

# Smallholder timber plantation development in Indonesia: what is preventing progress?

K. OBIDZINSKI and A. DERMAWAN

*Forests and Governance Programme, Center for International Forestry Research, PO Box 0113 BOCBD, Bogor 16000, Indonesia*

Email: k.obidzinski@cgiar.org and a.dermawan@cgiar.org

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## SUMMARY

This paper evaluates a community timber plantation programme in Indonesia called HTR (*Hutan Tanaman Rakyat*, community timber plantation). Launched in 2006, the programme seeks to establish over 5 million hectares of new plantations by 2016. Government authorities have offered a range of incentives including low interest loans, assistance with the acquisition of land, streamlined application procedures and simplified reporting on operations. Nearly four years later only a small fraction of the intended plantations have been established. Review of the policy content, incentives offered and financial profitability assumptions indicate significant policy design flaws and shortcomings in implementation. The policy also runs the risk of encouraging illegal forestry activities. We identify five policy adjustments that can potentially increase the success of the programme in the areas of financial feasibility, legal certainty, and transparency in land allocation and financing.

Keywords: timber plantations, small holders, policy implementation, Indonesia

## Développement des petites plantations de bois en Indonésie: raisons de l'arrêt du progrès

K. OBIDZINSKI et A. DERMAWAN

Cet article évalue un programme de plantation de bois communautaire en Indonésie, nommé HTR ( *Hutan Tanaman Rakyat*, plantation communautaire de bois) . Lancé en 2006, le programme cherche à établir de nouvelles plantations sur une surface de 5 millions d'hectares d'ici 2016. Les autorités gouvernementales ont offert un éventail généreux d'encouragement, qui incluent des prêts à taux faible, une aide à l'acquisition du terrain, des procédures d'application simplifiées, et des rapports simplifiés sur les opérations. Presque quatre ans après cette introduction, une portion minimale des plantations a été établie . Une analyse du contenu du projet, des encouragements offerts, et des espérances de profit financier indiquent des erreurs importantes dans la conception du projet, et des échecs dans sa mise en pratique. Cet projet risque également d'encourager les activités forestières illégales. Nous identifions cinq ajustements du projet qui pourraient potentiellement accroître le succès du programme dans les domaines de la viabilité financière, la certitude légale et la transparence dans l'allocation des terres et le financement.

## El desarrollo de plantaciones madereras por parte de minifundistas en Indonesia: ¿qué es lo que impide el progreso?

K. OBIDZINSKI y A. DERMAWAN

Este estudio evalúa un programa de plantación maderera comunitaria en Indonesia que se llama HTR (*Hutan Tanaman Rakyat*, plantación maderera comunitaria). Lanzado en 2006, el programa tiene como objetivo establecer alrededor de cinco millones de hectáreas de nuevas plantaciones para el año 2016. Con este propósito, las autoridades gubernamentales han ofrecido una amplia gama de estímulos, incluyendo préstamos a bajo interés, ayudas para la adquisición de parcelas, procedimientos de solicitud racionalizados y una simplificación de los requisitos en cuanto a los informes sobre las operaciones. Casi cuatro años después, sin embargo, sólo una pequeña parte de las plantaciones planeadas ha sido establecida en la realidad. Una revisión del contenido del programa, de los estímulos ofrecidos y de las suposiciones de rentabilidad financiera indica la existencia de defectos significativos en el diseño del programa y en su implementación. El programa también corre el riesgo de alentar las actividades silviculturales ilegales. Se identifican cinco modificaciones al programa que podrían potenciar su éxito en los campos de la viabilidad financiera, de la claridad legal y de la transparencia en la asignación de parcelas y el financiamiento.

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## INTRODUCTION

Indonesia's forestry sector is in the midst of crisis caused by the longstanding disparity between the high processing capacity of woodworking industries and the limited supply of timber. This supply–demand imbalance has been dogging Indonesia's forestry sector for decades and is the key structural problem that drives illegal logging and illegal timber trade in the country (Karsenty 2003, Obidzinski 2005, World Bank 2006a, 2006b). The structural problem of the supply–demand gap in Indonesia is also inextricably linked to governance problems that include corruption, legal uncertainty and poor law enforcement (Tacconi 2007, World Bank 2007).

The government of Indonesia has taken measures to deal with this problem by stepping up forest law enforcement operations across the country, listing illegal logging as a predicate crime under anti–money laundering legislature and signing bilateral coordination agreements (Tacconi *et al.* 2004, Jurgens 2006, Setiono and Hussein 2005). At the same time, the government has been seeking ways to increase the supply of timber in order to close the gap between the currently available legal supply and industrial demand for timber. In this context, accelerated development of timber plantations has become the strategy of choice, which is also intended to foster long-term development of Indonesia's wood-processing industry.

Timber plantation development for industrial purposes and for rehabilitation of degraded land has a long history in Indonesia. Large scale timber plantation development began in mid-1980s in recognition of expanding industrial demand for wood fiber and limited supply of timber from natural forests (Guizol and Aruan 2004). Over the two ensuing decades Indonesia embarked on extensive timber plantation development programme dominated by large scale plantations (*Hutan Tanaman Industri*, HTI). According to official statistics, by 2008 the cumulative area of timber plantations reached 4.3 million hectares, producing 22.3 million m<sup>3</sup> of timber (Ministry of Forestry 2009). Despite these achievements, the industrial demand for wood continues to outstrip the available supply (Manurung *et al.* 2007).

As a result, in 2006 the Ministry of Forestry (MoF) announced plans to accelerate the development of timber plantations with their long-term strategic plan for 2006–2025. The main focus of this plan is the revitalization of Indonesia's forest industries (MoF 2006a). The plan outlines several measures to increase domestic timber supply and restore the forestry sector's stature as the second most important source of government revenue and employment after mining (Bisnis Indonesia 2006b, Kompas 2006, MoF 2006a, Suara Pembaruan 2006, Sugiharto 2007e). Under this new policy, the government will establish 9 million hectares of new timber plantations by 2016 (Sinar Harapan 2006, Agro Indonesia 2007a). Of this total, approximately 5.4 million hectares will be smallholder community ventures called HTR (*Hutan Tanaman Rakyat*, community plantation forest). The remaining 3.6 million hectares will be developed

as HTI (Agro Indonesia 2007f, 2007g, Sugiharto 2007a, 2007b, 2007c).

The main component of this new policy, HTR, was planned for 102 districts in eight provinces in Kalimantan and Sumatra islands (MoF 2007a), but it was soon thereafter extended to all of Indonesia (Sugiharto 2007d, 2007j). During the initial phase from 2007 to 2010, the Indonesian government has planned to annually allocate up to 1.4 million hectares of land to approximately 90,000 families throughout the country. By 2010, 5.4 million hectares of land would have been allocated, and 1.97 million hectares would have been planted (see Table 1). Once productive, these new plantations are expected to produce enough raw material not only to bridge the current supply–demand gap but to spur growth in the timber industry sector (Kompas, 2006). Between 2007 and 2016, the HTR plantation programme will cost approximately Rp 43 trillion (US \$5 billion) and is expected to generate employment for over 1.5 million people in rural areas (Agro Indonesia 2007a, Bisnis Indonesia 2007, Sugiharto 2007a, Sinar Harapan 2007).

However, after nearly four years of implementation, only a handful of HTR applications have been approved by the Ministry. By mid 2010, the Ministry has approved the release of 555 657 hectares of land for additional HTR concessions in 25 provinces, while approved HTR permits covered only 40 681 hectares in 11 provinces (Ministry of Forestry 2010). While this indicates progress, these figures fall far short of the official target of 5.4 million hectares of land that should have been allocated, and nearly 1.97 million hectares that should have been planted, according to the original plan. This slow pace of development is puzzling because the industry and community timber cooperatives initially responded enthusiastically to the policy. This article brings to light the obstacles that prevent effective implementation of HTR policy and identify steps to improve the current situation.

We begin by reviewing the structure of the HTR programme in Indonesia and its key components. In the subsequent section, we discuss the incentives and identify the government's other support measures to advance programme implementation. In the third section, we analyse in detail problematic aspects of HTR such as policy design, land allocation, supervision, structuring of incentives, and practical implementation. Finally, we propose solutions to the problems identified. The paper employs policy document analysis, stakeholder interview, literature review and field observations as the main sources of information on HTR policy and its implementation.

## CONTEXT

### Overview of community forest management

HTR is only one of a number of schemes that over the years the government of Indonesia has tried to implement in order to increase the participation of smallholders' participation in forest resource management. The participation of smallholders has been encouraged through a number of forest management

TABLE 1 Projected annual development of HTR, community timber plantations, 2007–2016

Year	Planted Area				Total Area (ha)	Total Planted Area (ha)	Budget (million Rp)	Budget (million US\$)
	Annual Allocation of 1.4 million ha	Annual Allocation of 1.4 million ha	Annual Allocation of 1.4 million ha	Annual Allocation of 1.2 million ha				
2007	200 000				200 000	200 000	1 600 000	177.8
2008	200 000	200 000			400 000	600 000	3 200 000	355.5
2009	200 000	200 000	200 000		600 000	1 200 000	4 800 000	533.3
2010	200 000	200 000	200 000	170 000	770 000	1 970 000	6 160 000	684.4
2011	200 000	200 000	200 000	170 000	770 000	2 740 000	6 160 000	684.4
2012	200 000	200 000	200 000	170 000	770 000	3 510 000	6 160 000	684.4
2013	200 000	200 000	200 000	170 000	770 000	4 280 000	6 160 000	684.4
2014		200 000	200 000	170 000	570 000	4 850 000	4 560 000	506.7
2015			200 000	170 000	370 000	5 220 000	2 960 000	328.9
2016				180 000	180 000	5 400 000	1 440 000	160.0
<b>Total</b>					<b>5 400 000</b>		<b>43 200 000</b>	<b>4 800.0</b>

Source: Ministry of Forestry, as cited in Sugiharto, 2007b

schemes including the farm forest (*Hutan Rakyat*), community forest (*Hutan Kemasyarakatan*, HKm), village forest (*Hutan Desa*), community plantation forest (HTR) and partnership arrangements between private companies and rural communities (e.g. Nawir and Santoso, 2005; Van Noordwijk et al., 2007). A summary of characteristics of these various schemes are presented on the Table 2.

### Overview of the Community Timber Plantations Programme

The Ministry of Forestry Regulation 23/2007, states that HTR is:

a timber plantation established in degraded production forest areas by individuals, households, or village cooperatives to improve the productivity potential of the forest through enrichment planting and the application of appropriate silvicultural practices.

Both individuals and cooperatives can apply for an HTR concession. However, cooperatives are preferred and pass through a quicker approval process. Each participating household is allowed to apply for a maximum of 15 ha. The final allocated area depends on the actual management capacity recorded in the concession application and verified in the field.

The application process for HTR concession permits is similar for individuals and cooperatives. Individual applicants should present a copy of their identity card and a sketch map of the area proposed for plantation. Village cooperative applicants must present a copy of incorporation as a business entity and a sketch map of the proposed plantation. If the area proposed for plantation is more than 15 ha, a map scaled at 1:5 000 or 1:10 000 must be prepared. The village head verifies the application and forwards valid applications with a letter of recommendation to the local unit head of the Ministry of Forestry Technical Implementing Unit. This office verifies whether the proposed areas are

located within appropriate forest estate categories. If the proposed location is appropriate, the technical unit forwards its recommendation to the district head (*bupati*) who has the authority to issue an HTR permit on behalf of the Minister of Forestry. A copy of the issued permit is sent to the Directorate General of Forest Production at the Ministry of Forestry in Jakarta.

The main difference between HTR and other community forestry schemes in Indonesia is that HTR is to support timber plantation development in the state production forest, whereas other community forestry schemes are located largely outside of the state forest. The programme aims to increase tree cover in degraded parts of the forest estate. Proposed HTR plantation areas should also be in close proximity to forest industries (Regulation 23/2007 art. 2). With exception of its scale, the HTR programme is thus similar to the programme for large-scale industrial timber estates (*Hutan Tanaman Industri* – HTI). About 4.3 million hectares of HTI estates were established by the end of 2008 (Kompas 2007, Ministry of Forestry 2009). Despite similarities, Herbohn (2006) suggests that differences between small- and large-scale forestry plantations are multifaceted and that small-scale timber plantations require more support, at least in the initial stages.

### Incentives for HTR plantations

The government authorities have taken steps to ensure that significant incentives are in place to make investment in timber plantations attractive.

#### *Large areas of land available for plantation development*

According to the Ministry of Forestry, 12.3 million ha of degraded production forests in Indonesia is potentially available for development of timber plantations, both community-based as well as large scale (Kustiawan 2007). Degraded production forest is defined as 'logged-over

TABLE 2 *Types of smallscale forestry and timber plantation management in Indonesia*

No.	Types of management system	Land tenure		Main actors (land users) who use the rights	Management purposes	Examples
		Ownership	Rights given to land users/managers			
1	Community Forest or <i>Hutan Kemasyarakatan</i> (HKm)	State	Access, use and manage	Provincial or District Forestry Offices and Community groups	- Production - Conservation	- Damar forest in Lampung - Teak Community Forest in Java.
2	Community Plantation Forest or <i>Hutan Tanaman Rakyat</i> (HTR)	State	Access, use and manage	Community groups, District Forestry Offices and possibly private companies (under contract agreement)	-Production	HTR permits in North Sumatera, Jambi, and South Sulawesi
3	Village Forest	State (District to local/village level)	Access, use and manage	Community groups, individuals and village government (under contract agreement)	-Production - Conservation	Village forests in Java
4	Company-community partnership models	State, managed by State owned company	Access, use and manage	Community groups and state owned companies (under contract agreement)	-Production -Conservation	Perhutani partnership models in Java
5	Company-community partnership models	State, under Private company management	Access, use, and manage	Community groups, individuals and private companies (under contract agreement)	Production	PT. Musi Hutan Persada in South Sumatera
6	Farm Forest	Private	Access, use, manage and transfer	Individuals	Production	Smallholder teak farm forests in Java

Source: adapted from Rohadi et al. (2010)

forest' presumably beyond natural recovery, found mainly in Sumatra and Kalimantan (Akbar 2007). Areas allocated for HTR are expected to be clean and clear, meaning they have clear boundaries and are unencumbered by other management plans or concessions (Agro Indonesia 2007f, 2007g, 2007h). While degraded production forest is to be prioritized for rehabilitation through HTR, far larger areas of degraded land in Indonesia are in need of rehabilitation as well and may become the target for HTR at later stage.

#### *Subsidized funding*

In order to specifically support the development of timber

plantations, the Ministry of Forestry has established the Forest Development Funding Agency (*Badan Layanan Umum Badan Pembiayaan Pembangunan Hutan*) to provide loans for HTR and HTI development. For HTR projects, the interest rate will follow the rate set by the Indonesian Deposit Insurance Corporation (*Lembaga Penjamin Simpanan, LPS*), which is generally lower than the commercial interest rate. Loans for HTI will be provided at the commercial interest rate. HTR license holders can use the existing natural timber stock on project sites as collateral for commercial bank loans (Koran Tempo 2006). They can also access the government HTR fund of around US \$5 billion derived from the Reforestation Fund (*Dana Reboisasi, DR*) from 2007

through 2016 (Sugiharto 2007a, 2007g). HTR ventures will be afforded an 8-year grace period on loans from the Ministry of Forestry (Sugiharto 2007a). Finally, HTR licensees can also benefit from joint venture projects involving direct foreign investment (Sugiharto 2007f).

#### *Multiple project options*

HTR projects come in three types. The first type is the independent model (*pola mandiri*), the second is the partnership model (*pola kemitraan*) and the third is the developer model (*pola developer*). Under the independent model, HTR applicants establish plantations at their own initiative and cost. This involves an application process through district forestry authorities for land allocation and application to the Ministry of Forestry in Jakarta for funding. The HTR partnership model is based on joint venture agreements between village cooperatives and plantation companies. Under this scenario, the participants apply as a consortium and follow a similar procedure at the district level and in Jakarta. Under the developer model private or state-owned companies lead the application process and the implementation of timber plantations. Under this scheme, timber plantation companies are expected to operate plantation projects for the first 8 years and then distribute parts of the planted areas to participating communities for a management cycle of up to 60 years (Agro Indonesia 2007c, 2007h, APhi 2007, DJBKP 2007, Sugiharto 2007d, Widyantoro 2007).

#### *Simplified license application procedures*

The central government technical implementing units in the regions, such as the Office for Monitoring the Use of Production Forests (*Balai Pemantauan Pemanfaatan Hutan Produksi*) and the Office for Forest Area Consolidation (*Balai Pemantapan Kawasan Hutan*) are responsible for verifying the areas proposed for HTR concessions (Permenhut 23/2007 Art. 11). They act upon the initial information provided by the applicants (Agro Indonesia 2007b). Initially the issuance of HTR permits was to be centralized at the Ministry of Forestry in Jakarta. However, for efficiency, district heads were later tasked with issuing permits at the district level; governors are responsible whenever proposed HTR projects cover more than one district (Agro Indonesia 2007d).

#### *Simplified operational procedures*

An HTR permit holder must develop a general work plan and an annual work plan. They can seek assistance from universities, consultants or NGOs, and the cost can be charged to project development (Permenhut 23/2007 Art. 20). The transport of HTR timber will not require legal certification (*Surat Keterangan Sahnya Hasil Hutan*). Instead, a company invoice will suffice (Bisnis Indonesia 2006). The HTR concessions are expected to employ a newly approved silvicultural system called Indonesian

Intensive Cutting and Planting System (*Sistem Tebang Pilih Tanam Intensif Indonesia*, SILIN) which will allow for more efficient extraction and replanting.

#### *Guarantee on the marketing of timber*

The Ministry of Forestry regulation on HTR stipulates that smallholder timber plantation developers have the right to "fair opportunities for marketing forest products" (Art. 19), but it does not specify how this will be achieved. The key underlying assumption is that the price of acacia and eucalyptus timber from HTR will fetch about Rp 300 000 (USD 30) per m<sup>3</sup> for fast-growing species, and Rp 1 000 000 (USD 100) per m<sup>3</sup> for hardwood species such as Meranti (*Shorea* spp.). However, the figure used in the Ministry's feasibility study for acacia and eucalyptus wood is Rp 200 000 (USD 20) per m<sup>3</sup> (Kustiawan 2007). Information from the field in Sumatera (Riau) indicates this figures may be insufficient, as significantly higher income from timber seems necessary in order to make industrial timber planting attractive for smallholders in comparison to other commercial crops (e.g. oil palm).

## DISCUSSION

Although timber plantations are undoubtedly crucial for the long-term sustainability of Indonesia's forestry industries, the plan to develop 5.4 million hectares of HTR timber plantations by 2016 is fraught with problems. We have identified five key issues that hamper the potential success of the programme.

#### *Uncertain financial feasibility of HTR for smallholders*

The financial feasibility of community timber plantations – especially those growing fibre for pulp and paper mills – has not been assured (Sugiharto 2007i, Sumardjani 2008, Schneck 2009). It is not clear if the government guarantee on the marketing of timber will be implemented, and how it will work. It is also not clear to what extent the government claims about the financial feasibility and profitability of HTR are supported by empirical data. Sumardjani (2008) questions the Ministry of Forestry claims about the viability of HTR. In his analysis, he assumes:

- each household would plant 15 ha of trees;
- the trees would be managed based on an 8-year rotation;
- plantation costs per ha until harvest would be about USD 800;
- yield is about 150 m<sup>3</sup> of timber per ha; and
- timber price in the market is USD 20 per m<sup>3</sup>.

His analysis shows that when households do not have to repay the loans immediately and have other sources of income while waiting for harvest, the break-even point for them will arrive in year 11 and each household would get

an average monthly income of USD 300. Under the HTR independent model, it is unlikely that applicants will be able to access the subsidized funding from the Ministry of Forestry due to complicated application procedures that have to be carried out in Jakarta. If a household under the independent model (*pola mandiri*) borrows from subsidized government funds to carry out planting (at an 8.25% interest rate in effect between September 2007 and January 2008) and the re-payment were structured into 10 terms, the break-even point will be reached in year 13 and each household will earn monthly income of USD 80, after three rotations. Extending the length of the HTR to six rotations would only increase the average monthly income to USD 175. These monthly income figures are far below the Ministry of Forestry's official estimates.

Schneck (2009) carried out a similar analysis of HTR financial feasibility based on 22 proposed plantation areas in Sintang, West Kalimantan, using net present value (NPV) and internal rate of return as key analytic tools. Two discount rates of 6 percent and 14 percent are used, and the standard development cost of USD 650 per ha of HTR is taken into account. The interest rate for bank loans is assumed at 5% and full repayment following the first harvest. About 2/3 of the maintenance costs are assumed to be incurred in the first year, the remaining third in the second year. The market prices for plantation timber are projected between a low of USD 26 and a high of USD 40. The yield rate is assumed at between 105 and 154 m<sup>3</sup>/ha for a 7-year rotation. The analysis shows that at the lowest market price for timber after one rotation and at a 14% discount rate, the NPV incurs a loss of USD 500. Extending the cycle to 14 rotations (98 years) with high and low discount rate, Schneck finds that the NPVs continue to be negative. At the high market price for timber, only 4 out of 22 sites show positive NPVs for both high and low discount rates. This analysis identifies 3 key variables to which the NPV in HTR projects is highly sensitive: timber prices, transport costs and timber yield. While market prices are more difficult to manage, transport costs and timber yield should be easier to address by the license holders through improved management practices and transport arrangements.

#### *Unclear land allocation and application process*

Another difficulty with HTR comes in implementing the spatial planning and land allocation and application process. The 12.3 million ha of degraded production forest unencumbered by any proprietary claims seem to be available on paper only. For example, the land allocation for HTR in Riau Province is slightly over 350 000 ha for the period of 2007–2016. However, according to the Provincial Forestry Office, only about 4 000 ha are considered clean and clear while the rest of the land is claimed by local communities or encroached upon by migrants. A related problem is that any land that can be found for HTR plantations is likely to be fragmented and scattered, making it less attractive financially. If the land is dispersed, transportation cost will increase, lowering the profit from HTR for the smallholders.

While attempts have been made to streamline the application process for HTR permits, it continues to be a difficult task for smallholder applicants in rural areas. This is because the procedure involves government forestry agencies at the district and national levels, while application for funding has to be submitted directly to the authorities in Jakarta.

#### *Limited tenure incentives*

Timber plantations generally require vast stretches of land, and their past implementation has alienated local people from the land they have managed and traditionally owned (*adat*), often with little or no compensation (Harwell 2003, Dove and Kammen 2001, Dove 1999). Land tenure remains one of the most contentious issues in state-society relations in Indonesia, with the government yet to officially recognize the tenure claims of indigenous and other long-term resident communities. Examples of this type of alienation and its repercussions in the era of decentralization prove useful in demonstrating the depth and breadth of the problem. This is particularly important for the HTR given the magnitude of plantation expansion (5.4 million ha) and that this expansion will ostensibly be on lands not currently encumbered by other rights.

The Ministry of Forestry has heralded the 5.4 million ha HTR programme as a breakthrough for rural communities in Indonesia in terms of land tenure (Djadjono 2007). The initial drafts of HTR policy envisioned both independent (family) and village (cooperative) based timber plantations projects, where loans from the Reforestation Fund would be made available directly to the grassroots (Agro Indonesia 2007c). The policy also stipulated that communities will enjoy land-use rights for up to 95 years (MoF Regulation 5/2008 art 14). However, this provision has since been reduced to 60 years. Furthermore, the permit cannot be traded, transferred or inherited, thus seriously limiting household management options (Permenhut 23/2007 art. 15).

#### *Excessive subsidies and opportunities for rent seeking*

While it is widely accepted that development of timber plantations anywhere in the world may benefit from some sort of financial support (e.g. Bull *et al.* 2006), HTR licensees can access at least 4 sources of funding before planting a single tree. First, they can use the standing stock in the residual natural forest as collateral for commercial bank loans. Second, they can harvest the remaining hardwood timber and sell it either to pulp and paper mills or plywood and sawn timber. Third, HTR companies will be able to access USD5 billion in Reforestation Fund loans and enjoy the 8-year grace period before repayment. Since application for funding under HTR programme has to be submitted in Jakarta, this means that local applicants will need to team up with companies and individuals with a knowledge and access to appropriate channels at the Ministry of Forestry. This indicates that the application for HTR funding will likely be dominated by a limited number of corporate actors, which may lead to limited transparency and accountability,

as has been the case with the funding for large scale industrial timber plantations (Barr *et al.* 2009).

Fourth, they can gain significant benefit from direct foreign investment. A 120 000 ha HTR joint venture between PT Inhutani III and the South Korean company National Forestry Cooperative Federation in Central Kalimantan provides South Korean backing per ha that is twice the standard plantation development input envisioned for HTR of between 6 and 9 million rupiah per hectare (Sugiharto 2007f). The availability of so much up front funding presents significant accountability risk and calls for measures to ensure that funds are used appropriately and planting is implemented.

#### *Potential for deforestation and forest degradation*

While one of the officially stated objectives of HTR policy is to rehabilitate degraded natural forest, it is not clear what “degraded natural forest” means and what criteria are to be used to locate it on the ground. In practice, it may lead to significant removal of residual natural forest cover before planting is implemented. This is because the term degraded production forest is often equated with logged over forest (*Hutan Bekas Tebangan*) (Akbar 2007, Sugiharto 2007d). Logged over forest is for the most part still a closed-canopy forest with a substantial volume of commercial and non-commercial timber (MoF 1996). Furthermore, the simplified verification process of the forest cover in proposed HTR project sites, whereby plantation companies themselves check and report to government agencies the vegetation cover, creates a conflict of interest and increases the probability that good quality production forest will be downgraded in HTR concessions. Finally, the Ministry of Forestry has indicated that an intensive silviculture management system called SILIN would be undertaken in strips 30 meters wide and only 15 meters apart. This could potentially lead to significant removal of the residual forest cover.

## RECOMMENDATIONS

There is little doubt that timber plantations are critical for the sustainability of Indonesia’s forest industries. The supply–demand imbalance affecting these industries for decades can only be addressed through a strategic programme featuring timber plantation development and more competitive pricing for grown timber as a key component. Since over 12 million ha of production forest in Indonesia is severely damaged, and up to 70 million hectares are classified as degraded land (MoF 2009), timber plantations could provide a useful framework for much needed rehabilitation. Rehabilitating degraded lands and in the process growing timber for Indonesia’s woodworking industries would indeed be an optimal situation with multiple benefits. The government target of developing 9 million ha of timber plantations by 2016, of which 5.4 million would be planted through smallholder timber ventures, is a commendable undertaking.

With the incentives and problems elaborated in the

previous section, several recommendations could improve the HTR programme in Indonesia. First, it is important to ensure that new HTR investments, particularly those under the HTR developer scheme, are prioritized in degraded lands. If the Ministry of Forestry could allocate 5.4 million ha of HTR in truly degraded areas, the programme could achieve two purposes at once: rehabilitation of degraded state forestland and improvement of rural livelihoods. This calls for a review of the criteria and indicators of degraded land (*lahan kritis*) in Indonesia, and subsequent analysis of its distribution. Once specific areas of degraded land are identified, it is also important that a simple application process is in place to facilitate smallholder participation. Furthermore, clear procedures must be in place to verify and allocate degraded land in an environmentally sustainable and socially equitable manner.

Second, the Ministry of Forestry and National Land Agency must clarify the legal status of land to be allocated for HTR. Over the last decade, the Ministry of Forestry made its top priority full boundary delineation of state forest lands and the clarification of land titles for communities *de facto* residing in and using state forest land. Yet these two crucial elements of legal clarity and institutional consistency remain unfinished. Clear legal status for forest land, defined borders and defined resource rights of the people residing therein are fundamental to management or investment, whether under HTR or another scheme. Government authorities can better assess which areas are still available for allocation once these ambiguities are clarified. Clear status can potentially reduce social conflicts, overlapping concessions and land use rights which seriously handicap Indonesia’s forestry sector. Greater clarity could also speed HTR permit application and implementation.

Third, providing better tenure incentives to communities participating in HTR is of utmost importance. HTR permits are currently valid for only 60 years and they cannot be inherited nor sold. This structural limitation undermines any incentives that can potentially attract participants to HTR projects. Field observation in Riau and South Kalimantan indicate great reluctance on the part of local villagers to engage in industrial tree planting under the current land usufruct system. HTR licensing should function like business licensing with options for renewal, sale and transfer to a third party. In Vietnam, for example, communities possess clear land rights and can transfer and inherit these rights (Sikor 2001). As a result, tree planting programmes in Vietnam have been relatively successful and have become a major contributor of wood fiber to processing industries. Implementation of a similar land right regime in the Indonesian context would require additional legal safeguards to prevent corporate players from accumulating land right titles for forest exploitation, as was the case during the decentralization era. Between 1999 and 2002, hundreds of smallscale logging concessions had been handed out by district and province-level authorities in Indonesia (Barr *et al.* 2006). Officially, the decentralization of logging permits was intended to facilitate the participation of community and district level actors in the forestry sector. However, in

practice most of the permits issued were dominated by the existing large scale companies.

Fourth, the Ministry of Forestry's financial unit must ensure that the financial support for communities who apply for HTR is not misused or appropriated by third parties. Since the funding for HTR originates from the Reforestation Fund, public officials must ensure that reforestation and rehabilitation do in fact take place (Barr *et al.* 2009). Although the Ministry of Forestry allocated some USD 1 billion in DR financing to subsidise the HTI programme during the 1990s, the Ministry achieved limited results. Substantial portions of the areas planted using DR funding have proven to be only partly planted or of limited productivity. By mid-2009, Indonesia's wood-based industries continued to obtain only a small portion of their raw material supply from timber plantations.

Another recommendation based on past experience with similar programmes (see Barr *et al.* 2006) is to restrain large plantation companies from establishing partnerships with rural communities only to use them as proxies to access HTR financing. Should this occur, companies would enjoy profits before planting a single tree, since they could access a significant subsidy in the form of low-interest government loans. Additionally, the fact that BLU BPPH, the leading government agency disbursing funds for HTR projects, has no representation outside Jakarta will not help stimulate interest in HTR among farmers in, for example, Kalimantan.

Fifth, timber plantation is a business which requires long-term planning and commitment for several years, especially at the beginning of the plantation venture, when costs are high and there is little or no income. Rural communities can hardly be expected to follow this business model because they have many short-term pressing needs, particularly generating steady income for family subsistence. HTR policy needs to ensure not only that farmers' expenses associated with HTR plantation development and maintenance are covered but also that community subsistence needs between tree planting and timber harvesting are met (Van Noordwijk *et al.* 2007). One method is to allow farmers to intercrop trees with food or cash crops of their choice to improve the financial return from the plantation. Another method is to extend no-interest loans to communities to help alleviate start up and subsistence costs during the initial period of plantation development. These measures will only bear fruit if the timber grown on HTR plantations can be sold at competitive prices. Therefore, the government, in particular the Ministry of Forestry, must work to create favorable conditions for competitive pricing. One way to ensure improved selling prices for timber from community plantations could be to broaden the scope of HTR plantations so they can supply timber to the pulp and paper sector and facilitate market links to other wood-processing sectors such as plywood and wood working. Another strategy to improve the financial feasibility of HTR projects is to link them to the high-end segment of the wood-working sector, namely furniture making, or to allow intercropping of HTR plantations with such agricultural commodities as oil palm or hardwood timber (Van Noordwijk *et al.* 2007, Widyantoro 2007).

HTR programme has the potential to rehabilitate degraded land in Indonesia, support the wood-processing sector by providing new supplies of timber and provide employment and financial opportunities in rural parts of Indonesia. However, questions about financial feasibility, legal certainty, and transparency in land allocation and financing are the leading causes why this policy has yet to achieve its stated objectives. Effective steps to bridge the gap would make it possible for Indonesia to make significant strides towards greater sustainability in its forestry sector and improved rural livelihoods.

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