



AUSTRALIAN AGRIBUSINESS GROUP

# MARKET OVERVIEW – THE AUSTRALIAN TEAK INDUSTRY

Independent Assessment – January 2007

## Industry Snapshot

- The properties of teak timber are sought after world wide (Section 1).
- Harvesting of native forest grown teak has been banned in three out of the four countries where it grows naturally has been banned, with Myanmar being the only country to harvest and export native grown teak (Section 1).
- Tropical Asia (mostly India and Indonesia) dominates the supply of teak with smaller scale production in tropical Africa, America and Oceania. Most product is consumed in the country of origin (Section 3).
- Australian teak plantations are currently too young to be harvested. Once harvesting does commence, Australia will be well placed to supply the strong demand of the Asian market (Section 3 & 4).
- The quality of plantation teak is debatably inferior to that of native forest teak, however its demand is likely to increase with further restrictions on harvesting of old growth teak forests (Section 6).

## 1 Introduction

Teak (*Tectona grandis*) has been used for around 2000 years throughout the world due to its attractive, strong, durable, minimal shrinkage, easily workable and relatively light weight properties. Teak is a sought after tropical hardwood used for shipbuilding, furniture, flooring, panelling and fixtures and is commonly considered to be the world's most versatile, durable and valuable hardwood <sup>0</sup>.

Teak forests are highly regulated in order to prevent economic and ecological exploitation due to the high demand of the timber and the often sub-standard working conditions on plantations <sup>0</sup>. Clear felling of native teak forests in India has been banned since 1986 and has been completely protected from any type of logging in more recent years <sup>0</sup>. Harvesting of native teak forests has been banned in Thailand and Laos since 1989. Myanmar (formerly Burma) is the only country still harvesting teak from native forests.

Teak constitutes about 75% of the worlds tropical hardwood plantations yet only 3% of the worlds forest plantations. It consequently has a relatively minor role in world trade volumes <sup>3</sup>.

A major advantage of teak when compared to other tropical hardwood species is that it has been established and managed as plantations for many decades. Research and development within this area has led to recent increases in productivity <sup>0</sup>.

## 2 Growing Regions In Australia

Teak is a large deciduous tree that grows in warm temperatures of between 13-43°c and in high rainfall regions of between 1250-3500mm annually <sup>0</sup>.

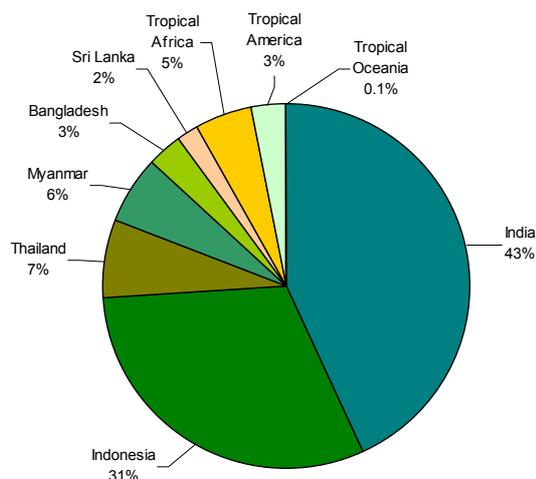
Due to these growing conditions, teak plantations are only found in tropical northern Australia. However this industry is relatively new in Australia and as such there are only a few small scale teak plantations present.

## 3 International Supply and Demand

The amount of native teak forests remaining in the world is estimated to be 23 million hectares <sup>4</sup>. World teak plantations are estimated to be more than 5.7 million hectares with 92% being located in tropical Asia <sup>3</sup>. Almost all teak is produced in less developed countries with the Western Hemisphere contributing approximately 0.3% of teak production across the globe <sup>0</sup>.

Teak plantations are located in at least 36 tropical countries. About 92% of these plantations are in Asia, predominately in India and Indonesia. Tropical Africa comprises 5% of the world's teak plantations, mostly in Côte d'Ivoire and Nigeria, and about 3% of plantations are in Central and South America (mostly Costa Rica, Trinidad and Tobago and Brazil). Oceania plantations are found in Fiji, Papua New Guinea, Solomon Islands and Australia <sup>3</sup>.

India has about 33% of global native teak forests<sup>3</sup>. India also has a major share of global plantation teak with 43% (Figure 1) or over 2 million hectares of plantations expanding at a targeted annual rate of 50,000 hectares<sup>5</sup>.



**Figure 1** The distribution of teak plantations throughout the world, by country or region<sup>3</sup>.

Indonesia (mainly in Java) has over a million hectares or 31% of world teak plantations. The rest of the Asian countries where smaller scale (2,000-100,000 ha) teak plantations are grown include Thailand, Myanmar, Bangladesh, Sri Lanka, China, the Philippines, Laos, Nepal and Vietnam<sup>6</sup>.

In Africa, teak plantations of varying sizes (between 3,000-70,000 ha) are grown in Nigeria, Côte d'Ivoire, Togo, Sierra Leone and Tanzania<sup>6</sup>. The South American and Oceania plantations are of a relatively small scale.

High quality, long rotation wood (120 years) has been commercially harvested for over 150 years, although in later times rotations were reduced to 50-70 years. At present the high demand for teak and decreasing native stands has resulted in shorter rotations of 20-30 year teak for sawlogs and veneer logs<sup>4</sup>.

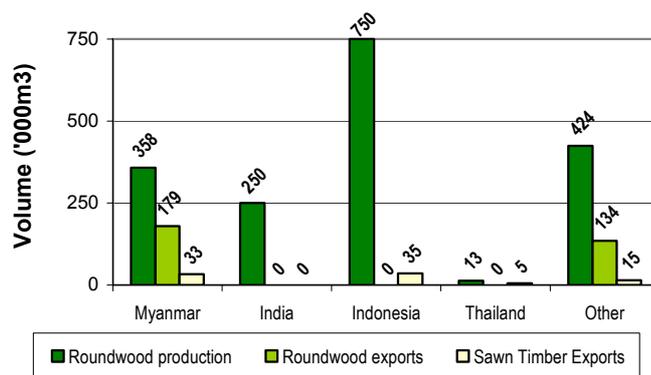
Native forest teak in Myanmar is managed on a 30 year rotation and currently the allowable cut is 460,528 m<sup>3</sup> per annum although this amount is forecast to decrease due to land degradation, illegal logging and international pressure for more sustainable teak production<sup>7</sup>.

Some research suggests that plantation grown teak has a higher amount of sapwood and juvenile wood than native forest teak, resulting in lower quality, density and strength and a less attractive appearance<sup>8</sup>.

However other research suggests that short-rotation teak is not significantly inferior in density and strength, but is still considered less durable and has a less attractive appearance. Appearance is often the major selling point and as such it is unlikely that plantation grown teak will be worth the same as native forest teak<sup>4</sup>.

The higher demand for native forest teak over plantation teak is also due to the larger diameter and length of logs produced.

Indonesia, Myanmar, India and Thailand are the largest producers of teak products (Figure 2). However, much of what is produced and manufactured in these countries is consumed domestically (except Myanmar).



**Figure 2** Teak production of roundwood and sawnwood exports by major country ('000 m<sup>3</sup>)<sup>9</sup>.

Clearly, Indonesia dominates roundwood production however exports of roundwood are mostly from Myanmar. Sawn timber exports are mainly from Indonesia and Myanmar (Figure 2).

Despite there being many other countries around the world that also grow teak these are relatively small and new plantings. Consequently there is now a market for smaller plantation grown logs, as the demand is so high that importers take what they can get.

The greatest demand and import competition for teak in the world comes from India, China and Thailand<sup>4</sup>. Demand from other markets of teak throughout the world come from other Asian countries, Europe and North America.

## 4 Australian Supply and Demand

Australia does not currently supply teak to the world market, as plantations are too young to be harvested. However when harvesting does commence in Australia, it is expected that the product will be in relatively high demand due to strong global demand for the timber.

In addition, Australia is geographically well placed to supply the lucrative Asian markets. Its sovereign risk is also significantly less than in other countries where teak is grown.

Australia's demand for teak is relatively small on a world scale but supply is provided by any of the countries mentioned in Section 3. It is primarily concentrated on furniture and decking products.

## 5 Possible Price and Yield Scenarios

In plantations in Indonesia and Trinidad and Tobago there have been relatively high growth rates or mean annual increments (MAIs) greater than 20 m<sup>3</sup>/ha/yr recorded. Although the average MAI at harvest (40-80 year rotation) in Indonesia is closer to 3 m<sup>3</sup>/ha/yr<sup>3</sup>.

India is considered to have a low plantation productivity level compared with the world average<sup>5</sup>. An average MAI for 70 year rotations in India is about 2.5 m<sup>3</sup>/ha/yr<sup>3</sup>.

However, in short rotation teak plantations there are generally high MAIs, as the peak MAI is usually achieved 20 years after establishment. This means that after a 20 year rotation, the teak will have reached its optimum strength<sup>3</sup>.

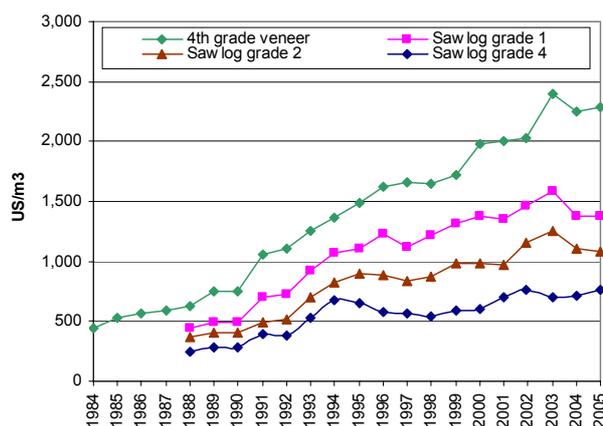
Better plantation timber in terms of appearance can be achieved by longer rotations and therefore older logs receive higher prices. However it still may not be as superior quality as native forest teak<sup>9</sup>. In addition, native forest teak has limited availability and consequently it achieves higher prices.

The plantation teak yields estimated in Table 1 assume best management practices are utilised, as it is suggested that neglected teak plantations will produce significantly lower yields. This is often the case with many other hardwood plantation species.

Source	Yield
3	8-24 m <sup>3</sup> /ha/yr
4	10-20 m <sup>3</sup> /ha/yr
6	15-20 m <sup>3</sup> /ha/yr
7	10+ m <sup>3</sup> /ha/yr
8	18-40 m <sup>3</sup> /ha/yr

The yields estimated in Table 1 are for international plantations, as data on Australian teak plantation productivity is very limited.

Raw teak is exported either as veneer logs or sawing logs and can be classed into several different quality grades which greatly influence the value of the timber (Figure 3). Teak 4<sup>th</sup> grade logs are used for sliced veneer production, while saw logs can be graded into SG-2, SG-3 and SG-4<sup>10</sup>.



**Figure 3 Price of Myanmar native forest teak logs, from 1984-2005<sup>10</sup>.**

The quality and value of Myanmar teak logs has varied greatly over the past decade (Figure 3), with veneer grade logs being of much higher value (ranging between US\$1,500-2,500) than saw logs (ranging between US\$600-1,300). In early 2003, real prices of teak logs reached record highs of US\$2041/m<sup>3</sup> for 4<sup>th</sup> grade logs and US\$1191/m<sup>3</sup> for SG-2 teak grades<sup>12</sup>. However prices of these two teak grades fell rapidly in the later half of the year and fluctuated considerably in 2004. The decline in price was due to a US ban on all trade with Myanmar, a change in the currency used in monthly teak auctions from the US dollar to the Euro and administration charges associated with regulating teak exports. In 2005 4<sup>th</sup> and SG-2 grade teak log prices rose in euro terms but declined in US dollars. The latest market report out of Myanmar has seen prices for teak logs, excluding third grade veneer quality, surge with demand for teak logs being high<sup>12</sup>.

The average price of plantation grown teak traded worldwide is US\$300 per m<sup>3</sup> while native forest teak receives an average price of US\$700 per m<sup>3</sup> for logs<sup>4</sup>. These averages include all quality classes over all ranges of management.

## 6 Future Outlook and Conclusions

Although the perceived quality of plantation teak will probably never be the same as native forest teak, it is possible that quality can be improved by using techniques such as increased rotation length, improved genetic selection, manipulation of tissue culture, advanced processing technology and better silvicultural practices (including better site selection, fertilising, pruning and thinning)<sup>4</sup>.

However even with these improvements in plantation grown teak, it is still unlikely that it will rival native forest teak in quality or price<sup>3</sup>. One advantage that plantation grown teak does have over native forest teak is volume, with more than 20 times the timber produced when best management practices are used<sup>10</sup>.

Myanmar established a program in 1998 that will double the area of teak plantations in the next few decades. It is planned that the teak will be managed on a 40 year rotation and once harvesting age is reached will produce a minimum of 600,000 m<sup>3</sup> of teak per year<sup>9</sup>.

In the future it is expected that supply from native forest teak will diminish and the demand for teak will increase, with plantation teak being increasingly utilised.

With the establishment of Teaknet in 1995 there is now an international network that aims to conserve and sustainably manage native teak forests. Teaknet facilitates the collaboration and exchange of plantation teak research, technology and information throughout the world in order to improve the quality of plantation grown teak<sup>12</sup>. With increased technology and grower knowledge, plantation production levels should gradually increase.

Once harvesting of plantation teak in Australia begins there should be a waiting market and a geographical advantage to the largest importers. In addition, Australia has a secure government which is an advantage in comparison to the relatively unstable governments' common to third world teak producers.



## 7 References

1. TeakIndustry.com, 'About Teak', Retrieved December 2006 from [www.teakindustry.com](http://www.teakindustry.com)
2. Pandey, D. and Brown, C., 2001, Teak: a Global Review. In. *Unasylva – No. 201 – Teak. Food and Agriculture Organisation (FAO), Italy.*
3. Bhat and Ma, 2004, *Teak Growers Unite!* ITTO, Tropical Forest Update (14: 1)
4. [www.hardwoodmarkets.com](http://www.hardwoodmarkets.com), 2004, *Species Focus: Teak*
5. Bhat and Sharma, 2003, India: A Report. International Conference on *Quality Timber Products of Teak from Sustainable Forest Management*
6. Krishnapillay, B., 2001, Silviculture and management of teak plantations. In. *Unasylva – No. 201 – Teak. Food and Agriculture Organisation (FAO), Italy.*
7. Dah, 2004, *Teak and forest management in Myanmar.* ITTO, Tropical Forest Update (14: 1)
8. Oteng-Amoako, 2004, *Making the Grade.* ITTO, Tropical Forest Update (14: 1)
9. Sarre and Ma, 2004, *The Prospects for Plantation Teak.* ITTO, Tropical Forest Update (14: 1)
10. ITTO, 2003, *Annual Review and Assessment of the World Timber Situation.*
11. ITTO (2006) 'Annual Review and Assessment of the World Timber Situation 2004'
12. ITTO (2006) 'Annual Review and Assessment of the World Timber Situation 2005, Retrieved December 2006 from [www.ito.org](http://www.ito.org)
13. ITTO (2006) 'Tropical Timber Market Report' Volume 11No. 22, 16-30 November 2006, Retrieved December 2006 from [www.ito.org](http://www.ito.org)

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