



2.1 Domestic demand: the black hole in Indonesia's forest policy

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For more than 30 years, Indonesia's natural forests have been industrialized under a concession system. Under this arrangement, companies are granted the right to harvest; in return, they must comply with a complex and costly set of regulations and pay all government royalties and taxes. This system of forest administration was specifically designed with the intent to develop an export-orientated manufacturing industry. Due to the system's cost structure, the international export market is practically the only economically viable alternative for the sale of the country's forest products.

Domestic lumber prices are only approximately half as high as the production costs under which a legally licensed concession and sawmill have to operate. The obvious conclusion is that very little of the lumber sold in the domestic market comes from legally licensed or regulated forest management units.

Unregulated production is produced by various methods, including chainsaw milling. By far the majority of the domestically available lumber from the natural forests of Indonesia is produced at small, unlicensed and unregulated mills located along the many rivers of Sumatra and Kalimantan.

The policy implications are clear. As long as there is no regulatory framework under which the domestic demand for mixed tropical hardwood can be met, there is little hope for sustainable forest management or eliminating illegal logging and illegal land conversion.

Development of the concession system

Indonesia prepared the groundwork for the industrialization of its natural forest resources in 1967 with the passage of the Domestic (1968) and Foreign (1967) Investment acts and the creation of the forest concession system. Soon afterward, the country embarked on a rapid expansion in the number of forest concession licences. In the early days of this development, most production was in the form of log exports destined mainly for countries such as Japan and Korea.



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By 1985-86, the government had introduced a prohibitively high tariff on log export, making it economically unfeasible. This, along with a number of other measures such as the banning of sawn timber exports in 1989, forced Indonesia's forest industries to invest in manufacturing facilities. Within a few years, Indonesia had become the world's largest producer of tropical plywood. The industry peaked by 1989-90, when more than 500 concession companies were operating in Indonesia's natural forests and harvesting more than 27 million m³ of logs per year.

The development of a regulatory framework paralleled the expansion of the concession system. The TPT¹ silviculture and administration system, introduced in 1970, gradually changed into the TPTI² system in 1993 and became the centrepiece of the regulatory framework. Successive forest ministers introduced additional laws, regulations and guidelines. By the mid-1990s, forest concessions had to comply with complex procedures arising from an estimated 69 forestry laws, decrees and regulations governing the management and administration of natural forests (Bennett 2001).

This rapid expansion of the regulatory framework did not ensure the sustainable management of the country's natural forests. During the decade from 1985 to 1995, while the number of concession forest regulations more than doubled, forest cover declined by 16% (Bennett 2001). By 2005, the number of concessions had declined to approximately 259, fewer than 100 of which were known to be actively managing their concession areas.



Most of this decline resulted from companies exhausting their concessions and pulling out of the timber business or having their licences revoked for failing to conform to even the most basic principles of sustainability.

Meanwhile, Indonesia's forests have shrunk rapidly. Some of this reduction in forest area has been deliberately planned;

for example, government policies aim to convert most of Sumatra's lowland forests to pulp plantations, oil palm or other uses. The transmigration programme,³ together with a rapidly increasing population, rapidly consumed much of the country's remaining lowland forest areas. Unregulated logging and poor practices added to the rapid loss of natural forests.

Log supply

At the peak of production in 1989-90, annual cutting targets from the country's natural forests were more than 20 million m³/year. By 2002, the annual harvested volume had been reduced to approximately 12 million m³/year in an indirect attempt to downsize the industrial overcapacity in the forestry sector and to establish the basis for a more sustainable industry. The biggest single reduction in annual cutting targets came in 2003 when the government slashed the annual quota from 12 million to 6.89 million m³ in a single year. It was further reduced to 5.74 million m³ in the following year. There was much talk of this being a positive step, although it is difficult to see how anyone, either the government or the industry, benefited from this dramatic reduction.

Measures to devolve Indonesia's highly centralized administration, including the administration of much of its forest resources, came into effect in 2001. Almost immediately, district and provincial governments began issuing licences and cutting permits without any consideration of silviculture or sustainability concerns or the existence of federally granted concession licences.

The empowerment of district and provincial governments to issue logging permits had the noticeable and almost immediate effect of creating a log surplus and driving down domestic log prices to the point where most concessions could no longer operate economically within the law. The excess log supply also benefited traders, who welcomed the opportunity to supply neighbouring countries with cheap logs. This further undermined the ability of the Indonesian plywood producers to compete in the international markets.

Efforts to address domestic demand

There seems to have been some awareness in the past decades that the issue of domestic wood demand needed to be addressed. In 1994, an attempt was made to force concessions to set aside 5% of their production to stimulate small-scale businesses. Predictably, this effort failed since it was not based on economic realities.

Decentralizing the issuing of various licences and cutting permits to district and provincial governments could be viewed as an effort to generate a supply of wood for domestic consumption. This move is, however, more widely recognized as a measure to enable local governments to generate their own revenue from the natural forest resource.

In 2002, recognizing the instability that decentralization had caused for the country's forest sector, the central government repealed the right of district governments to issue cutting permits. Under a phasing-out period, all locally issued cutting permits should have been finished by September 2004.

More recently, the government has launched countrywide initiatives to deal with the most rampant aspects of illegal logging, with a considerable measure of success.

Domestic demand and local lumber prices

Indonesia, with a population of over 240 million people, consumes a lot of wood, although no one really knows how much. More significantly, no one seems to have given much thought as to where this wood comes from.

A number of studies have attempted to estimate domestic wood consumption (Brown 2000; Tacconi, Obidzinski and Agung 2004). In syntheses of available data, URS Forestry (2002) and the World Bank (2005) estimated the round log volume to be approximately 10 million m³.



Somewhat surprisingly, the repeal of locally issued cutting permits and the recent curtailment of illegal logging has had little impact on lumber prices for the domestic consumer. This indicates that the informal lines of supply to the domestic market existed long before the upheavals of the decentralization initiatives of 1999–2002 and the more recent crack-down on illegal logging. More significantly, it indicates that these lines of supply are still in place.

In rural Indonesia, outside the island of Java, lumber does not seem to be in short supply and most houses are made of wood. In the Javanese countryside, wood is often not the preferred house construction material, probably because suitable lumber is not readily available. In the major cities of Jakarta, however, thousands of small material supply shops are well stocked with the major timber species that are found only in the natural forests of Kalimantan and Sumatra.



In order to better understand where this wood comes from, the Tropical Forest Foundation (TFF) collected some sample prices from wholesalers in the old port area of Sunda Kelapa,⁴ where the traditional *kapal kayu* boats off-load rough-sawn lumber from Kalimantan and Sumatra. TFF also

collected price data from a sampling of retail building material supply shops throughout West, South and East Jakarta. It is the wholesale prices that are of the greater interest since they are closest to what a concession-based sawmill could expect to receive on the local market from its sale of lumber.

On Jalan Khalibaru, in the old port of Jakarta, wholesale prices of meranti, bankirai and keruing rough-sawn lumber varies from around Rp 1,150,000 to Rp 1,250,000 per m³, depending on dimensions. Kamper lumber prices were almost double this amount. Using an exchange rate of Rp 9,800: US\$1 and a median price of Rp 1,250,000, we can assume that the wholesale price for mixed tropical hardwood at the port of Jakarta is approximately US\$127/m³.⁵

Logging costs

The basic question now is whether a legally licensed concession, operating within the country's regulatory framework and paying all taxes, royalties and fees, can produce lumber to be sold domestically at a profit, at the wholesale price of US\$127/m³.

Two studies examined the production costs of an average sized concession and its affiliated sawmill. In 2002, the World Bank commissioned a study implemented by URS Forestry consultants (URS Forestry 2002). In 2003, the Association of Indonesian Concession Holders (APHI), together with the Faculty of Forestry at the Institut Pertanian Bogor (Bogor Agricultural University), conducted a questionnaire-based study involving more than 20 concessions.

Although cost categories are not all directly comparable, the total cost estimates in the two studies are quite similar. Averaging the totals from the two studies and allowing for a conservative 5% cost increase over time provides an average delivered log cost of approximately US\$88.6/m³ at the mill gate.

Table 1. Cost of log production from two studies (US\$/m³)

component	World Bank, 2002	APHI, 2003*
harvest planning	0.28	1.10
pre-harvest operations	0.63	0
infrastructure construction and maintenance	8.22	13.53
harvesting	28.46	30.59
post-harvest operations	4.29	1.66
administration (monitoring and security)	2.78	0.27
formal taxes	23.87	36.12
informal taxes	16.94	—
total	85.47	83.27

*Note: APHI and World Bank values were converted to US\$ at the exchange rate at the time of the study (Rp 8,500).

Sawmilling costs

During TFF's sampling of lumber prices in Jakarta, both at the wholesaler and retailer level, it was noted that both chainsaw milled and sawmill cut lumber were available. Since regulations do not permit chainsaw milling, at least half of the lumber can be considered to come from unregulated sources.

Chainsaw-milled lumber is much cheaper to produce. Furthermore, conventional sawmill costs are readily available, whereas chainsaw milling costs have not been studied in Indonesia. It was, therefore, considered more relevant to do an analysis based on conventional sawmill technology.

Few sawmills achieve more than a 40% recovery rate for rough-sawn lumber. Given a 40% conversion return for the delivered round log cost of US\$88.6/m³, the equivalent cost for the sawn lumber is US\$221.5/m³.

Sawmilling costs are conservatively estimated at US\$25/m³. Table 2 provides a summary of production costs, allowing for a 10% profit margin and a nominal transportation cost from Kalimantan to Jakarta.

Given that the actual wholesale selling price of rough-sawn lumber in the Port of Jakarta is approximately \$127/m³ and, assuming that production cost estimates are reasonably accurate, only one conclusion is possible: tropical hardwood lumber that is readily available in the major cities of Indonesia cannot possibly originate from the country's legally licensed forest concessions and their associated industries. For legally sourced and produced lumber to be available in Jakarta, the selling price would have to be at least \$273/m³. In other words, the existing lumber price would have to increase by at least 114%.

Table 2. Summary of production costs, conventional sawmill (US\$/m³)

cost	amount	note
delivered log cost	221.48	converted to sawn wood equivalent
sawmilling cost	25.00	
total production cost	246.48	
10% profit margin	24.65	
shipping cost	2.00	
indicated selling price	273.13	wholesale at Port of Jakarta

A similar analysis could be performed for the plywood export industry. Given the much higher prices of plywood on the international markets and the higher recovery rates, it is clear that the country's plywood factories, which utilize logs from legally licensed concessions, can stay in business only if they export the majority of their production at international prices.

Policy implications

This analysis leads to several policy implications:

- The Ministry of Forests has now effectively reclaimed the sole right to issue concession licences and set annual cutting quotas. Very little of the country's log supply can now be legally harvested without a licence issued by the Ministry of Forests.
- The government has designated almost the entire annual harvesting quota in the country's natural forests for conversion into finished products for export.
- The domestic demand is approximately 10 million m³ of roundwood per year (Brown 2009).
- There is no regulatory mechanism in place for lumber produced for the domestic market and no attempt to ensure that this timber is being harvested according to any principles of sustainability. In fact, according to the government's own legal arrangements, most of the domestic consumption originating from the country's natural forests is being harvested outside of the regulatory framework.

Recommendation

For more than 30 years, the Government of Indonesia⁶ has ignored this "black hole" of domestic wood production in the context of the regulatory framework. Although the government has recently started moving towards sustainable forest management, the country's natural production forests have shrunk from 64 million ha to an estimated 43.9 million hectares.⁷

As long as the government ignores the need to regulate and sustainably manage the forests that supply wood to the domestic market, Indonesia's forests will continue to shrink and sustainable forest management will remain an unachievable goal. Furthermore, any effort to control illegal logging will meet strong resistance when it affects the wood demand and supply lines that feed the local market.

The financial resources required to develop solutions should not be the major constraining factor. Institutions, responsible private sector companies and local administrations and communities are willing to explore different approaches in order to develop mechanisms that will allow natural forest areas to be managed and harvested sustainably while supplying the domestic demand for lumber.

It is clear that the existing regulations and fees are inappropriate. They cannot be used as the basis for exploring new models of forest management and regulations to sustainably manage natural forests for the domestic market.



Although the export-orientated forest concession system will, and should remain, as the core of Indonesia's natural forest management, new models need to be explored if the country is to achieve any semblance of overall sustainability for its natural forests.

The Ministry of Forests needs to encourage experimentation in this field and should allow different approaches to be applied commensurate with local situations. This will require a great deal of flexibility in terms of easing the existing regulatory framework. It will also require innovative partnerships between private sector companies, NGOs, government and international donors to monitor outcomes and apply lessons learned.

At this stage, there must be a willingness to find solutions, and the flexibility to allow such solutions to evolve. There are ample willing partners.

For more information

For information on the issues raised by this article, contact tff@cbn.net.id. For an overview of the Tropical Forest Foundation's work in Indonesia, visit www.tff-indonesia.org.

Endnotes

1. TPT is *Tebang Pilih Tanaman*/Selective Cutting System.
2. TPTI is *Tebang Pilih Tanaman Indonesia*, a selective cutting and planting system.
3. Indonesia's transmigration program was used to settle landless farmers, mainly from Java, to the less developed outer islands.
4. Data for this article was collected by the Tropical Forest Foundation in 2005. Although costs and prices have changed since then, the underlying premise of the article remains valid.
5. A survey of prices and costs was carried out by TFF in 2005. Although current prices have risen, the overall imbalance between cost and selling price on the domestic market is still relevant today.
6. The Ministry of Forests issues the concession licences and the Ministry of Industry and Trade issues the licence to establish a manufacturing industry.
7. Data from 2003 were published in *Data strategis Kehutanan*, Department Kehutanan, 2004.

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