POLICY BRIEF

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Designing Forestation Models for Rural Asia: Avoiding Land Conflict as a Key to Success

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Partly due to the worldwide upsurge in industrial demand for timber, the number of planted forests has increased ten-fold in the last 20 years. These planted forests currently comprise only about 5% of the world's forest area, but supply 35% of industrial logs and have critical roles to play in releasing pressure on natural forests, mitigating climate change, assisting people's livelihoods and contributing to national policies of development.

Just over 60% of the world's planted forests are now located in Asia. The rapid expansion of planted forest cover in the region in recent years is due largely to large-scale forestation programmes, especially in China, Viet Nam and India. However, planted forests are often troubled by social conflict, especially when they prohibit rural households from using land important to their livelihoods. Even when local people are enlisted by the state to participate in government-led planting programmes, strict control of their land-use options tends to undermine their enthusiasm for maintaining the planted forest lots.

Avoiding land conflict and encouraging enthusiasm for planting amongst local people are critical to the sustainable management of planted forests.

Locust trees destroyed through arson caused by local population during land conflict (Sumatra, Indonesia)

This requires a reconsideration of existing company managed and government-led forestation models and greater state support for contract-type (between local people and companies) and people-centred approaches. This does not negate the importance of governments and private companies in promoting planted forest development, but it does open up space for local people to influence and benefit from plantation design and management.

### Rapid Acceleration of Planted Forest Establishment in Asia

To mitigate global warming and conserve biodiversity by releasing economic pressure on natural forests, it is critical that governments take steps to increase the area of planted forests. According to FAO (2006), the global area of planted forests grew more than ten-fold over the past 20 years. The total area of planted forests has grown rapidly, largely because the area of accessible natural forests is declining at a time when human demand for timber is increasing. Currently, planted forests comprise only 5% of the total world's forested area, yet they supply 35% of industrial logs[1].

[1] ABARE, Jaakko Poyry. 1999. *Global outlook for plantations*. ABARE Research Report 99 (9). Canberra, Australia.

Many countries are implementing forestation policies to meet the needs of their expanding economies, to attract foreign direct investment and earn foreign revenue, and to restore degraded lands. The Asia-Pacific region has the highest rate of increase, accounting for 61% of the global planted forest cover in 2001 (Figure 1)[2]. Among the six countries with the greatest annual increase in planted forest area from 2000-2005, four are located in Asia (Table 1).

Figure 1: Global distribution of forest plantations by regions in 2000
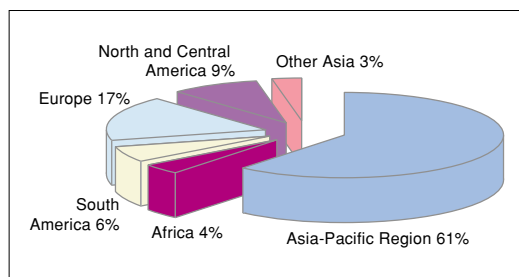
Source: FAO (2001)

Table 1: Top six countries with largest increase of planted forest cover and comparison with selected Asian countries

Rank	Countries	Annual change of planted forest cover, 2000-2005 (000 ha)	Total planted forest cover, 2005 (000 ha)	Forest cover 2005 (000, ha)	Forest cover as % of land area	Annual change of forest area (000 ha/ %)
1	China	1,489.0	31,369	197,290	21.2	4,058(2.2)
2	Russia	320.4	16,962	808,790	47.9	-96(n.s.)
3	US	157.4	17,061	303,089	33.1	159(0.1)
4	Viet Nam	129.0	2,695	12,931	39.7	241(2.0)
5	India	84.2	3,226	67,701	22.8	29(n.s.)
6	Indonesia	79.4	3,399	88,495	48.8	-1,871(-2.0)
Selected Asian countries						
	Lao PDR	25.0	224	16,142	69.9	-78(-0.5)
	Thailand	4.4	3,099	14,520	28.4	-59(-0.4)
	The Philippines	-46.4	620	7,162	24.0	-157(-2.1)
	Malaysia	-17.2	1,573	20,890	63.6	-140(-0.7)
	Cambodia	-2.6	59	10,447	59.2	-219(-2.0)
	Japan	-2.0	10,321	24,868	68.2	-2(n.s.)

Source: FAO (2006)[3]

While it is promising that tree planting is progressing rapidly in Asia, planted forests can be a source of much contention. Their establishment may violate the traditional resource and land-use rights of local people. Consequently, there are many cases of opposition from local people developing into serious localised disputes. The land that is planted may include places used by the local people as part of their livelihood strategies or may have special cultural value to them. What appears to the central planners to be vacant, unused land may in fact be of considerable importance to segments of the local population. The key to promoting forestation in this setting is to avoid land conflict by securing the rights and the livelihoods of the local people in planted forest design.

Secondary forest cleared by plantation companies (Lao PDR)

[2] FAO. 2001. *Global forest resources assessment 2000 - Main report.* Forestry paper 140. Rome: FAO.
[3] FAO. 2006. *Global forest resources assessment 2005.* Forestry Paper 147. Rome: FAO.

Five Types of Forestation in Asia

To make sense of the diversity of approaches to planted forest establishment and management in Asia, we can identify three main categories by nature of their major features - commercial forestation, government-led forestation, and people-centred forestation - which are mapped out in Figure 2.

The classification system we use involves a necessary degree of generalisation, but it provides a useful analytical tool for investigating the causal relationship between planted forests and local conflict. In Figure 2, the horizontal axis represents the degree of voluntary involvement of local people in forestation, which increases to the right. The vertical axis represents the degree of public assistance, which rises on the axis in line with an increasing degree of financial support by central, regional or local governments (through subsidies, tax incentives, or public loans).

Figure 2: Forestation Types in Asia
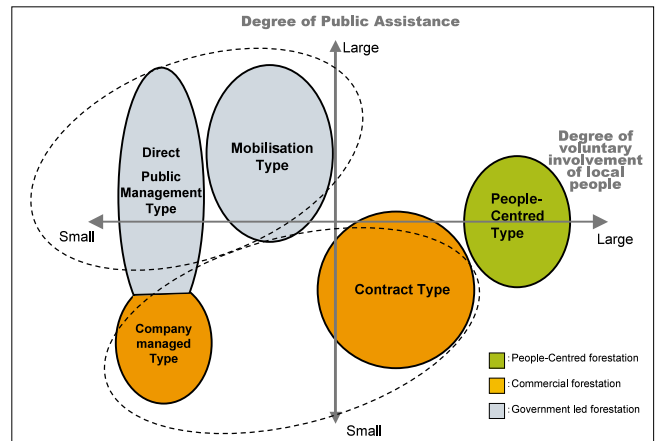
Prepared by authors

Through this mapping system, five prototypes of forestation are projected - "company managed type", "contract type", "direct public management type", "mobilisation type" and "people-centred type."

(i)   *Company managed* – characterised by industry directly managing privately-owned forest land or leased public land. To maximise economies of scale, plantations are often large and local people are hired as labour.

(ii) *Contract* – driven by commercial motives. Local people plant trees according to contracts signed with private or public enterprises (public corporations). Land-use rights are maintained by local people. Role of enterprise mainly on the demand side, by purchasing the produced timber on contract basis, but can provide inputs such as seedlings, advice and credit.

(iii) *Direct public management* – public administration or public enterprise establishes the planted forest and is directly responsible for its management. It has rights over all income from the forest and retains post-harvesting rights. Traditional local land-use rights probably not respected.

(iv) *Mobilisation* – characterised by environmental objectives, public financing based on forest plans and mobilisation of rural population. Local people share forest use and income rights but land-use rights are limited.

(v)   *People-centred* – Local people have both land-use and management rights. Forestry carried out by groups or individuals, according to their interests, which may be environmental and/or production-oriented. Government subsidised forestry possible, but management decision made by local people.

Each of these five forestation types can succeed from economic, social and environmental perspectives, but we have found that some are better suited to the social conditions commonly found in the rural sector of Asian developing countries than others. This policy brief outlines the merits and risks of each type before discussing their suitability to Asian contexts.

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Commercial forestation in Asia

■ The company managed type model and its limitations

The "company managed type" has become highly contentious. Large-scale commercial forestation is said to have benefits such as the easing of pressure on natural forests, carbon sequestration, higher per hectare growth rates than natural forests, employment generation and a means of earning foreign currency. Critics, however, point out that the rights and claims of local people are often ignored, natural forest may be cleared to establish plantations, monoculture forestation is susceptible to pests and diseases, and some commercial species can cause water tables to fall and deplete soils.

Company-led Albizia monoculture forestation (Sumatra, Indonesia)

Many examples of localised conflict in Asia that was incited by the "company managed type" can be cited. In Indonesia, in 1985 the government drew up the HTI Project (*Hutan Tanaman Industri,* in Indonesian) to establish 6.32 million ha of planted forests by 2000, with companies as the main actors in this industrial forestation programme. Less than three million ha were established by 2002. The HTI Project suffered from opposition by local people who protested land enclosure by companies.[4] Moreover, in Indonesia there are many examples of the burning of secondary forests, in which biomass remains abundant, for their conversion to Acacia and Eucalyptus monoculture forestation. This has been widely opposed by NGOs concerned with biodiversity and wildlife protection.

The "company managed type" is driven by the profit motive; accessible, gently sloping locations with suitable soils are the most sought after. However these are also areas important for local people whose livelihoods depend on agriculture and forests. In the Philippines, industrial forestation is barely progressing because, in addition to land conflict, it is a volcanic island chain comprising mostly steeply sloping land, so plantation establishment is not attractive to companies in an era when lumber is freely traded across borders.[5]

In China and Viet Nam, forestation for pulp production involving multinational corporations is progressing rapidly. China plans to establish 13.3 million ha of planted forest by 2015 under its "Fast Wood Plantation Programme" and Viet Nam plans to establish three million ha of industrial forests by 2010 as part of its "Five Million Hectares Reforestation Program." However, both of these programmes have been troubled by concerns over land conflict. In the case of China, most land targeted for forestation is the collective land of villages. Companies must thus negotiate and conclude a contract with each village, which adds to the cost of plantation establishment. Eventually, this may raise the possibility of coercive land acquisition in cooperation with authorities to keep costs down. Such coercion by commercial forestation can be found in many countries in the region.[6]

4 Nawir, Ani Adiwinata, L. Santoso and I. Mudhofar. 2003. *Towards mutually-beneficial company-community partnerships in timber plantation: Lessons learnt from Indonesia.* CIFOR Working Paper No. 26. CIFOR: Bogor.

5 Shimamoto, M, F. Ubukata and Y. Seki. 2004. "Forest sustainability and the free trade of forest products: Cases from Southeast Asia." *Ecological Economics.* 50: 23-34.

6 Brown and Durst (2003) State of forestry in Asia and the Pacific - 2003 Status, changes and trends, FAO p.50.

■ Shift toward contract type forestation

Recognition of these shortcomings of the "company managed type" led to increased support for "contract type" forestation. This approach provides for greater benefits to local people and recognises their land-use rights, while companies are still able to meet their lumber requirements. Thailand presents an example of a transition from the company managed type to the contract type of forestation. Private company-led, large-scale forestation programmes in the second half of the 1980s resulted in land conflict. In response, the Thai government temporarily prohibited tree plantation establishment by private companies, who were forced to seek alternative, more socially acceptable forestation approaches. They shifted to a contract type model, known as the Contract Tree Farming (CTF) system, under which small-scale farmers grow Eucalyptus for purchase by companies. This significantly reduced land conflict. Based on this positive experience some companies operating in Lao PDR are beginning to introduce the Thai CTF system into their forestation projects.

Contract tree plantation (Lao PDR)

In India, tree planting on private land is increasing and private forests now comprise 8% of all forests. The central government prohibited the purchasing or leasing of forest land by private companies. Based on contracts, companies provide farmers with (originally) free or (more recently) subsidised seedlings, and have later a pre-emption right to purchase the timber from the farmers. This model has reduced land conflict.

However, independent evaluations of the "contract type" model have pointed out some possible shortcomings. Some researchers see the expansion of CTF in Thailand as a new way for companies and the government to strengthen their control of local people.[7] Others point out that in India the companies prefer dealing with large landholders who are able to deliver larger volumes of timber and require less support than smallholders.[8]

Moreover, contract type approaches that have not reached their objectives can be found. In Lao PDR, the Asian Development Bank funded Industrial Tree Plantation Programme (ITPP) is a contract type programme that provided low-interest loans to individual farm households in order to attract local people to participate in forestation. IGES research has found that because of insufficient technical guidance, participating households could not raise trees satisfactorily and are now burdened with having to pay back the interest and capital of the loans, despite having absolutely no revenue from the trees (Hyakumura, Preparation). Currently, almost none of the loans are being repaid.

In addition, under the contract type approach there is a risk of increased inequality as wealthier farmers may seek to accumulate land from smallholders. Therefore, the contract type model requires careful planning, including sufficient incentives for smallholders to participate and adequate institutional, technical and financial support for participating households.

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[7] Carrere, R. and L. Lohmann. 1996. *Pulping the South: Industrial tree plantations and the world paper economy*. London: Zed Books.

[8] Mayers J. and S. Vermeulen. 2002. India: Farm forestry kick-started by industry-farmer relationships. *In Company-community forestry partnerships. From raw deals to mutual gains?*, IIED. 45-54.

Government-Led Forestation in Asia

Government-led forestation comprises two models: a direct public management type and a mobilisation type.

Indonesia's Tumpang Sari, under which the government directly manages teak forests, is a typical example of the direct public management type of forestation. Conflict between the state and local people over land and resources is common in such approaches. Tumpang Sari has a strong element of exclusion by prohibiting local people from entering the teak plantations and there are frequent incidents of inhabitants clashing with forestry agents.

Set against this backdrop, in recent years the direct public management type has become less common in Asia, and the mobilisation type has become more mainstream.

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■ The mobilisation type forestation model and its limitations

China's Land Conversion Programme from Farmland to Forest, planned to cover a total of 32 million ha, is the world's largest government-led forestation programme. Farmers receive subsidies and food provisions from the government in return for converting their farmland on steeply sloping ground into forest. The government places a lot of pressure on farmers to participate in the programme, thus it can be classified as a mobilisation type approach. Under Viet Nam's Five Million Hectares Reforestation Program, local people are allocated land for establishing tree plantations and receive contracts

China's Land Conversion Programme from Farmland to Forest

for managing the two million ha of conservation forests and protection forests. This includes land originally used by local people for agriculture, including fallow land. Strong government intervention means that this too can be classified as a mobilisation type programme.

Under the mobilisation type forestation policies of China and Viet Nam, the state is promoting the conversion of farmland to forestland for environmental purposes by allocating food and subsidies. Their rates of forest cover increase are amongst the world's highest, so the mobilisation type approach in the two countries has certainly been effective in the initial stage of tree planting. However, the long-term sustainability of these programmes is in doubt. The allocation period for subsidies and food assistance is five years in Viet Nam and eight years in China. IGES research pointed out the possibility that once the term of assistance is over many farmers may return the land on which they established the planted forests back to agriculture.[9]

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The Land Conversion Programme from Farmland to Forests is a typical mobilisation approach in that the state has set in place strict controls, e.g. intercropping and pasturing in the forest lots are prohibited and the tree species to be planted are usually decided by the government. Such regulation undermines the enthusiasm of local people to properly manage the forests. IGES research indicates that if agroforestry was allowed and if tree varieties were selected by the participants, the sustainability of the programme and local livelihoods would both be enhanced.

In the Philippines, the many mobilisation types of forestation projects developed in the 1990s with ADB and Japanese financing largely failed. NGOs and

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[9] Seki, Y. and X. Hu. 2007. In the shadow of the Tuigeng Huanlin programme in China. In *Decentralisation and state-sponsored community forestry in Asia,* eds. H. Scheyvens, K. Hyakumura and Y. Seki. Institute for Global Environmental Strategies, Hayama, Japan. 184-9.

cooperatives received the contracts for the forestation projects, under which local people were merely mobilised as wage labour for three years. Thereafter, many local people burned the planted forests and returned the land to agriculture. IGES research found that a main reason why these forestation projects failed was that long-term management incentives were not sufficient to motivate local people.[10] Local people often possess unique knowledge about the suitability of tree varieties to local soil and climatic conditions as well as market demand for forest products. Tree plantation designs that allow local people to employ their knowledge would encourage local enthusiasm, improve livelihood security and enhance plantation sustainability.

Supporting People-Centred Forestation

Governments can also encourage and facilitate what we have termed the "people-centred forestation type". Community Forest Management (CFM) in the Indian state of Andhra Pradesh could serve as an example for a people-centred approach. Here, the Joint Forest Management (JFM) approach, which could be described as a mobilisation-type model, has evolved into CFM, which opens up space for greater community input. For example, the secretary, president and vice president of JFM forest protection committees must be local people and include women. The village councils (*panchayats*) and the local NGOs also now participate in decision-making on forest management. The role of the state's forest department is slowly changing from that of a manager and implementer to that of a facilitator.[11]

People-centred forestation types can be found in many parts of Asia, where they evolved spontaneously based on local knowledge without any government support. They mainly utilise forest products for subsistence and for sale at local markets.

Forestation by local people also has environmental advantages. Multiple species planted by households under agroforestry regimes that avoid pesticides and chemical fertilisers and maintain soil structure and nutrient levels, contributes to greater biodiversity than mono-crop, industrial plantations.

People-centred forestation can further diversify the livelihood portfolios of local people, enabling them to weather a greater degree of market price fluctuation than companies dependent solely on the profitability of commercial plantations, thereby increasing forest sustainability.

Farm forest established under local people's initiative (Tarlac, the Philippines)

However, under the people-centred forestation, the local elite may monopolise land ownership and use, thereby securing most of the benefits of local forestry. For the poor and marginalized households to benefit from the people-centred forestation, governments should provide a policy framework that creates opportunities and incentives for their participation.

Recommendations: reducing land conflict through participation

Creating opportunities for local people to contribute meaningfully to the design and management of planted forests is critical for reducing land conflict, achieving greater social equity and securing the sustainability of the planted forests.

[10] Seki, Y. 1999. The structural context of post-war forest loss and changes. In *Forest policy in the Philippines: A step toward forest conservation strategy (2) -interim report 1999.* IGES Forest Conservation Project. http://www.iges.or.jp/en/fc/phase1/interim2-contents.htm.

[11] Siagal, S., M. Borgoyary and P. Lal. 2007. Forest governance and participatory forestry in India. In *Decentralisation and state-sponsored community forestry in Asia,* eds. H. Scheyvens, K. Hyakumura and Y. Seki. Institute for Global Environmental Strategies, Hayama, Japan. 33-56.

● For commercial forestation, government to weigh up the cost and benefit of alternative models (company managed type and contract type) in designing their national forest policies.

The "company managed type" model is likely to be most appropriate in localities where local people do not depend heavily upon areas that the companies find attractive for planting. However, such localities are uncommon in Asia and even lands that are defined as degraded or secondary forest are often important for local livelihoods. Therefore, where forestation areas overlap with land used by local people, a contract type forestation model is preferable to a company managed type model. A contract approach can be superior from the viewpoints of social justice, biodiversity conservation, and sustainability. Nevertheless, contract type models require careful planning to be successful. Special attention needs to be paid to engaging smallholders, lest only large farmers capture the contracts, and providing participating households with well-designed technical and financial support.

● For government-led forestation – governments to allow local people to have input into programme design and management.

The mobilisation type model has proved effective in planting vast areas of marginal land that is unattractive to private investors. In practice, however, many mobilisation type forestation programmes that have environmental objectives are not attractive to communities due to highly adverse site conditions. Further more, these models have not succeeded in winning the support of participating local people because of strict controls on land use designed and imposed by the central authorities. To enhance the sustainability and equity of government-led forestation, governments should involve local people in forest management design to better reflect local needs and to draw upon local expertise.

Where it is financially profitable to plant trees, the national forest policy should allow forest departments the option of replacing government-led forestation with people centred models.

● For people-centred forestation – governments to play a supportive role and provide appropriate guidance

Under the people centred forestation model, local people can contribute to sustainable forest management through their motivation to plant trees and by drawing on their local knowledge. This people-centred forestation model tends to develop naturally without government support in areas where there are favourable market conditions and access to markets is relatively easy. However, where such favourable conditions do not exist, governments should consider encouraging the replication of existing people-centred approaches by means of infrastructure development, subsidies for tree planting, or by improving market access. In addition, for the people-centred model to be not only sustainable but also equitable, governments must facilitate the participation of socially marginalised groups.

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