 approximately 14% was imported.



Sawnwood imported (%)



Source: FAO

This was near the historic minimum level of imported sawnwood suggesting a high degree of self-reliance. More recent data suggests this self-reliance may be diminishing, however, with early readings for 2022 suggesting a significant climb in sawnwood imports. In the year to May 2022 imports rose 62% by value to 18% of consumption.

FAO trade statistics indicate the proportion of sawnwood imported reached a high of 35% in 1989, and has been on average 20% over the last 60 years.

These figures show the benefit of the planting efforts made in the 1960's, with the share of imported sawnwood falling approximately 30 years after efforts began – roughly the length of time needed for a softwood plantation to produce significant volumes of logs.

It is likely that due to Australia's geography and well-established port infrastructure there will continue to be significant volumes of trade in wood products. As highlighted in the recent ban on log exports to China, however, this carries a degree of risk and uncertainty for the sectors dependent on external markets and supply.

Australia's partial reliance on imports of sawnwood must be viewed in the context of a growing global gap between sawnwood production and demand. In the period 1965-2020 the global supply of sawn softwood on a per capita basis declined by -0.17% per annum, driven by population growth outpacing wood supply and processing capacity.

Timber demand

The direct demand driver for timber in Australia is the construction sector. This in turn is driven by population and the need for appropriate housing.

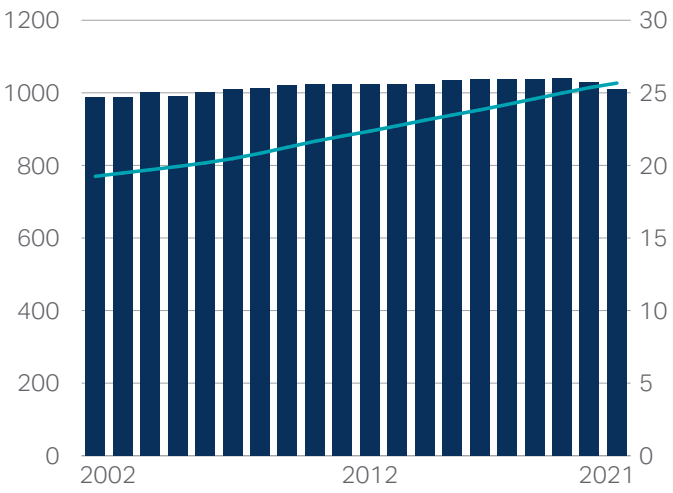
The Australian population is expected to grow by 10.3mn over the period to 2050 (CGAR 1.18%[2]), and is expected to gradually change in makeup, with new households holding slightly fewer people - averaging 2.39 per house compared to 2.57 currently.

Housing is a persistent political focus in Australia with affordability and an apparent under supply featuring consistently in public discourse. The NHFIC[3] State of the Nation's Housing Report suggests that this is forecast to continue, with the current shortfall expected to increase over the next five years. New households during this period are predicted to outpace construction by 106,000 (0.98% of total dwelling stock).

The FWPA[4] report on the future dynamics of Australian timber imports highlights the likely impact of this trend in the timber markets over the next 30 years. New housing demand is expected to rise to 259,000 per annum by that point, with soft sawnwood demand rising in tandem to 6.5mn m^3 .

2. Compounded Annual Growth Rate
3. National Housing Finance and Investment Corporation
4. Forest and Wood Products Australia

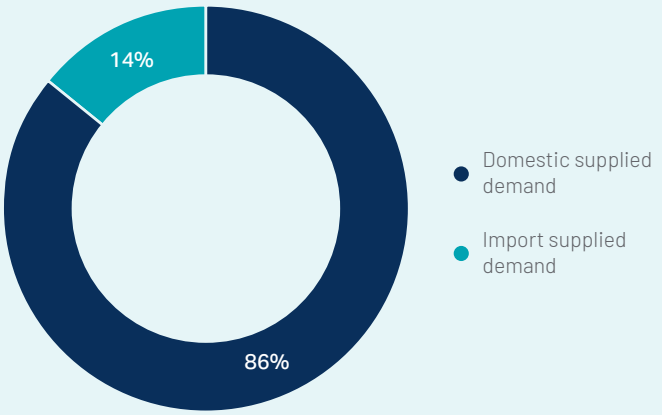
Softwood estate size ('000 hectares) vs. Population (millions)



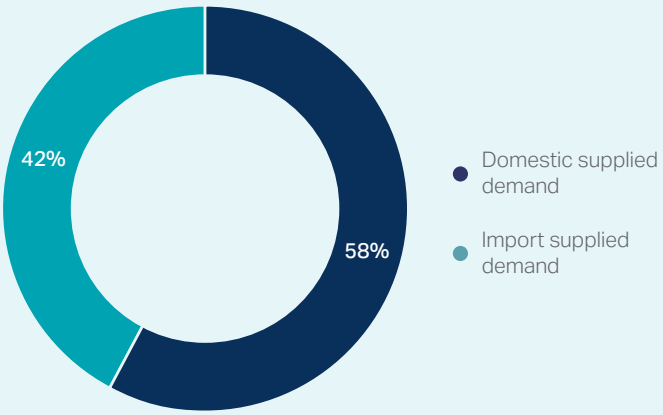
Source: ABARES, World Bank

In contrast, domestic production is forecast to remain static at 3.5-3.6 million m^3 . This implied gap would need to be met with imports, alternative materials, or a further developed softwood estate and processing sector. The additional softwood plantation area required to meet this gap has been estimated at 468,000 hectares, a 47% increase on the size of the current estate.

Current sawnwood supply



Forecast sawnwood supply - 2050



Source: FAO, FWPA

Forest carbon

Carbon dioxide stored in Australia's forests is approaching 22,000mn tonnes. A further 94mn tonnes are estimated to be stored in wood products – harvested and converted trees that continue to lock up carbon. This is approximately 45 times the current annual carbon emissions of the country.

While the vast majority of the carbon is stored in native forests (99%), the benefit from plantation forestry is increasingly recognised for the products that it can substitute for – particularly with the rapidly improving technology in engineered (high strength) wood products.

For example, highly carbon positive products, such as structural sawnwood and engineered timber beams and struts used in construction can be a direct substitute for high carbon intensity materials such as concrete and steel.

Carbon markets

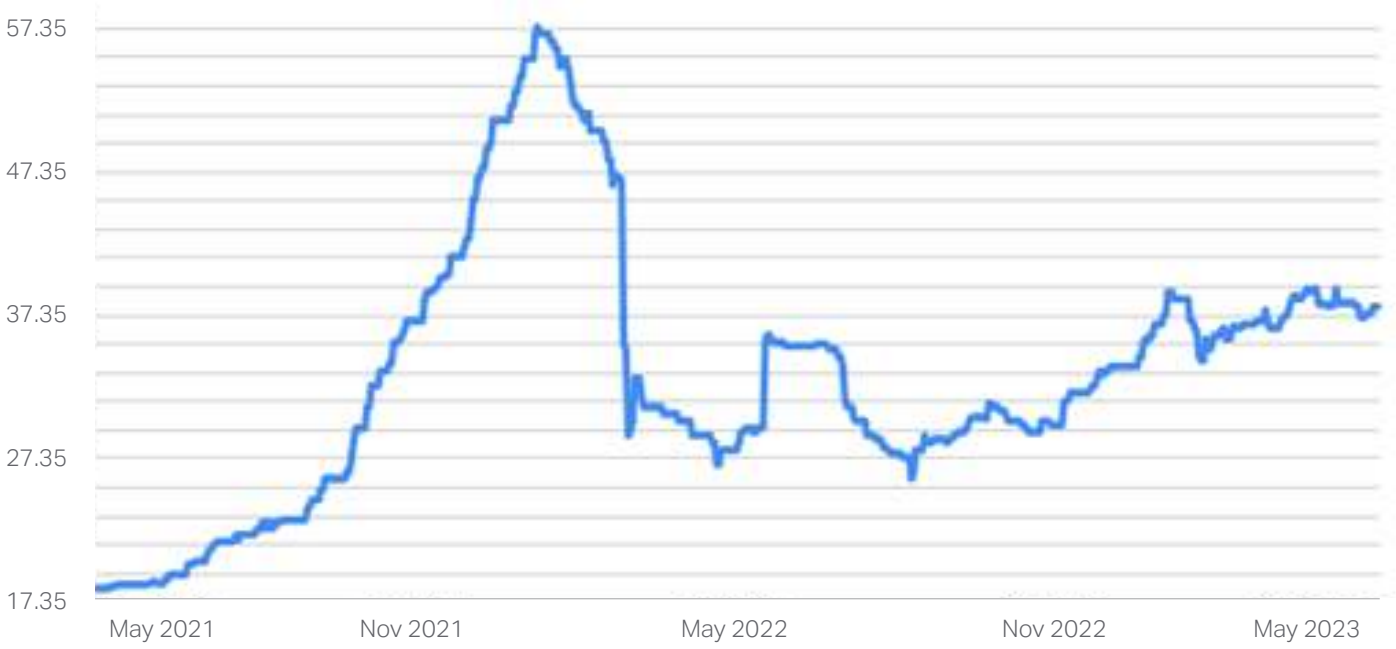
Australia has a well-developed carbon credit market operated by the Clean Energy Regulator. For every tonne of C02 sequestered or avoided in approved schemes, an Australian Carbon Credit Unit (ACCU) is awarded. These can be either be sold on the spot market, sold to the government under a regular auction process, or retired against other emissions.

A significant adjustment to ACCU prices was observed in early 2022 as the rules governing commitments to sell into the government's Emissions Reduction Fund were altered, effectively increasing supply to the spot market dramatically. Since then, prices have begun to recover, particularly following the Chubb review of the carbon methodologies.

A key component of the carbon credit framework is that the credit should only be awarded for emissions reductions that meet additionality criteria. This requires that the reduction would not have happened otherwise.

In the context of forestry, this mean that afforestation is eligible under certain conditions, but it excludes existing plantations or native forestry. However, if the system used to manage the existing plantations is amended to one with better carbon sequestration methods (predominantly lengthening the rotation) then it will likely qualify.

Australian Carbon Credit Unit (ACCU) Spot Price



Source: Jarden, May 2023

Australia for Forestry investment

Within the key coastal regions of Australia there are highly productive forestry hubs, with well-invested softwood processing capacity and growing, receptive markets.

The demand for timber in Australia is expected to grow at a time when historic plantation establishment has remained static, and when the availability of commercial native forestry is rapidly diminishing. This growing demand for timber production is positive for forestry investment.

In addition to strong political support for a sector that supports broad elements of the economy, including the critical construction industry, there is a growing and respected carbon credit framework – providing potential natural capital opportunities for additional forestry investment returns.



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