1.3 Plantation forests: an economic driver for upland communities in the Philippines

DAVID KING

Introduction

The development model described here is based on the collective experience of the founders of GEA Timber Ventures Inc.¹ in the forestry, agriculture, natural resource and rural development sectors. This article focuses on experience in the Philippines, but is applicable to many tropical Southeast Asian countries. The model has four key components:

- Sustainable development needs a long-term economic driver to remain viable. For many upland areas of Southeast Asia commercial forest plantations can be this driver.
- Integrated land use is an essential part of the process. With plantation forest as the primary long-term economic driver, other critical issues — such as establishing conservation forest and enhancing remnant natural forest; planting agriculture crops and other types of land use, such as housing and sacred sites — can be identified.
- Most forestry development projects channeled through government agencies have had difficulties in implementation. There are a number of reasons for this but prime among them are (a) a lack of long-term funding meant that one cycle of plantation could not be completed; (b) the project scope far exceeded the capacity of government; (c) the project design included NGOs and consultants whose inputs and timing were not conditional on baseline work being completed; and (d) de facto forest ownership remained with government.²
- Governments are unskilled at managing natural resources and generally do not distinguish between land ownership and usufruct rights. Tree growers are not rewarded for commitment and competent management; i.e., they do not “own” the project. Ownership of the land and the resource (tree crop) must be treated as separate components, with a legal agreement covering planting to harvest. Agreements of this nature have not been used in most countries in Southeast Asia.

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**Why plantation forests?**

Most of the land in question was originally natural forest. It is generally rolling to steep, with some slopes exceeding 18 degrees. In this tropical environment rainfall exceeds 3,000 mm, most of which falls as rainstorms lasting an hour or two but of high intensity. Any land-use based on annual agricultural crops leads to soil erosion and land degradation. In many of the areas remnant forest roads still exist, which provide access to re-establish plantations.

Environmental lobby groups have for many years opposed the cutting of natural forest. This view has been widely known and has created a commonly held public opinion that the cutting of forest trees is environmentally damaging and should not be allowed. There has been little if any public presentation of options outlining the role of plantations. The existence of plantations also reduces the need to harvest old-growth forest. New Zealand and Australia, for example, have strong, viable forest product sectors based on plantation forests.

The Food and Agriculture Organization (FAO)\(^3\) highlights the strong demand for forest products, citing an expected annual growth of 26%. Asia is predicted to be a net importer of forest products for the next 20 years.

Plantation-sourced lumber is predicted to exceed native forest-sourced lumber by 2040. Plantations have more uniform yield and higher quality while native forests have increased cost and access restrictions.

Tropical environments have ideal conditions of moisture, temperature and soils for rapid woody biomass growth. This allows plantation forests to be established and harvested about 2.5 times faster than plantations in temperate environments. From 1992 to 2000 the Australian Centre for Agricultural Research (ACIAR) undertook a series of trials to evaluate species suitable for use in plantations in the Philippines, assessing their nutritional needs, growth habits and fire resistance. Although this research provides a comprehensive technical base to support a plantation industry,\(^4\) only 300,000 hectares (ha) of plantation forests have been established in the Philippines.

**The decline of natural forests**

Like most of Southeast Asia, the Philippines was richly endowed with over 15 million ha of closed canopy (mainly Dipterocarp) rainforest. The regalian doctrine introduced during the 1600s under Spanish colonial rule and continued under American commonwealth governance placed all natural resources, including forests, under government control.

Commercial exploitation of the forests began with the Spanish. It provided materials for housing, religious structures and the construction of ships. With the transfer of colonial power from Spain to the United States in the early 1900s a number of American companies began logging and milling operations across the archipelago. Timber licence agreements (TLAs) allocated large tracts of forest (each TLA covering between 50,000 to 200,000 ha) to these companies for the extraction of commercial lumber.
In the four decades after World War II there was a massive increase in the exploitation of primary forest. As late as 1975 the gross value added (GVA) of the forestry sector was 1,265 or 1.85% of the Gross National Product (GNP), which was then 68.28 billion pesos (see Endnote 8). Since then, the forestry sector’s share of GNP has consistently decreased; in 2008 it was only 0.09%. In 2011 the government, through Executive Order EO23, imposed a ban on the exploitation of natural forest.

Although TLAs required a forest management plan, weak government oversight led to overcutting and the opening up of the canopy. This extended the time required for natural regeneration. The access roads built by the foresters allowed landless lowland groups to invade many of the upland areas. These groups used slash-and-burn techniques to clear the remaining trees and planted agricultural crops such as upland rice, maize, ginger and vegetables. The tilling of crops on steep slopes and the lack of appropriate land conservation practices has caused a rapid increase in land degradation. It has also led to a constant need to clear new areas with better natural fertility in order to shorten the rotation cycle. The combination of these factors has reduced the closed canopy forest cover from 15 million ha to 2.5 million ha. The balance of the previously closed canopy forest now comprises 5.0 million ha of open secondary forest and more than 7.0 million ha of grass and shrubland.

The Indigenous Peoples Rights Act of 1997

One major effect of the regalian doctrine was to marginalize many indigenous people (IP) living in upland regions of the Philippine archipelago. Indigenous communities traditionally occupied or used approximately ten million ha of land, much of which was affected by the logging practices undertaken under TLAs. This had a major impact on the IP communities, leaving many of them without recourse to their traditional sources of food, shelter and non-timber forest products. These IP groups occupy the lowest percentiles in all socio-economic statistics related to health, education and access to clean water. A World Bank Study found that 41% of indigenous people had no access to schools or health facilities and 77% of them had to get water from open non-potable sources.

In 1995 Republic Act No. 8371, commonly known as the IPRA law, introduced land rights based on ancestral domain of indigenous groups. Ancestral domain claims, where proved, can be delineated and issued a Certificate of Ancestral Domain Title (CADT). CADTs have been granted for approximately 1,700,000 ha of IP land. This gives indigenous groups ownership of their land with the right to develop it in accordance with the IPRA law. It also gives investors security of land tenure. This allows long-term, legally binding development plans to be negotiated between investors and land-owners.
The development model

GEA Timber Ventures was established in April 2010 to establish commercial plantation forests on private land. Initially GEA partnered with private-sector groups and individuals, but expansion required additional capital and it added joint venture and service agreements (Box 1). Lessons from several forestry programmes and land covered by the IPRA law influenced the design:

- active participation by all stakeholders is imperative;
- reward sharing must be equitable and transparent;
- sustainability relies on sequential planting; and
- well-managed plantations can fund long-term land-use and development plans that include regeneration of natural forest, livelihoods and social development.

Box 1. How the process works

1. Initial discussions determine group interest and establish a framework for subsequent actions.

2. A copy of the CADT is obtained by the community elders and forms the basis for all following transactions with GEA.

3. A comprehensive land-use plan is developed in consultation with community elders. It delineates areas for agriculture, agro-forestry, commercial plantation forest, protected native forest areas, rehabilitation of remnant native forest, and sacred sites.

4. A sharing agreement and management plan is prepared and approved by the council of elders. This usually comprises a long-term lease on the land (25 years, with an option to renew; payment for planting and maintaining the forest, and establishment of a social development fund to provide short-term income. The social development fund will be used to develop livelihood projects approved by the council of elders.

5. Institutional capacity and capability is built in the community. This requires considerable time and expertise to develop and in the long term will cover management and business skills. Short-term skill training includes cloning and potting, maintenance of nursery products, planting and maintenance, preparation of potting mix, basic bookkeeping and record keeping.

The strategy is to sequentially plant commercial forest plantations of sufficient scale to provide employment and income in perpetuity. Sequential planting is key to sustainability. Once the first planting is mature at the end of the eighth to tenth year then each subsequent year the harvest will be repeated. In the case of many fast-growing trees, the second crop can be harvested by coppicing and requires no new planting.

The model operates as a partnership between landowners, investors and managers. Titled land is preferred because it provides the legal basis for lease, harvesting and profit-sharing agreements. The government focus is on policy and regulation.
Partnership with IP groups on CADT-designated land is worthwhile for the following reasons:

- IPs are minorities who previously had no formal rights to their land. The IPRA law provides the opportunity for these groups to develop sustainable economic options on their own land.
- Most of these areas are open grassland and degraded forestlands, with remnants of indigenous forest in steep valleys.
- CADTs cover extensive areas (5,000 ha to 70,000 ha), making them suitable for commercial forests.
- Plantation forest introduces a technology compatible with IP cultural values.

The income is held in trust for the IP communities. It is used to meet development needs; expand the plantation; protect and interplant remnant areas of natural forest; maintain the forest as a registered carbon sink; and restore the landscape and reduce runoff, erosion and downstream sedimentation.

The tasks carried out in Box 1 result in an Ancestral Domain Sustainable Development and Protection Plan. Copies of the plan are sent to government agencies and the community and are the basis by which progress can be monitored.

Cost/benefit sharing for stakeholders

Plantation forests in the tropics are capital intensive and most of the capital is required at the beginning of the project. The cost to establish and maintain one hectare of forest from planting to harvest, a period of nine years, is approximately US$ 5,972. This comprises all costs, including labour, management, maintenance, silviculture, fertilizer, insurance and fire protection. Using current prices and a conservative yield for trees cloned from superior germplasm, gross revenue is estimated to be US$ 33,445 per ha.\(^8\)

Benefits

These stakeholders share the benefits of the project:

- investor/fund provider — benefits are received when the timber matures (at the end of eight years);
- land-owner (people’s organization/indigenous people) — benefits consist of lease payments, workers’ wages and livelihood provisions of the project, (such as water supply, schools and roads) and a share of the timber revenue; and
- the provider of management and technical services (in this case, GEA Timber Ventures, Inc.) — benefits consist of the management fee and a share of the timber revenue.

The costs of plantation development and provision of technical and management services are shared as follows: 85% to land-owners/workers and 15% to the service provider.
Revenue

Trees will be planted at the rate of 556 per ha and are expected to yield at least 400 m³ of millable timber at the end of eight years. The timber will be valued at US$ 84/m³ at stump, but harvest and transport costs of 15% will be deducted to determine the value at roadside. Of the total revenue, 70% goes to the investor/fund provider; 10% goes to land-owners/workers; and 20% goes to the provider of management and technical services (Figure 1).

Figure 1. Revenue sharing of stakeholders

Note: Because the stakeholders receive revenue at different times, the revenue stream has been discounted and expressed as Net Present Value (NPV). The discount rate used in computing NPV is 10%.

The distribution of benefits is shown in Table 1.

Table 1. Total benefits expressed as Net Present Value

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Benefits (US$)*</th>
<th>Percent of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>investor/fund provider</td>
<td>8,938</td>
<td>50.9</td>
</tr>
<tr>
<td>land-owner/worker</td>
<td>5,518</td>
<td>31.3</td>
</tr>
<tr>
<td>provider of management and technical services</td>
<td>3,161</td>
<td>18.0</td>
</tr>
<tr>
<td>total</td>
<td>17,617</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Note: Benefits are discounted at 10%.

Implementation

To demonstrate the effectiveness of the development model GEA Timber Ventures invested with IPs on a CADT to plant 50 ha of plantation at Bamban, Tarlac Province, Luzon Region. Funding was sourced internally by GEA directors. GEA also established a ten-ha clonal nursery using material sourced from strains identified from the ACIAR research programme. Following the successful establishment of the first 35 ha of plantation several new investors committed to invest in the model. The plantation of each investor surveyed and mapped within the CADT using GPS coordinates. GEA provides
information to the investor on the species, date and number of trees planted. Photo points are established to demonstrate growth over time. Details of annual planting programmes are provided to the relevant government agencies.

Small-scale private investors seek a reliable investment over ten years, usually as an education or retirement fund. These investments typically cover an area ranging from 1 to 15 ha. The Manila office of Capgemini, a French IT company, has negotiated to plant one ha annually as part of its local Corporate Social Responsibility (CSR) program. When the timber is harvested the revenue can be used by Capgemini to fund new or existing CSR programmes or expand its existing forest.

Mining companies have been increasingly interest to invest. A nickel mine in Zambales province has commenced a trial planting of ten ha at its mine site as a land rehabilitation trial. Oceanagold Philippines Inc., operating in Nueva Viscaya, has committed to invest in 2,000 ha of plantation with local communities affected by mining activities. The plan is to establish a parallel economy so that when mines close the local communities have an alternative sustainable source of revenue. The funding is sourced from the mining group’s environmental compliance programme. GEA is currently planting the first 100 ha of this initiative.

Risks

**Political**

There is a risk to working directly with community owners rather than government. There is a long history of rent-seeking behaviour to overcome. Other issues include obtaining permits for harvest and transport and checkpoints from many agencies during transport. Establishing chain of custody (CoC) documentation from planting to harvest is one way to minimize these issues. GEA prepares these documents with each planting and provides copies to all agencies who will be involved in the process. Links with local government are important to ensure the plantation has a development goal in common with the government.

**Marginalized IPs**

Many IP groups have had little if any political representation and remain largely invisible to government agencies and programmes. Developing their capability is an essential component of the development process. Comprehensive plans for land use, agriculture, conservation and commercial forestry must be developed and agreed to.

A range of activities is needed as part of the development process. Activities include training across a range of skills and support for social infrastructure such as schools, health centres and water storage. This is an added project cost.
Opportunities

Short-term
In the short term the main opportunity is to create awareness of the potential for plantation forests in the Philippines. There is a lack of industry promotion and a huge knowledge gap by investment groups who should be considering forestry. For example, local representatives of global insurance companies, local pension funds and even private investors have no concept of plantation forests and their potential.

When forests are established employment creation is immediate and obvious. This is especially the case where sequential annual plantings allow for the building of experienced teams, long-term employment and economic activity in the IP community.

Long-term
A sustainable plantation forest industry that services the nation can be developed. GEA's experience suggests that this must be established primarily through an involved private sector. Government will be involved through policy and regulations, but experience indicates that the Philippine government is ill equipped to plant and manage forests.

At the local level the long-term impact of allowing IP groups to develop and manage their own future will be profound. Employment and profit sharing encourage IPs to commit to the project and encourages them to develop social, environmental, technical and political skills that are useful in the broader community.

Future prospects
Can the Philippines become an exporter of high-quality timber? The once vibrant forestry industry has not met the challenge of investing in plantations. Harvesting from indigenous forest or importing from other countries in the region remains the default thinking of the wood-processing industry. GEA believes that a significant plantation-based timber industry can provide commercial, social and environmental benefits over much of the seven million ha of degraded upland areas. The southern island of Mindanao — with a double monsoon climate, no typhoons and basaltic volcanic soils — is a particular area of opportunity.

Government has established policies for industrial tree plantations and community-based forest management that give potential investors the right to establish large areas for plantations. The Public Private Partnerships (PPP) policy of the current government, which promotes funding for long-term projects, is another support for plantations.

During the U.S. commonwealth government period all the state and national universities in the Philippines received land grants ranging from 5,000 to 70,000 ha. Generally, these areas were forests but they have not been managed as intended. GEA is currently
exploring the use of the PPP programme to fund the planting and management of tracts of land-grant forestlands owned by several of the state universities.

Globally, pension funds are the major owners of many plantation forests. For example, Manulife Financial of Canada owns a 245,000-ha forest in Victoria, Australia. Pension funds of the California Teachers Union, Harvard Business School and Ontario teachers’ union own substantial forests in New Zealand. Many of the major insurance companies and fund managers — such as Manulife, Sunlife, Axa, Generali, Prudential Life and Philam Life — have offices in the Philippines. GEA believes these groups could provide leadership in the future funding and expansion of forest plantations.

Philanthropic organizations such as the Buffet Foundation, Bill & Melinda Gates Foundation and several similar bodies will be approached by GEA in the coming year. The attraction for these groups is that once the investment is made it can be managed by the country or region to fund future programmes with the income derived from the plantations.

Acknowledgements
David King was assisted by contributions from fellow directors Oscar Gendrano, forester; Marcus Napud, economist; and Dr. Antonio Perez, agricultural scientist.

Endnotes
1. For a more complete description see www.geatimberventures.com.
4. See Bringing Back Trees to the Philippines, Research Notes RN24 12/00, ACIAR.
8. As of July 2012 the exchange rate of the Philippine peso to the US dollar was 41.86:1.