

## **INTERNATIONAL TEAK REPORT**

**DATE: MARCH, 22, 2006**

**SOURCE: PRODUCT DISCLOSURE STATEMENT – REWARDS GROUP TEAK  
PROJECT 2006 ARSN 119363727 “INTERNATIONAL TEAK MARKET REPORT”**

Dear Sirs,

### **INTRODUCTION**

This international teak market report has been prepared by Mr. H.S. Anantha Padmanabha for inclusion in a Product Disclosure Statement (PDS) to be issued by Rewards Projects Ltd. The PDS offers investors the opportunity to subscribe for Woodlots in the Rewards Teak Project 2006 (Project). The Project is a managed investment scheme with the objective of developing a commercial teak plantation in north Queensland, Australia.

### **EXPERTISE OF THE AUTHOR**

Mr. Anantha Padmanabha has over 35 years of research experience as a senior scientist at the Institute of Wood Science and Technology (Indian Council of Forestry & Education, Government of India). He has researched various aspects of teak and tropical forestry for over three decades. He was designated as Chief Technical Advisor for a World Bank forestry project in India. He is also a consultant to plantation companies growing Teak and Sandalwood plantations in India.

Mr. Anantha Padmanabha has forestry experience in the United States of America, Australia, India, and Nepal. At present he is a Director of the Karnataka Research Foundation for Advanced Science Technology Transfers. He has co-authored forestry books and has published over 125 research papers in international journals.

Mr Anantha Padmanabha has prepared this report as an International Market Expert for the Tree Project. Mr Anantha Padmanabha will receive fees as the International Market Expert from Rewards Projects Ltd but has no other financial interest in Rewards Projects Ltd or the Tree Project.

Mr Anantha Padmanabha does not hold an Australian financial services licence.

### **TEAK WOOD**

The physical and aesthetic qualities of teak have given it a worldwide reputation as a premium timber. It is highly sought after for shipbuilding and for the manufacture of both interior and exterior furniture. With current total global production of around 3 million m<sup>3</sup> per year, teak occupies a small position in terms of the total volume of world timber production, yet it is recognized as a high-value hardwood timber in global timber markets. Teak is a major plantation species in many tropical countries, including Myanmar (formerly Burma), Indonesia, Thailand, India, Nigeria, Ivory Coast, Panama, **Costa Rica**, Brazil and PNG.

## **BACKGROUND OF THE GLOBAL TEAK INDUSTRY**

Teak occurs naturally in India, Myanmar, Laos and Thailand and is naturalized in Indonesia. It has been established in plantations throughout Asia, tropical Africa, Latin America, the Caribbean and in parts of the Pacific region, including Papua New Guinea, Fiji and Solomon Islands.

### **India**

In India, teak harvesting in natural forests was banned in 1982 and in 1997 the Supreme Court of India ordered further restrictions on the felling of timber of any kind in the natural forests of India.

In the early 1980's the total size of the teak market in India was 7.5 million m<sup>3</sup> per year. All teak logs now consumed in India are now imported. Total teak log imports into India in the past 12 months were approximately 2.5 million m<sup>3</sup>, with 60% of total teak imports coming from countries in West Africa.

Even though India has established significant areas of teak plantations, as a consequence of native teak logging bans in Asia, the Indian teak market was forced to find alternative teak supplies. For the past 15 years the Indian teak market has imported teak logs from plantations grown in African countries, including Nigeria, Benin, Togo, Ivory Coast and Ghana. It is now widely recognized within the teak industry that the supply of teak logs from Africa will be totally exhausted in the next 5 years. As a response, the Indian teak market is now importing young plantation teak logs (ranging in age from 6 to 15 years old) from Central and South America, including Panama, Costa Rica, Columbia and Brazil.

### **Thailand**

Thailand banned teak harvesting in natural forests in 1989.

### **Myanmar (formerly known as Burma)**

Myanmar is the only country in the world now supplying teak from natural forests.

### **Indonesia**

Even though Indonesia has large teak plantations, there is a total ban on exporting teak logs. Teak logs in Indonesia are entirely supplied to domestic industries, such as furniture manufacturers and is then exported as finished furniture products.

## **NEW PLANTATIONS**

Due to the dramatic decrease in teak supply from natural forests and the increasing demand for teak timber, the future of teak production can only come from new teak plantations.

The most significant new teak plantation establishments in the last 10 years have occurred in south-west Brazil, with a plantation estate of approximately 20,000 planted hectares. Brazil is now exporting young whole teak logs to India, Europe and the USA. Other significant teak plantations are underway in Costa Rica.

Demand for teak in Asia has increased considerably in recent years. Currently, most Asian countries rely on plantation teak logs imported from Africa and Latin America.

Current prices of these imported plantation teak logs are generally as follows (depending on physical size and quality):

- A\$225 per m<sup>3</sup> (FOB) (for 6 year old teak poles of 13cm diameter (at mid log length) and 8 metres total pole length);
- A\$360 per m<sup>3</sup> (FOB) (for 10 year old teak logs of 18cm diameter (at mid log length) and 8 metres total log length);
- A\$600 per m<sup>3</sup> (FOB) (for 14 year old teak logs of 24cm diameter (at mid log length) and 8 metres total log length); and
- A\$1,000 per m<sup>3</sup> (FOB) (for 18 year old teak logs of 31cm diameter (at mid log length) and 8 metres total log length).

In Asia, teak sawmills and processing units are often small and are suited to working with small diameter logs.

### **SALES POTENTIAL FOR AUSTRALIAN PLANTATION TEAK IN INDIA**

India dominates global teak timber consumption.

The building, construction and furniture manufacturing industries are the major users of teak timber in India.

There are excellent opportunities to market teak logs and teak poles in India. The timber industry in India consists of numerous sawmills, where most sawmills also act as retail merchants. Sawmills and timber merchants sell teak to the general public, both in the form of teak logs and sawn timber.

Timber imports to India are dominated by industrial round wood, which includes teak. There has been a dramatic increase in the importation of round wood and poles. This is attributed to rapidly growing demand for timber in India and the decline in supply from India's natural forests. The trend is expected to continue.

In 2000, the total area of forest plantations globally was 187.1 million hectares, of which teak plantations comprised only 5.7 million hectares, representing about 3% of the total global plantation area.

The total round wood consumption in India is about 289 million m<sup>3</sup>, of which teak constitutes approximately 0.8% (2.5 million m<sup>3</sup>).

### **TEAK LOG PRICES**

Teak prices have risen 15% during the last 12 months in the premium log categories.

80% to 90% of all teak logs and poles imported into India are between 2.2 metres and 3 metres in length. The reason for this is simple and historic – the doors of homes in India are 7 foot in height (2.1m). Any teak log or pole greater than 3 metres in length immediately begins to attract a price premium of between 0 and 20% (assuming identical girth of the teak log or pole at mid length).

Teak is sold in various markets as round logs and as sawn timber of different dimensions. Teak logs are classified into grades (both physical and qualitative) prior to

selling. Accordingly, teak log grades are determined by dimension (usually diameter) and log soundness.

The Indian market has 11 traditional grades for teak logs. These grades were created by the British 150 years ago. For all categories (save for AY) the minimum length must be 8 feet (or 2.4m). Length therefore is not the primary factor in determining the price received – girth and quality are the 2 key factors.

The eleven categories are:

Category of Teak Log	Price In A\$ per m <sup>3</sup>
AY (Admiralty Teak)(for the finest boats) – minimum of 16ft length and minimum 6 foot girth at mid length (which equals a 60cm diameter) with absolutely zero defects	Price of US\$4,000 per cubic metre (FOB) - (A\$5,479 per m <sup>3</sup> )
4 star - minimum 5 foot girth at mid length (50cm diameter), length of 8ft and up	Price of US\$2800 per cubic metre (FOB) - (A\$3,835 per m <sup>3</sup> )
3 star - minimum 5 foot girth at mid length (50cm diameter), length of 8ft and up	Price of US\$2500 per cubic metre (FOB) - (A\$3,424 per m <sup>3</sup> )
2 star - minimum 5 foot girth at mid length (50cm diameter), length of 8ft and up	Price of US\$2100 per cubic metre (FOB) - (A\$2,876 per m <sup>3</sup> )
1 star - minimum 5 foot girth at mid length (50cm diameter), length of 8ft and up	Price of US\$1,750 per cubic metre (FOB) - (A\$2,397 per m <sup>3</sup> )
Sawing Grade 1 – minimum 5 foot girth at mid length (50cm diameter), length of 8ft and up	Price of US\$1,250 per cubic metre (FOB) - (A\$1,712 per m <sup>3</sup> )
Sawing Grade 2 – minimum 5 foot girth at mid length (50cm diameter), length of 8ft and up	Price of US\$1,100 per cubic metre (FOB) - (A\$1,500 per m <sup>3</sup> )
Sawing Grade 3 – minimum 3 foot girth at mid length (30cm diameter), length of 8ft and up	Price of US\$650 per cubic metre (FOB) - (A\$900 per m <sup>3</sup> )
Sawing Grade 4 – minimum 4 foot girth at mid length (40cm diameter), length of 8ft and up	Price of US\$850 per cubic metre (FOB) - (A\$1165 per m <sup>3</sup> )
Short Logs	Various prices depending on quality
Log Ends	Various prices depending on quality

Log categories '4 star' to '1 star' have the same size specifications. The differences between the classes is qualitative and is influenced by the extent of log defects.

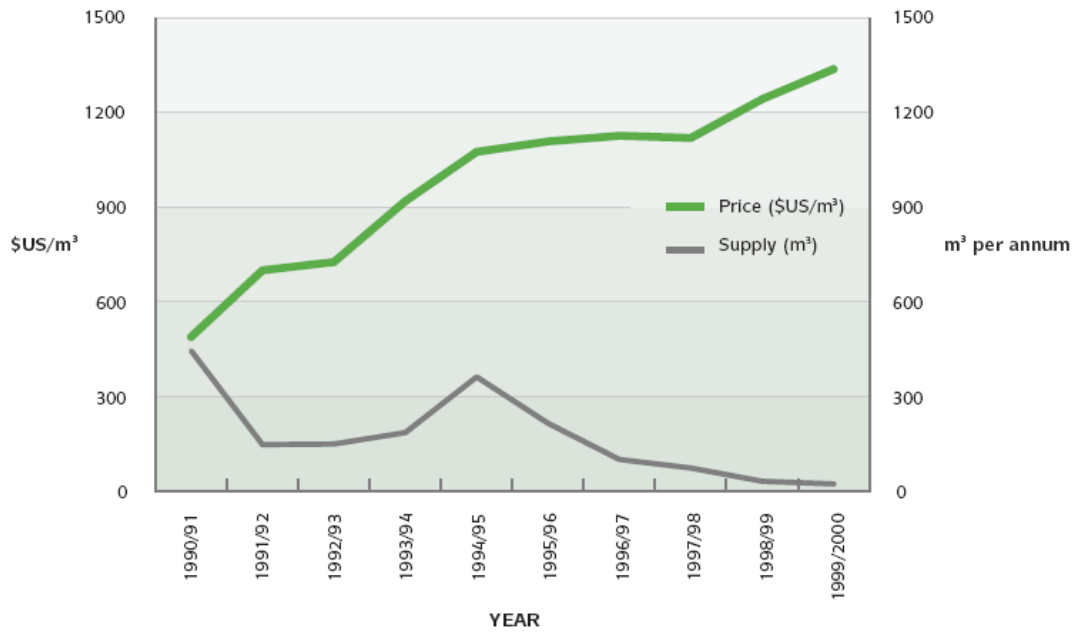
\*based on an exchange rate of US\$0.73

**Over the last 30 years, teak log prices have increased at an average rate of 8.3% per annum compounded. The basis for the sharp increase is due to rapidly declining supply and rising demand. Teak log prices in the past 12 months have risen 15% in the premium log categories.**

Myanmar teak is recognized as the world's best quality teak timber. Myanmar teak, like other teak, has experienced dramatic increases in price whilst simultaneously teak supplies have decreased significantly over the same period. For example, from

1990 to 2000, Sawing Grade 1 (SG-1) and Sawing Grade 2 (SG-2) teak logs from Myanmar increased in price from US\$489 per m<sup>3</sup> to US\$1,337 per m<sup>3</sup> (CIF) and US\$403 per m<sup>3</sup> to US\$996 per m<sup>3</sup>, (CIF) respectively (refer to Figures 1 and 2).

*Figure 1 : Price and Supply trends (10 years between 1990 and 1999) of SG-1 Teak logs (Myanmar)*  
 – Price increases are greater than 10% per annum compounded.



*Figure 2 : Price and Supply trends (10 years between 1990 and 1999) of SG-2 Teak logs (Myanmar)*  
 – Price increases are greater than 10% per annum compounded.



## **TEAK POLES**

There is a substantial teak pole market in India. The minimum entry point is teak poles with a diameter at mid length of 10cm. Therefore any teak pole with a diameter at mid length of 10cm and above can be sold in India. Teak poles with a diameter of 10cm are used in many markets including the furniture market.

Teak poles produced from thinning operations in young teak plantations comprise a substantial proportion of teak timber production. Because of its high durability young teak poles are utilized in the construction industry as posts or poles and in the furniture industry as furniture components and flooring. These teak poles are generally 6 to 7 years old. Teak poles of sizes 10 to 15 cm diameter and length 4 to 5 meters are sold for up to A\$22 per pole in Raipur (State of Madhya Pradesh), India. Accordingly, prices of these imported plantation teak logs which are 6 years old are about A\$225 per m<sup>3</sup> (FOB).

## **PLANTATION TEAK GROWTH RATES**

The rate of growth and the quality of teak from plantations are largely dependent on the type of and quality of planting stock; the characteristics of the soil, including topography and drainage; climatic factors such as rainfall, temperature and humidity; and management techniques.

Good growth and high plantation quality is associated with deep, well-drained alluvial soils, rich in calcium; a mean annual temperature between 22 to 27°C and an annual precipitation from 1200 to 2500 mm, with a marked dry season of 3 to 5 months with a maximum of 50 mm of rain.

Most teak plantations are managed with short rotations, usually from 10 to 25 years. The mean annual increment (MAI) within well-managed plantations located on high quality sites at such ages may vary from 12 to 21 cubic meters per hectare per year. This range is based on yield data from superior, well-managed sites in a number of countries, including India, Indonesia and Cote d'Ivoire.

The projected yields for the Project are based on an MAI of 18 cubic meters per hectare. Given the plantation site characteristics and climatic conditions, genetics of the planting stock, expertise of Rewards Projects Ltd, and published yield data from teak plantations, the yield estimates are fair and reasonable.

## **CONCLUSION**

In India and elsewhere, the natural forests of teak alone will not be able to meet the current and future demand for teak.

Demand for teak in the past 10 years has risen. Supply in the past 10 years has rapidly declined and is forecasted to decline at an even more rapid rate. It is widely believed that the supply of teak into India from West Africa (from which 60% of India's current imports originate will be completely at an end in 5 years time). In other words, the supply from West Africa of 1.5 million m<sup>3</sup> per annum of teak (60% of 2.5 million m<sup>3</sup> per annum of Indian imports of teak each year) will cease fully in only 5 years time.

Teak prices in the past 15 years have risen at more than 7% per annum compounded. Teak prices in the past 12 months have risen 15% in the premium log categories.

Illegal felling of teak in West Africa and Indonesia and other countries is on the rise, a clear indication of rapidly rising prices and rapidly falling supply.

Only 22 years ago (1982), the domestic Indian market consumed more than 7.5 million m<sup>3</sup> of teak per annum (3 times more than it does today).

Due to chronic over harvesting around the world, illegal felling and only a small sustainable teak plantation industry (ie. That occurring in Australia, Brazil and Costa Rica), that Indian domestic consumption figure has fallen to only 2.5 million m<sup>3</sup> per annum.

The world teak marketplace can rapidly and easily absorb a new supply of at least 500,000 m<sup>3</sup> per annum of Australian plantation teak.

There is a stark and obvious need for Australian plantation grown teak to enter the world teak marketplace.

Yours sincerely

A handwritten signature in black ink, appearing to read "H. S. Anantha Padmanabha". The signature is written in a cursive, flowing style.

Mr. H. S. Anantha Padmanabha