

## **International pricing mechanism for plantation teak: a proposal to bring transparency to log markets**

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SEVERAL SOURCES of plantation teak (*Tectona grandis* Linn. f.) prices are available worldwide. However, their use is limited because they are mostly unsubstantiated and lack precise information about log dimensions, time of data collection and what point along the value chain they refer to. In addition, few data exist that provide information at consecutive intervals through time. This is causing confusion amongst investors, allows unscrupulous parties to take advantage of the situation for their own ends and is hampering the development of a strong international, plantation-based commercial teak sector. A standard international pricing mechanism has been proposed to address this situation (Keogh 2007), focusing initially on logs, which are on offer across most of the species' geographic range, are traded internationally and for which prices are more easily standardized than for sawnwood. It would be relatively straightforward, however, to extend the mechanism to sawnwood, the price of which is ultimately derived from that of the log.

This paper provides an overview of teak prices from both natural forests and plantations. It then outlines the proposal for developing a standard international pricing mechanism to monitor plantation prices and suggests how it should be implemented.

### **International teak prices** **Natural forests**

Natural forest teak logs are sold through tenders in Myanmar utilizing a recognized international pricing mechanism which is based on log grading rules. The resulting prices of teak at monthly auctions in Yangon reflect the quality of the material offered and in worldwide demand. More information on these grading rules is supplied by U Thein Aung (2003). An overview of natural forest teak price trends over the past few years is presented in *Figure 1*, based on ITTO data for Myanmar published in its Market Information Service.

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### **Plantations**

As mentioned previously, few reliable pricing data exist for teak plantations. Nonetheless, a total of 32 individual FOB prices, ranging over the period 1993 to 2007, were gathered from the sources outlined in *Table 1*. They represent

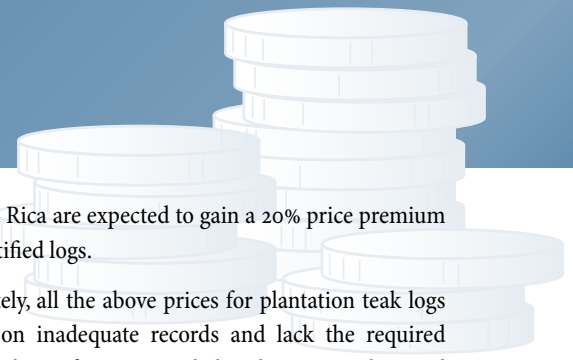


**Measuring up:** Sri Lankan foresters checking diameter of good quality plantation teak. *Photo: R. M. Keogh*

diameters from 15 cm to over 50 cm. Data for 2004–2007 are shown in *Figure 1* in real US dollars using the same deflator as used by ITTO for Myanmar teak.<sup>1</sup>

All the plantation teak log prices are significantly lower than the lowest Myanmar grade (SG-6), suggesting that the upper ceiling for plantation teak prices is, with few exceptions, lower than the lowest category of natural forest teak. Most plantation price data (79%) lie between US\$150 and \$250/m<sup>3</sup> (real prices), equivalent to between US\$200 and \$300 (nominal). No meaningful correlation was found between diameter and price for plantation logs although larger diameters, as would be expected, always fetch higher prices. Unfortunately, with few exceptions, there is not sufficient information to determine trends in real prices. Where consecutive data are available apparent upward international price adjustments from low bases prevented an assessment of real long-term price trends. For example, in Côte d'Ivoire teak accelerated from an artificially low base of US\$60/m<sup>3</sup> in 1993 to \$300 in 1997 before levelling off (see

<sup>1</sup>Real prices were FOB in constant 1990 US\$/m<sup>3</sup> deflated by the IMF's Consumer Price Index for industrial countries and conformed to the approach as outlined in ITTO (2005a).



## Data

**Table 1:** Teak plantation log prices collected

| COUNTRY       | YEAR(S)          | NO. OF PRICES | REFERENCE                      |
|---------------|------------------|---------------|--------------------------------|
| CÔTE D'IVOIRE | 1993, 1997, 1998 | 3             | Maldonado & Louppe 2000        |
| C & S AMERICA | 1996             | 2             | De Camino <i>et al.</i> 2002   |
| MYANMAR       | 2004             | 2             | Tennigkeit, <i>et al.</i> 2005 |
| KENYA         | 2005             | 1             | Tennigkeit <i>et al.</i> 2005  |
| GHANA         | 2000             | 2             | Armstrong <i>et al.</i> (nd)   |
| GUATEMALA     | 2006, 2007       | 15            | ITTO (2006 and 2007)           |
| PNG           | 1998             | 3             | ITTO (2005b)                   |
| LIBERIA       | 1998             | 4             | ITTO (1998)                    |
| <b>TOTAL</b>  |                  | <b>32</b>     |                                |

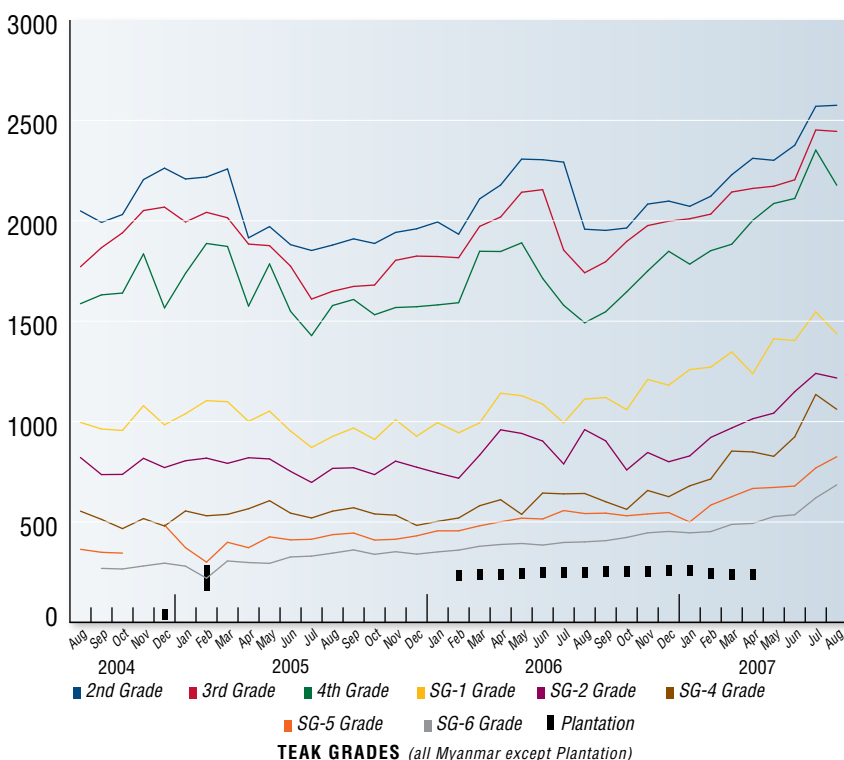
Maldonado and Louppe 2000). Steep price adjustments like these provide a false perspective of the long-term valuation of teak logs.

It is difficult to validate the current price range presented for plantation teak logs (US\$200–\$300/m<sup>3</sup>). However, allowing up to US\$100/m<sup>3</sup> for freight and insurance costs would bring the CIF figure to US\$300–\$400/m<sup>3</sup> and this corresponds broadly with a report from the urban city of Chennai in India, which imports plantation teak logs from West Africa, Colombia and Brazil at prices ranging from US\$300–\$500/m<sup>3</sup> (Muthoo 2004).

In addition to the limited data summarized in Table 1 and Figure 1, ITTO recently published plantation teak log price information from the International Teak Workshop held in Kerala, India (ITTO 2007). These figures suggest that top quality logs from Indonesia and Costa Rica (diameters over 30 cm) may surpass the nominal US\$300/m<sup>3</sup> (FOB) mark, with exceptional logs fetching upwards of US\$400. According to this source certified logs

## Natural vs. plantation

**Figure 1:** Real prices (1990 US\$/m<sup>3</sup>) of natural forest and plantation teak



from Costa Rica are expected to gain a 20% price premium over uncertified logs.

Unfortunately, all the above prices for plantation teak logs are based on inadequate records and lack the required accuracy and specifications needed to eliminate widespread uncertainty and confusion surrounding plantation teak log prices. The solution is to develop and implement a standard pricing mechanism.

## Developing a standard pricing mechanism

To be effective a standard pricing mechanism for plantation teak must deal comprehensively with the entire value chain from standing tree to FOB price point (and may extend to CIF). The proposed approach is as follows:

- 1) Focus initially on teak plantation export logs as the international benchmark;
- 2) Develop standards on which the pricing mechanism is to be established; and
- 3) Propose how the mechanism would be promoted and implemented.

## Developing standard grading rules

The first step in creating standards for the pricing mechanism is to develop standard grading rules for plantation teak logs. To achieve this, precise definitions of volumes and quality must be devised/agreed upon. Volume definitions need to differentiate between standing volumes and log volumes. Three standing volume definitions are proposed:

- merchantable volume is defined as the total woody tissue in the main stem, under bark, from ground level to 8 cm under bark top diameter;
- commercial volume is defined as the total woody tissue in the main stem, under bark, from ground level to a determined top diameter; for the purposes of the pricing mechanism it is the volume that can be sold on the international market; and
- residual volume is defined as the difference between merchantable and commercial volumes.

The standard dimensions of teak log volumes are derived from commercial volume. In order to determine quality, the following must be taken into consideration:

- dimensions of the log: diameter (cm) at both ends (or mid-diameter) and total length (m);
- cylindrical tendency (the more the log approaches a true cylinder in terms of roundness—absence of fluting—and low taper, the higher the quality);

- wood quality (percentage heartwood, colour, homogeneity of colour, number of rings per cm, strength and hardness are the primary characteristics of quality teak; durability is important particularly for certain end uses like garden furniture);
- defects (the less defects that are present, the higher the log quality; defects include knots, splitting, shake, heart rot, etc).

Standard international grading rules for plantation teak must be agreed and these standards should be developed on the basis of the characteristics that are outlined above. Caution is advised against creating a highly complex system. For these reasons, the following grades of logs, based on diameters, log lengths and quality are recommended to initiate the system:

### 1. DIAMETER CLASS (cm)

15 – 19.9

20 – 24.9

25 – 29.9

30 – 34.9

35 – 39.9

40 – 44.9

45 – 49.9

50 +

### 2. LOG LENGTHS (m)

|       |         |
|-------|---------|
| Short | 1 – 2.6 |
|-------|---------|

|        |         |
|--------|---------|
| Medium | 2.6 – 5 |
|--------|---------|

|      |     |
|------|-----|
| Long | > 5 |
|------|-----|

### 3. QUALITY CLASS

|          |   |
|----------|---|
| <b>A</b> | Logs straight, sound and cylindrical throughout the length;         |
| <b>B</b> | Straight and sound logs without defects (not entirely cylindrical); |
| <b>C</b> | Logs with minor defects; and  |
| <b>D</b> | Logs with defects.  |

From the initiation of the scheme, particular emphasis must be placed on the proportion of heartwood available in each class. More sophisticated quality parameters can be introduced at a later stage and refined on a continuous-improvement basis during the promotion and implementation phase of the mechanism.

## Implementation

Agreement from international stakeholders on the proposed norms and standards is required if a formal pricing mechanism is to be developed. However, this would be a long-term measure. Alternatively, a method of rapid spot-checks of teak along the value chain is recommended

as a short-term solution. The objective of these 'snapshots' is to estimate the value of teak based on the proposed grading rules and at fixed points along the value chain between standing tree and port, carried out in a number of countries (e.g. two countries in each of Asia, Latin America and Africa) at a specified time(s). Snapshots of this type would provide a rapid benchmark for plantation teak prices worldwide. It would be relatively simple to update the snapshots annually or periodically, which would also provide data on price trends. Whatever system is used it must:

- be applied in a standard and transparent manner at the same time across teak growing countries;
- publish up-to-date and accurate international information on plantation teak prices; and
- update information on a regular basis.

The output from the snapshots or a more complex international system of norms and standards would bring transparency to plantation teak log pricing and is likely to speed up the process of price adjustments.

## Conclusion

There is an urgent need to develop and implement an international pricing mechanism for teak plantations. The proposed mechanism is likely to have a significant and positive impact on the entire teak sector as its implementation would bring transparency to teak pricing. It may be implemented informally at first in a number of key countries in the tropics. With a relatively small input in terms of human and financial resources, it would produce immediate results and provide a rapid benchmark for plantation teak prices worldwide.

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