



# An economic case for tenure reform in Indonesia's forests

AUGUST | 2011

Dominic Elson<sup>i</sup>

Revised version of paper first published on 12th July 2010

HM Government

UK Climate Change Unit Indonesia

green growth, sustainable future  
perumbuhan hijau untuk masa depan berkelanjutan

## 1. Introduction

Countries with large forest areas, especially tropical forests, have been under increasing pressure to reform the way they govern the management, exploitation and conservation of their estate. The role of forests in regulating climate (as well as their contribution to many ecosystem services) has been identified as a pressing reason for rapidly improving governance, often in countries where the process of institutional change would usually have been expected to take some time. Programs such as REDD<sup>1</sup> and FLEGT<sup>2</sup> may have had some influence in bringing changes to forest policy and governance in key countries such as Indonesia, but in most cases the fundamental challenges to reform remain daunting. Some countries, such as Mexico, China, Nepal and Viet Nam have been quite successful in reforming forest tenure and in various ways handing the rights to manage forests back to the people, along with accompanying obligations to ensure forests remain healthy and viable. The outcome of these changes, in the main, has been a more robust forest sector, both economically and environmentally. However, Indonesia has made only tentative steps on the path towards tenure reform, and the future direction is uncertain.

This brief background paper sets out some facts and analysis about the state of forest management in Indonesia.<sup>3</sup> It does not aim to recapitulate the many existing studies of the extent of deforestation. The hard facts of the diminishing

state of the forest are widely known, and the key drivers of deforestation (such as weak governance, corruption, illegal logging, economic development) have been discussed at length. Instead, this paper will attempt to explore the deeper issues that may explain the current state of the land use sector by viewing it in the context of the country's economic trajectory. The poor state of the country's forest, the relative decline of the forest industry and the inefficiency of the agriculture sector are consequences of a political and economic system that is informed by certain attitudes towards land, people and communities. This attitude prevents real change in the sector, and even though some progress has been made in policy terms in the recent past (most notably the recent moratorium on primary forest conversion), the likely effect of these changes on the overall system is likely to be limited because the underlying issues are not being addressed. This paper will attempt to introduce some of these issues, by explaining how the forestry sector got into the current parlous state, how this trajectory spells bad news for Indonesia, and how an alternative scenario could be envisioned and achieved.

## 2. The current situation

Indonesia still has a significant forest estate, but it has been transformed radically over the past thirty years or so. Large areas have been cleared, some converted to other uses - such as agriculture or urban development - but there are also large areas of land in various states of degradation that in many cases are not contributing to either the

### RRI PARTNERS



<sup>i</sup> Dominic Elson is an independent consultant for Trevaylor Consulting ([www.trevaylor.org](http://www.trevaylor.org)) and can be contacted at [dominicelson@me.com](mailto:dominicelson@me.com)

local or national economy. The problems in the land use sector seem to comprise of deforestation, degradation and poor agricultural performance; all of which have economic consequences:

### **Deforestation**

Past deforestation has removed lowland forests from much of Sumatra and large areas of Kalimantan. Based on current trends, taking into account predicted population growth and planned expansion of the oil palm estate, a further 28 million hectares of forest will be cleared by 2030.<sup>4</sup> If this 'business as usual' scenario were to come to pass, then Indonesia will have very little natural primary forest remaining outside the conservation and protected areas.

In some respects the effect of oil palm plantation expansion has been exaggerated, and in any case past rapid growth trends may not continue. Whilst much deforestation has occurred in the name of oil palm, not all of the cleared land actually developed into plantations, thus the impact of oil palm on the forest estate has been disproportionate. For instance, location permits covering 5.3 million hectares of land for oil palm developments have been issued in West Kalimantan, while less than 1 million hectares of land have actually been planted with oil palm.<sup>5</sup> Thus the problem seems to be the allocation of permits rather than the palm oil industry's relentless hunger for land.

It could be pointed out that Europe and the United States cleared their forests long ago, and thus deforestation is unavoidable price of progress. But in Indonesia it does not seem to be working out that way. For instance, the deforestation and drainage of peatland, which releases large amounts of carbon dioxide and thus contributes to Indonesia's disproportionately high emissions, has not yielded economic gains. Between 2000-2006 the

amount of forest in peatland declined by 2.2 million hectares, of which less than 10% became cropland.<sup>6</sup> It appears that peat forests are converted with the stated intention of developing a palm oil plantation, but once the timber is extracted the plantation never materializes, as it does not make economic sense to develop it at that location.

A further cause of deforestation is the continued exploitation of natural forest for industrial processing (such as pulp and plywood). For instance, in 2005 up to 65% of the timber feeding the largest pulp mills in Sumatra came from clear-cutting of natural forest.<sup>7</sup> This converts high value mixed tropical hardwood into low value feedstock for processing mills, which is not economically rational. Various attempts have been made by the forest ministry in the past decade to impose a moratorium on the clear-cutting of natural forest for industry, but in each case the proposed moratorium has been delayed, in the face of industry warnings that any reduction in supply will cause job losses and economic shrinkage.

### **Degradation**

A more widespread (and poorly recorded) problem in the forest estate is the gradual degradation of the forest through over-logging, fires, or other forms of disturbance. It is reckoned that 30 million hectares are fully or partially degraded.<sup>8</sup> Much if this is in protected areas, but also within the production forest there are 16.4 million hectares of 'open access' land. Degradation is part of the process of administrative transition, whereby production forest is poorly managed (usually by a concession holder) and when no longer viable it is re-zoned for conversion to an industrial timber or oil palm plantation.

### **Poor agriculture sector performance**

In the period 1995-2005, all countries in the Asia region experienced significant increases in agricultural productivity - by 42% on average - except for Indonesia where productivity grew by only 3%.<sup>9</sup> As a result of these meager productivity gains, more arable land has been needed each year in order to feed the growing population, putting more pressure on forests. This correlation between population growth and need for more cropland is less marked in other Asian countries, where in most cases the growth rate in population is not met by a corresponding growth in cropland, but instead seems to lead to higher yields.

Even in the relatively advanced palm oil industry, where vertically-integrated companies exert a high degree of control over land and smallholders through the 'inti-plasma' system, productivity is low compared to other countries, for instance average yields are 25% lower than in Malaysia.<sup>10</sup>

Low agricultural productivity is connected to deforestation in two ways - it illustrates how weak tenure and limited access to capital and technology is inhibiting rural development, and also increases pressure on forest for clearance for often low value activities.

### **Economy is over-reliant on natural resources**

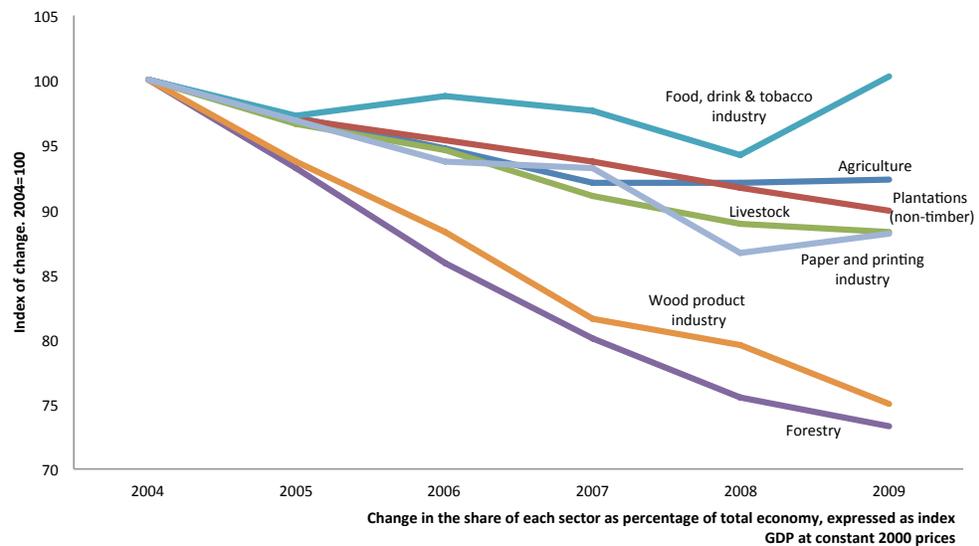
A report from Harvard University<sup>11</sup> noted that for some time Indonesia has been stuck in an economic model that *'relies too heavily on over-exploitation of natural resources, does not invest sufficiently in people and fails to make the most of the opportunities presented by globalisation.'* The flaws and vulnerability inherent in this unsustainable growth pattern have been disguised by high commodity prices and the one-off boost that is provided at the point where the

natural capital of forests is converted into financial capital.

The realization that there is a link between over-reliance on natural resources and under-development has led economists to seek a more accurate measure of the state of a country's capital stock than merely assuming that the annual increase in GDP is automatically added to national wealth. This measure is called 'Adjusted Net Saving' (ANS).<sup>12</sup> Negative ANS indicates the country is running down assets, and will thus have less assets for future generations and a declining capacity to generate economic growth. Over the past two decades, Indonesia's Adjusted Net Savings rate has dropped from plus 18% to minus 2%.<sup>13</sup> This means that despite headline GDP growth, in real terms the country is getting poorer each year. Eventually, this failure to maintain the real value of the nation's assets will lead to economic shrinkage.

This negative trend is also reflected in other statistics that show that most people are trapped in low-income jobs in the agricultural sectors. There is no significant transfer from these sectors to manufacturing, as Indonesia's economy largely sells raw materials, not products. Hence, other countries capture the jobs and the value-added activities. As globalization has become more widespread, Indonesia's economic options have narrowed. In relative terms it is falling behind, for instance Indonesia's share of global exports was lower in 2007 than in 1977.<sup>14</sup>

Of course the day of reckoning may be some way off as Indonesia has a rich endowment of land and natural resources. However, it also has a large population, and thus the per capita resource wealth is lower than Malaysia. It is right that some of these natural resources should be reallocated in the name of future development, and in some cases that will mean an economically efficient level of deforestation. But in Indonesia there is an unhappy combination of indiscriminate deforestation, low

**FIGURE 1: CHANGE IN RELATIVE IMPORTANCE OF CERTAIN ECONOMIC SECTORS, 2004 - 2009**

Source: based on data from BPS, 2011

genuine savings, lack of investment in people and grassroots enterprises and thus an unsustainable economic trajectory.

### Declining importance of the land use sector

The land use sector has enormous importance as part of the socio-political system, and the land use sector represents around a fifth of the economy, including downstream industrial processing. However, some sub-sectors have been thriving (e.g. palm oil) whilst others have been in long-term decline (e.g. forestry). The chart below shows how all land use sectors have declined as a share of the economy since 2004, and only the food and drink industry has remained stable.

It is possible that a declining forest industry will demand less of the forest and thus slow the rate of deforestation. On the other hand, the decline of the processing sector may indicate that a lack of competitiveness is leading to more raw timber being exported (for instance to China), so although economic value falls, the volume of extraction from the forest actually rises. This seems to be the case in Papua province, where the

local industry has withered yet exports of valuable merbau timber to China for the flooring industry have remained high.

### **3. How did we get here?**

There are a number of reasons why Indonesia's land use sector is not managed as well as it could be. Some of the main issues are as follows:

#### Unclear tenure

Weak and uncertain tenure, incomplete cadastral systems and legal contradictions regarding customary land rights combine to keep land prices low in Indonesia. Timber concessions and plantation companies are granted leases at values that may fail to reflect the true value of the land. The amounts paid in compensation to local people by companies developing oil palm plantations has in general been very low - around one or two dollars per hectare in many cases.<sup>15</sup> Despite past failures (such as the notorious Kalimantan 'mega rice project') and lack of evidence that large-scale agricultural developments have any long-term economic or

social benefit,<sup>16</sup> there seems to be a continued fetish amongst politicians for mega projects, such as the vast proposed Merauke Integrated Food and Energy Estate (MIFEE). This suggests that policy makers see cheap land and labour as opportunities for the private sector to widen profits rather than a cause for concern. The presence of a large amount of degraded land (estimates vary from 7 Mha to over 30 Mha) is a sign that the forest frontier is undervalued.<sup>17</sup> It means forest land is either very cheap or open-access, so economically it makes more sense to continue to plunder the frontier rather than develop existing open land.

#### **Poor governance**

Rapid political decentralization since 1999 has set districts in opposition to provinces, inhibiting sensible planning. It has also created a free-rider problem. District heads (Bupati) are not required to consider the effects of land changes on the wider community. Considerable state power (the assumption of state ownership of all forests and control of any unregistered land) is thus handed to the districts without any corresponding obligations to either local people or the nation at large. Long-term sustainability is thus not likely to be considered, and strategic landscape planning is much more difficult.

Land allocation and conversion is a part of the socio-political process. A recent study found that issuance of permits to convert natural forest is correlated with the election cycle, in which illegal logging increases dramatically in the years leading up to local elections, and conversion rates rise immediately after elections.<sup>18</sup> This pattern may be an indication of how politicians pay back sponsors of their campaign with forest clearance permits.

The spatial planning process usually fails to get to grips with the land use problems because it is itself a part of the same political process that

create the problems. For instance, land type definitions do not reflect physical or social reality, with illogical effects:

- 40 million people are living in areas with no trees yet officially designated as forest. This limits their livelihood options as the land cannot be used for agriculture, yet in most cases they also cannot get a permit for reforestation, and do not have political power to get a clearance permit for estate crops such as oil palm or cocoa.
- Whilst treeless landscapes within the forest estate can be termed ‘non-forest forest estate’, its mirror image outside the forest zone is ‘forest non-forest’, where smallholders and communities manage forest areas and agroforestry. Large parts of Java island falls into this category. Yet when farmers attempt to fell their own trees that they themselves have planted, they face complex and demanding regulations that serve to depress net prices at the stump.<sup>19</sup> This, ironically, creates a disincentive for farmers to plant trees, yet it is known that incorporating trees into farm systems is the most effective way to manage tropical landscapes for improved yields, resilience and financial returns.<sup>20</sup>
- Forest zones tend to be described in terms of their official designation, such as production or conservation forest. Actual landscape types, such as primary forest, ‘virgin forest’, peatland etc., are not defined in Indonesian law (though to be fair these definitions are widely contested globally). This creates problems when official pronouncements, such as the recent moratorium, use these terms without defining them, thus leading to confusion over the official position towards secondary forest, which is now Indonesia’s largest ecosystem type.

**TABLE 1: EVALUATION OF QUALITY AND SUSTAINABILITY OF NATURAL FOREST CONCESSIONS**

Total assessed (mha)	Sustainably managed (mha)	Evaluation (number of concessions)				Total number of concessions
		good	fair	bad	very bad	
13.73	3.16	13	63	65	12	152

Source: ITTO, 2011.

- There is a lack of coordination and policy leadership amongst various government departments. The various plans for conversion to plantations, mining and other purposes seem to indicate a total of 63 million hectares allocated for development, 60% of it involving primary forest conversion. Many of these plans overlap and perhaps will not come to pass, but they reveal contradictions in the way the country formulates land use plans.<sup>21</sup>
- The combination of poor management of forest areas and weak tenure outside the forest estate leads to a situation where land is treated as a temporary site for activity rather than a long term asset deserving of investment. This is manifested by slash and burn agriculture, where fires are used as a cheap and quick clearance method by impoverished landless farmers.

#### **Poor asset management**

Large areas of the country's forest have been parceled out to private companies in the form of concessions, but the state has been a negligent landlord. The number of active natural forest concessions has declined over the past decade: there are currently around 300 concessions in Indonesia, of which 248 are listed as active, covering 22 million hectares.<sup>22</sup> This has fallen sharply from 2001, when there were over 400 concessions covering 42 million hectares. 'Inactive' concessions may include those that have only recently received permits, as well as those that

have had permits withdrawn, or where the business has been liquidated. According to the ITTO, only half of the concessions (13.7 million hectares) have valid management plans,<sup>23</sup> indicating that there are many concessions regarded as 'active' that are for all practical purposes dormant. For instance the Ministry of Forestry data recognises 21 concessions in Papua as officially 'active', but local officials regard only 6 as truly operational.<sup>24</sup>

Companies that do not submit valid management plans or provide evidence of active management are not held to account. Concessions therefore take on the characteristics of private freehold, with owners inviting offers for purchase of the lease but not being obliged to surrender their permits upon breach of contract. This raises the private price of even the most dormant concessions, making it even harder for the state to cancel or reallocate under-performing permits, especially if the holder of the lease is politically well connected. The net effect of this is economic losses for the state (through lower taxes and fees), private capture of the value of public assets and a perverse incentive to convert forest rather than manage it, as conversion licenses are in the gift of the district head and thus easier to obtain than a new or existing natural forest concession.

Even in concessions that are operating normally, there is often inefficient forest management, wasteful, over-extraction in some areas while other areas are abandoned. Rules exist for selective cutting and enrichment planting, but except in a few notable cases (for instance where

the more responsible firms have obtained FSC certification), most of the rules are ignored. Recent assessments of concessions' performance shows that half are rated 'bad' or 'very bad', and less than a quarter are managed sustainably (see Table 1).

Reputable companies face difficulties getting access to land in Indonesia, either for oil palm plantations or timber concessions. Such companies need to meet international standards of transparency and either cannot legally engage in the 'game' of obtaining permits from district governments, or do not know how to navigate the obstacles of bureaucratic hurdles, unofficial payments and brokers. This keeps good companies out of Indonesia, shielding domestic companies from competition for capital, land and labour, and thus perpetuating an inefficient forestry and palm oil industry.

#### **Subsidizing deforestation**

The way the forest estate is managed, in particular in respect of concession leases and conversion permits, represents an implicit subsidy of the timber and plantation industry. Public assets in the form of standing forest values, future ecosystem value and long-term land rent are captured by private actors with little or no compensation to the state. Like most subsidies and market distortions, this situation has led to inefficient outcomes.

The processing industry grew rapidly, boosted by cheap raw materials, and using vertical integration (control of all aspects of the supply chain, from forest to factory) managed to raise large amounts of capital to build huge mills. This combination of over-capitalization and weak governance created structural over-capacity, inhibiting the price signals that would normally occur in the event of raw material scarcity. It was as if the forest would always yield up its bounty,

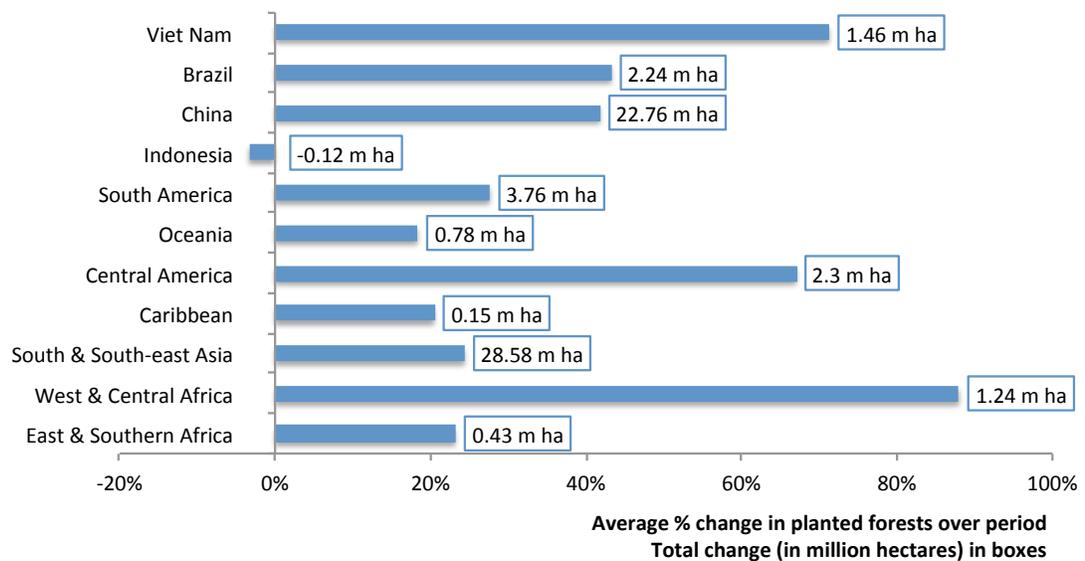
and no day of reckoning would ever arrive. Until recently, public policy has been adapted to suit private interests by ensuring that natural forest has continually been made available for industry at far below its social or economic value. This may have appeared to be a pragmatic policy that ensured continued economic growth and employment, but it is inherently unsustainable and ultimately counter-productive, as it undermines investment in long-term forest management.

#### **Failure of reforestation schemes**

When in 2006 it was eventually acknowledged that a raw material supply gap was looming, an effort was made to revitalize the timber industry and solve the supply problem by encouraging plantation development.<sup>25</sup> This set out a road map to increase plantation development and thus relieve the pressure on natural forests, with no further mixed tropical hardwoods going to particleboard or pulp. This was followed by a Ministerial decree that warned pulp companies that clear felling of natural forest in their concessions would be illegal after 2009.<sup>26</sup>

However, the consequence of an addiction to cheap raw material is low investment in industrial plantations. Plantation development in Indonesia has historically been beset with difficulties. In the period 1989-2006, permits for over 10 million hectares of plantations were issued, but only 3 million hectares were actually realised. In the case of the remaining 70%, natural forests were cleared to make way for the plantations, often fueled by subsidies in the form of soft loans from the Reforestation Fund, but no productive investment took place, or the plantations suffered from various calamities such as forest fires.<sup>27</sup>

Even where plantations have been established successfully, they are not necessarily performing to best practice standards. The World Bank calculates that 'less than half of these lands are performing

**FIGURE 2: CHANGE IN PLANTED FORESTS, 2000-2010**

Source: FAO, 2010

well in producing timber'.<sup>28</sup> For instance, in East Kalimantan 800,000 hectares was cleared for industrial plantation (HTI), but only 165,000 hectares was actually planted, and the yields from this estate are very low, at just 0.7 million cubic metres per annum, compared to the potential production of 23 million m<sup>3</sup> if the whole area were properly managed.<sup>29</sup>

Reliable data on plantations are hard to come by.<sup>30</sup> The ITTO records the planted estate as standing at only 2.5m hectares,<sup>31</sup> but the FAO reports that Indonesia expanded the planted forest estate by 404,000 ha per annum from 2003-2007. However, this data was provided by the Ministry of Forestry and was not verified or was perhaps misunderstood.<sup>32</sup> In FAO's own report it showed that the planted estate had actually fallen by 2010 to 3.5m ha from 3.7m in 2005, so clearly the previously reported expansion was inaccurate, unless existing plantations were being retired at a faster rate than new ones were established. This performance bucks the trend seen in almost every other country monitored by FAO. Across the world plantations and reforestation schemes have been

expanding, most notably in China (see Chart). In the period 2000-2010, 65 countries in the world with tropical and sub-tropical forests saw an increase in planted forests, whereas just 11 countries saw a decrease, including Indonesia, Zimbabwe, Bangladesh and the Solomon Islands. The shrinkage in planted forests in Indonesia (123,000 hectares) almost exceeded all the other losses combined. This could have serious consequences for the competitiveness of Indonesia's forest industry in years to come, as the liveliest local competitors (especially China and Viet Nam) begin to enjoy reliable supplies of raw material from their own plantations. For the first time since the Indonesian archipelago started trading such products with other nations hundreds of years ago, the country could lose its comparative advantage in processed timber. This would be a direct consequence of poor governance, myopic policies and opportunistic behavior by the private sector.

#### **Experiments in community forestry**

After a few false starts in facilitating community forestry, the 2007 road map for

revitalizing the forest sector proposed the ‘people’s plantation’ scheme (HTR),<sup>33</sup> whereby individuals and cooperatives would be encouraged to invest in planting timber on degraded forest land. This was an important part of the target of establishing an additional 9 million hectares of plantations by 2016, 5.4m ha from HTR and 3.6m from industrial plantations. The financing would come from a revolving fund using capital from the Reforestation Fund.<sup>34</sup>

To date the project has been far from successful. The target was to have almost 2 million hectares established by the end of 2010, which would then be producing pulpwood for industry from 2015 onwards. However, by December 2010 less than 45,000 hectares of HTR plantations had actually been approved, although local district governments have identified almost 640,000 hectares of suitable plots of land.<sup>35</sup>

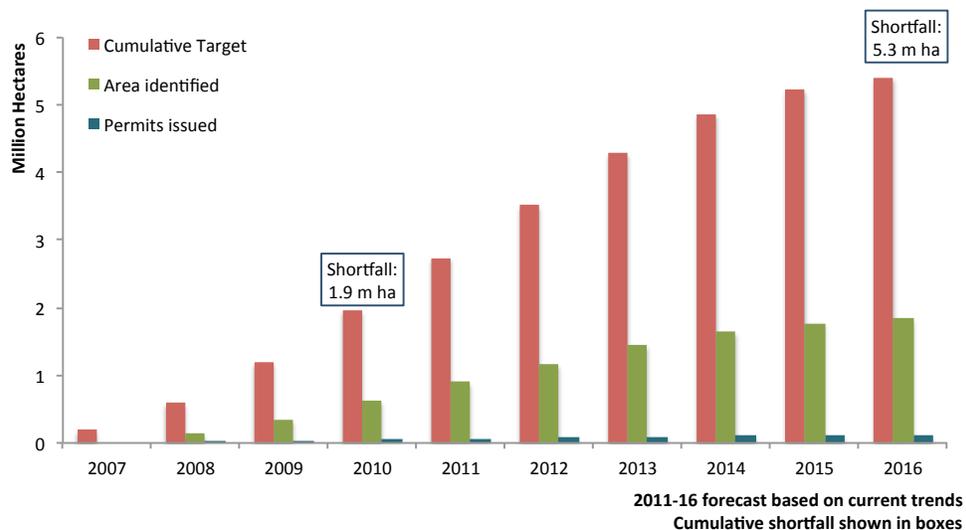
At this rate of progress the scheme will achieve only 120,000 hectares of community-managed plantation by 2016, a cumulative shortfall of over five million hectares (see Figure 3). This under-performance will have serious implications

for future timber supply and thus forest usage and tenure. The Forestry Ministry has been working from projections (in the 2007 Road Map) that assume the HTR plantations will be meeting 30-40% of the total lumber demand from 2016. If such a significant portion of expected supply does not materialize then something has to give: either supply must be found elsewhere or industrial output must decrease. This may lead to more pressure to over-extract or convert natural forest.

### **The Paradigm problem**

There is ample evidence that communities and smallholders are reliable managers of natural resources and forests (this is discussed in the next section), and that they already are in a number of landscapes in Indonesia effective managers of forestry, agriculture and agroforestry. Yet for some reason Indonesia, where the state has such a poor track record in forest management, has yet to embrace the concept of locally controlled forestry with any seriousness. Although forest tenure reform has been slow in Asia (compared to Latin America), about a quarter of the forest is owned, designated or managed by communities and

**FIGURE 3: PROGRESS OF HTR COMMUNITY PLANTATION SCHEME, 2007 - 2016**



Source: Based on data from Ministry of Forestry, 2010

indigenous people.<sup>36</sup> Yet in Indonesia less than a tenth of one percent has been formally devolved to local communities, which is markedly out of step with the region and other middle-income countries.

One explanation may be that the economic structure of Indonesia, especially in the forestry sector, is a legacy of the New Order regime. It is characterized by very large companies benefiting from favorable political treatment and exclusive access to natural resources, whilst beneath them a multitude of informal micro enterprises attempt to keep afloat. There are few formal enterprises in between these two extremes, creating the so-called ‘missing middle’ problem.

Even though the *reformasi* era has brought democracy to the political process, it is yet to liberalize the economy of land use. It appears that the state still privileges large businesses at the expense of smaller enterprises and community organizations, as exemplified by the fact that there is no exemption for community stewardship of forests in the President’s moratorium,<sup>37</sup> but specific exemptions for large businesses and plantations.

This paradigm problem is in some respects illustrated by the design and implementation of the HTR scheme, which could be seen as a way to recruit communities to invest their own resources into

repairing damage done by companies and state-owned enterprises. In its original design this would be ameliorated somewhat by allocating a mixed

area of forest to communities, including some standing stock that could be exploited in the early years to generate cashflow. But in practice the HTR permits have been granted on denuded land. In one case, a community has been given 14 separate small parcels of scrub land spread over a large area (60 km between the furthest blocks), which will make it tough to manage as a viable business. One could be forgiven for speculating that the HTR scheme was actually designed to fail.

For as long as Indonesia is trapped in this paradigm, it will be hard to make more than token progress on the pressing issues facing the land use sector, such as weak tenure, the growing supply gap and misdirected investment. This will not only have poor outcomes for the forests, biodiversity and climate change. It will also have profound implications for the economy and long-term social development.

#### 4. An improved situation

Outside Indonesia, there has long been recognition that locally controlled forestry brings benefits for the economy, environment and society. In many developed countries with powerful forest industries (such as Germany, Sweden and Finland), it is the predominant form of forest management. From a pro-poor development perspective, community forestry does have clear attractions: it implies local participation, decentralization and equity. It also claims some rationale, as those closest to the forest are more likely to have cultural and practical knowledge of the local landscape, and have a vested interest in the long-term conservation of its ecological services and income-generating features.

Some developing countries have embraced forest tenure reform with varying degrees of success, as set out in the RRI report that accompanies this paper.<sup>48</sup> The common theme is

#### Tenure Shapes Everything

*‘Tenure shapes a country’s forest industry and economy. There is ample evidence in some developed forested countries—e.g. the United States, Sweden, and Finland—and developing countries—such as Mexico and China—that the recognition of local rights has a profound effect on the structure of industry and increases the potential for forestry to generate jobs and economic growth and contribute to good governance. Small-scale and community initiatives around forests can also provide invaluable ecosystem services, including climate change mitigation—given the necessary tenure reform.’*

(Gregersen et al, 2011)

*‘...There is rarely a better way [than community forest management] to balance the interests of poor people and forests. But to do a good job, communities need strong property rights...’*

(*The Economist*, 2010)

## HAS THE PARADIGM CHANGED IN OTHER COUNTRIES?

Some countries have attempted to change tenure policy in forests to enhance local control. The economic, social and environmental outcomes of these programs are summarized briefly below.

### China

China has undergone a transformation of the management of its forests in the past thirty years or so, particularly in planted forests. These changes are documented in detail by Jintao Xu et al (2010), and the outcomes have been evaluated by various other reports.<sup>38</sup>

The policy of formalizing household rights to forests is designed to create a private market for forest land and will result in hundreds of millions of new forest owners. This act of redistribution creates capital at the base of the economy, analogous to the great agrarian reform that took place in Japan after WW2,<sup>39</sup> building the infrastructure of popular capitalism.<sup>40</sup> It is already having a significant impact on local economies and China's net forest estate, which has expanded by almost 50 million hectares over the past 20 years, a net increase in forest of over 30%. However, tenure reform has not taken place in isolation, it has been accompanied by other enabling reforms, for instance to the timber market, which have been essential to ensure the success of the core policy.

Studies conclude that land tenure reform in China has led to increased timber harvesting without loss of forest cover, and thus a higher sustainable income in rural communities. Forestry enterprises are now among the main sources of local livelihoods in 80% of the areas where mountainous terrain excludes other economic opportunities. Local control of forests is feeding into activity in the SME sector, which comprises 87% of the registered forest enterprises, generating 90% of the value-added in the furniture sector.<sup>41</sup>

### Mexico

There are an increasing number of cases where local communities have leveraged communal ownership of forests as a vehicle to organize themselves to manage the resource, produce commodities, and process and sell those products into markets. Mexico presents such a case on a large scale, demonstrating how locally controlled forestry can lead to effective poverty alleviation and economic development.<sup>42</sup>

Mexico leads the world in the local management of forests, with 80% now in the hands of forest communities, land reform villages (ejidos) and individuals.<sup>43</sup> Of the 2,300 local communities in Mexico that produce timber under forest management plans, 600 have their own saw mills or furniture-making companies, and overall more than 2,400 forest enterprises are legally recognized by the government.

'The Mexican case provides a model for the devolution of forest lands to local communities, and shows that community initiatives and policy support can result in common property regimes that can organize to compete in the marketplace and deliver social, economic and ecological benefits'.<sup>44</sup>

### Viet Nam

According to RECOFTC, a quarter of Viet Nam's forestland is in the hands of local people via long-term tenure rights — mainly to households, but also including a small amount parceled out to community management. Around 2.5 million hectares of forest (19% of the country's forest area) is currently under temporary management by communities and is expected to form part of the devolved forest estate in future. More than one million households have obtained certificates of land ownership for both natural and plantation forests. Partly as a result of these reforms, the country has successfully increased its overall forest cover during the past 15 years. By 2010, total forest cover sat at nearly 14 million hectares, nearly 4.5 million hectares more than in 1990.

However, tenure reform is still a work in progress in Viet Nam, as it has not yet been accompanied by the additional enabling reforms that will ensure remote communities can actually benefit from the natural resources under their control.<sup>45</sup> It may take some time before the recent expansion in timber plantations will translate into measurable livelihood benefits in communities. But as Viet Nam continues to build up its forest processing industry in line with increasing plantation timber supply, it seems that small producers will benefit. For instance, the Bai Bang Pulp and Paper Mill purchases some 200,000 tons of wood per annum, all from a large number of small, mainly farm-based producers.<sup>46</sup>

Furthermore, the parallel reforms of the agricultural sector motivated farmers to invest in higher productivity, leading to the concentration of agriculture on the most suitable land, leaving hillsides for forest regeneration.<sup>47</sup> Clearly, the increase in paddy and maize yields will have led to higher household incomes, while the planted forests represent longer-term asset formation. This is an example of how tenure reform in both forests and agricultural land, alongside appropriate market liberalization methods, can unlock the value of natural assets and increase the returns to local labour and capital.

the desire to improve forest stocks and achieve pro-poor development in remote areas where poverty has hitherto seemed intractable. This is being done through extending property rights over the forest to the communities that live there. Economic theory suggests the economic benefits that result from such a policy may be attributable to property rights in general or to the value of forest management in particular.

The evidence for the general economic benefits of property rights is uncontroversial and has been available for some time.<sup>49</sup> However, there has been less consensus over the reasons why improved tenure may lead to economic growth, and to what extent this can be applicable to all forms of property, including forests, and to any form of rights, such as customary rights. For instance, in the 1950s, Bauer argued that communal land rights retard growth because they are 'unsatisfactory for loans'. De Soto attributed improved welfare amongst families with titled property to the ability to use title as collateral for loans. But later studies suggested this correlation may not be wholly causal.<sup>50</sup> It seems that families with formal title 'increased housing investment, reduced household size, and improved the education of their children relative to the control group. However, effects on

credit access are modest and there are no effects on labor income'.<sup>51</sup>

However, the studies do all seem to agree that improved property rights lead to enhanced value of the asset, whether it be a house in the city, a farm in the hinterland, or, one can surmise, an area of forest. If local communities have a commercial interest in products derived from standing forest, they are likely to invest in keeping the forest standing.<sup>52</sup> The same logic applies to smallholder forestry or agroforestry plantations where commercial outsourcing through contract farming arrangements creates incentives for local communities to restore and manage tree crops on agricultural land.<sup>53</sup>

The debate over the general economic role of property rights is relevant to forest policy in the following ways:

- a) The role of title (or any legal method that enhances the legal certainty of the property right) seems to be to enhance willingness on the part of the holder to make long term investments of labour and capital, which may explain why enhanced tenure can be

correlated with better long term forest management.

b) Property rights come in many forms and modern titles such as freehold may not always be appropriate. Customary forms of land ownership can be just as effective if they are accompanied by wider social and legal recognition. These rights are given form and meaning by the surrounding institutions, as de Soto put it: *'It is not your own mind that gives you certain exclusive rights over a specific asset, but other minds thinking about your rights in the same way you do.'*<sup>54</sup> This enables tenure reform to take place in state forests in a manner that confers the benefits of property rights without compromising the ultimate freehold of the state. This may also eliminate the likelihood of fragmentation, which some policymakers fear could follow programs that allocate freehold titles too rapidly.

c) Tenure reform is a necessary, but not sufficient, condition for improving economic outcomes in either agricultural land or forestry. Other factors are also important, such as governance, enabling environment for enterprise, access to finance and macroeconomic stability. Surveys of investors have shown they will not invest (or lend) if tenure is uncertain, as the risks are not justified by the eventual returns from forestry.<sup>55</sup>

However, these arguments could also be made to justify allocating stronger property rights over the forest to a few companies or private individuals. Governments may not allow more local control of forestry until they are certain that investment will continue to flow into the sector, and raw materials will still be available for industry. The safest option may seem to be to continue the 'business as usual' model of large-scale commercial

forestry, founded on the states' claim to the forest land regardless of pre-existing rights, and allocated by way of concession or lease to large private companies.

The counter-argument to this is built on three claims. Firstly, that research suggests large-scale commercial forestry has at best avoided exacerbating poverty but evidence that it has reduced poverty is scarce.<sup>56</sup> Secondly, the allocation of concessions, plantations and so-called 'land grabs' leads to poorly compensated loss of assets to both the state and local communities.<sup>57</sup> Thirdly, an analysis of growth in 73 countries in the period 1960–2000 found that countries with relatively equitable initial land distribution achieved growth rates 2–3 times greater than those in which land distribution was less equitable.<sup>58</sup>

Furthermore, countries with more successful small and medium sized enterprise (SME) sector tend to enjoy more resilient economic development (the reasons behind this are complex and may not be causal,<sup>59</sup> but this debate is beyond the scope of this paper). This is particularly true for the agriculture sector, where family farms are more productive than those operated by hired labour, and that the alleged returns to scale from large plantations are returns to the investor, not to land or labour. Indeed, the major research in this area has concluded that redistribution of land from large farms to smaller family units can increase productivity.<sup>60</sup>

Bringing these arguments together, there is a strong case to be made that reforming tenure in order to achieve locally controlled forestry will have a positive economic, social and environmental impacts. Some countries (e.g. China), have arrived at this insight after attempting less successful methods of landscape and forest management. They have realised that such rights-based reforms are part of what may be called the 'art of

government', meaning they seek to maximize the benefits to the people that can be obtained from the natural resources over the long term; whilst avoiding the seemingly quicker path of alienation, seizure and coercion that diminishes human welfare, undermines liberty and eventually must weaken the legitimacy of the state.

### **The role of forests in a low carbon economy**

A key component for balanced, sustainable economic growth is the shift to a low carbon economy, which requires Indonesia to reduce its carbon emissions. The land use sector currently generates 85% of Indonesia's carbon emissions. To enable the country to achieve its ambitious emission reduction target,<sup>61</sup> the current plans assume forestry will play a major part, for instance through reforestation schemes, improved sustainable forestry management practices and the elimination of manmade fires and peatland decomposition.

Recent experience has shown that these targets are simply not achievable without the active economic participation of smallholders, communities and small enterprises. Forests managed and planted by local communities and groups can contribute to this goal if incentives are right. A key factor is secure tenure - or long-term use rights - coupled with responsibilities for management. Statistical evidence from 80 community forest management units in 10 countries shows that '...greater rule-making autonomy at the local level [is] associated with high carbon storage and livelihood benefits'.<sup>62</sup> Attracting the required investment into projects such as REDD+, at both a local and national level, will require a fundamental reform of tenure, governance and institutions in Indonesia. There is a strong economic case for tackling these issues regardless of climate change, and evidence from

other countries clearly points to the advantages of devolving control of forests to local communities.

## **5. Steps to improved forest management**

Tenure reform leading to local control of natural resources will not solve all the problems outlined in this paper, but it will go some way to correcting the current unsustainable trajectory and avoiding the chances of a boom-bust scenario. Shifting the economy away from an over-reliance on natural resource extraction can be achieved by building an SME sector, which in turn is founded upon a reliable asset base. Experience from other countries (e.g. Japan and South Korea) has shown that the necessary condition for a broadly based economy is land reform accompanied by good quality institutions. Simply handing out land certificates is not sufficient; neither is allocating forest permits (such as HTR) without considering how governance, investment and infrastructure will play a part in facilitating economic development. The call for tenure reform therefore needs to be nuanced by placing it in the context of broader institutional reform.

There is no doubt that tackling institutional reform is a challenging proposition in Indonesia. This is partly because the current state of governance is an artifact of the over-reliance on natural resources. The evidence shows that 'institutional quality is positively correlated with economic growth and negatively correlated with countries dependent on natural resource revenue... because it inhibits net positive saving'.<sup>63</sup>

So tenure reform, institutional quality and the composition of the economy are inter-related. As deforestation worsens, institutions degrade and the economy becomes hollowed out by the absence of a small and medium sized enterprise (SME) sector. Conversely, if tenure reform leads to better

TABLE 2: THE BENEFITS OF RIGHTS

Rights	Benefits
Property rights (e.g. community land)	Assets in hands of people are more valuable to the economy than 'zombie' assets managed by the state
Free, Prior and Informed Consent	Willing consent of people means less conflict and expense, more local investment, local expertise, better land use efficiency, higher productivity, cheaper money (lower risk for banks and investors)
Oversight, arbitration and advocacy	Market transparency leads to more realistic land values, which directs capital to most efficient usage

forest management, less reliance on extraction and an emergent SME sector, then one may expect institutions to improve. The first step, however, is to change the attitude towards local control of forest assets.

#### **Creating the conditions for sustainable investment**

Even with tenure reform and decent institutions, locally controlled forestry will require investment. Attracting appropriate means of funding at this level is a challenge. The G3, a consortium of rights-holders<sup>64</sup> is working with the Growing Forests Partnerships to tackle this issue, using examples of best practice from around the world. This will create some solid guidance that can be deployed in Indonesia.

However rights are defined and delineated, and connected to specific obligations, the evidence shows that a functioning system of rights protected by rule of law, particularly in the land sector, has been the pre-condition and cornerstone for a functioning finance sector, the development of manufacturing industries, the reduction of poverty and social progress. There may be a temptation to circumscribe or alienate rights in order to speed up progress, but this is a mistake. Strengthening rights does not only secure justice for the most vulnerable, it also has immediate social and economic benefits (see Table 2).

It is encouraging that as part of the REDD plan, Indonesia plans to facilitate a process whereby communities reforest 500,000 hectares per annum and take on management (through the community forest (HKm and village forest (HD) schemes) of a further 500,000. But this needs an economic rationale or else it becomes just another subsidy with unpredictable consequences. Tree planting, in most cases, does have a strong business case. Domestic demand for timber is growing, but demand varies across districts depending on a range of factors. It would be hard for central planners to determine the most appropriate form of forestry. The experience of the HTR scheme bears this out - originally conceived as a means to grow fast growing species demanded by the pulp industry, the permits issued are usually to communities far from the mills, and in many cases they are planning to plant higher value hardwoods such as teak and mahogany. The provinces with the largest mills have relatively few permits issued for HTR, which may reflect local government reluctance to issue permits, but anecdotally it seems the price offered for pulpwood is so low that the business case for HTR plantation can not be made.

This could be a consequence of the central planning of reforestation schemes. A better solution may be to allow investment to find its way to the most promising propositions. In most forest areas (outside conservation areas and unencumbered by active leases), the presumption should be that local people have an inherent right

to manage the local forest providing they comply with general aims of forest cover, biodiversity and watershed protection. This would be an outcome-based system rather than a prescriptive micromanaged input-based system. It is possibly the only way in which reforestation plans (either for ecosystem restoration, carbon sequestration or raw material supply) have any chance of being successful. Government or donor projects that claim ambitious reforestation targets, without addressing the evident failings of the current structure and paradigm of land rights, should thus be treated with skepticism.

## 6. Conclusion

The state of forests in Indonesia is the legacy of a now discredited development mentality that saw the capture of national wealth by a privileged few. Indonesia need no longer be trapped by an outdated paradigm that held all forests to be owned by the state. As a complex, diverse emerging economy Indonesia has many challenges that need to be addressed to ensure that social development keeps up with economic development, whilst also keeping an eye on environmental sustainability. However, tenure reform need not be seen as an unwelcome distraction from the job in hand, for arguably it is the only means by which Indonesia can ameliorate the rather disordered effects of rapid progress. Tenure reform, as part of wider institutional strengthening, could release the energy and imagination of local people throughout the country. This would attract a new kind of investment to the forestry sector, a combination of national, international and local resources that would revitalize the forest industry, restore landscapes, reduce vulnerability to both economic and natural disasters and set in motion the kind of broad-based democratic economic development that will see Indonesia come closer to achieving its enormous potential.

## Endnotes

- <sup>1</sup> Reduced Emissions from Deforestation and forest Degradation
- <sup>2</sup> Forest Law Enforcement, Governance and Trade – a European Union Program – [www.euflegt.efi.int](http://www.euflegt.efi.int)
- <sup>3</sup> The paper draws substantially on a report written by the same author for the UK Climate Change Unit in March 2011.
- <sup>4</sup> DNPI, 2010
- <sup>5</sup> Casson et al., 2007
- <sup>6</sup> BAPPENAS, 2009
- <sup>7</sup> Pirard and Irland (2006). The industry claims that this proportion has fallen over the past five years, and some firms have been making plans to improve sustainability, but in general a large proportion of feedstock is still derived from the natural forest. (Greenomics, 2010)
- <sup>8</sup> Interview with Agus Purnomo, head of National Climate Change Council, 3/6/11.
- <sup>9</sup> FAOSTAT, 2010.
- <sup>10</sup> Molenaar et al, 2010
- <sup>11</sup> Harvard, 2010, p.4
- <sup>12</sup> Also known as ‘genuine saving’ or ‘net positive saving’
- <sup>13</sup> World Bank (2010). It appears that this calculation excludes forest loss, in which case the true ANS figure is even worse than the figure quoted
- <sup>14</sup> Harvard, 2010
- <sup>15</sup> EIA, 2009
- <sup>16</sup> De Schutter, 2010
- <sup>17</sup> Mcleish & Hanson, 2011
- <sup>18</sup> Burgess et al, 2011
- <sup>19</sup> IFC, 2007
- <sup>20</sup> Place *et al*, 2011
- <sup>21</sup> Purnomo, 2010
- <sup>22</sup> Ministry of Forestry 2009 report records 298 units, and the more recent 2010 data shows 303 units, but does not reveal how many are active.
- <sup>23</sup> ITTO, 2011
- <sup>24</sup> Field research by author in Jayapura, 2010
- <sup>25</sup> World Bank, 2007
- <sup>26</sup> This decree was later revoked, giving pulp companies more time to access natural forests. It is not yet clear how the latest presidential moratorium will effect this position.
- <sup>27</sup> Barr et al, 2010
- <sup>28</sup> World Bank, 2007
- <sup>29</sup> DNPI Kaltim, 2010

<sup>30</sup> FAO data has been criticized as unreliable because of changes in methodology reflecting the problems of comparing definitions from different countries. Also, Indonesia tends to record the extent of plantation permits rather than the extent of planted forests, leading to further confusion.

<sup>31</sup> Blaser *et al.* 2011

<sup>32</sup> FAO, 2010

<sup>33</sup> *Hutan Tanaman Rakyat*

<sup>34</sup> Dana Reboisasi (DR)

<sup>35</sup> Ministry of Forestry, 2011

<sup>36</sup> RRI, 2010

<sup>37</sup> INPRES 10/2011

<sup>38</sup> notably Zhang *et al.* (2000) and Katsigris *et al.* (2010).

<sup>39</sup> Kawagoe, 1999

<sup>40</sup> CGD, 2008

<sup>41</sup> Sun and Chen, 2003

<sup>42</sup> Mayers, 2006, see also Antinori, 2006; Antinori and Bray, 2005; Bray and Tardanico, 2005

<sup>43</sup> ITTO, 2011

<sup>44</sup> Bray, Antinori and Torres-Rojo, 2006

<sup>45</sup> e.g. see Nguyen, T.Q., Nguyen, N.B., Tran, T.B., (2008).

<sup>46</sup> Nawir *et al.*, 2007

<sup>47</sup> Sikor, 2001

<sup>48</sup> Gregersen *et al.*, 2011

<sup>49</sup> notably Bauer (1954), later de Soto (1995) and most recently in Besley and Ghatak (2010).

<sup>50</sup> e.g. Field & Torero, 2004

<sup>51</sup> Galiani & Schargrodsky (2005)

<sup>52</sup> Carter *et al.* 2007

<sup>53</sup> Macqueen and Cotula, 2008; Parthiban *et al.* 2010

<sup>54</sup> de Soto, 2000, p.177

<sup>55</sup> Elson, 2010

<sup>56</sup> Mayers, 2006

<sup>57</sup> Dwyer, 2007

<sup>58</sup> Deininger, 2003

<sup>59</sup> e.g. see Beck *et al.*, 2005

<sup>60</sup> Binswanger *et al.*, 1995

<sup>61</sup> 26% of business as usual projected emissions by 2020, or 41% if international funding is forthcoming

<sup>62</sup> Chhatre & Agrawal (2009)

<sup>63</sup> Dietz *et al.*, 2007

<sup>64</sup> 3G represents the three rights holders' alliances: The International Alliance of Indigenous and Tribal Peoples of the Tropical Forests (IAITPTF), The Global Alliance of Community Forestry (GACF) and the International Family Forestry Alliance (IFFA)

## References

Antinori, C. and Bray, D.B. 2005. Community forest enterprises as entrepreneurial firms: economic and institutional perspectives from Mexico. *World Development* 33(9): 1529-1543.

Antinori, C. 2006. *Macroeconomic, political-legal and institutional frameworks for small and medium forest enterprise development: the case of Mexico*. Paper to the 'Conference on Small and Medium Forest Enterprise Development for Poverty Reduction'. 23-25 May 2006. CATIE, Turrialba, Costa Rica.

BAPPENAS. (2009). *Reducing carbon emissions from Indonesia's peat lands: Interim Report of a Multi-Disciplinary Study*, Jakarta.

Barr, C., Dermawan, A., Purnomo, H., Komarudin, H., Barr, C., Dermawan, A. *et al.* (2010). *Financial governance and Indonesia's Reforestation Fund during the Soeharto and post-Soeharto periods, 1989-2009: A political economic analysis of lessons for REDD+*. (Occasional paper 52). Bogor: CIFOR.

Bauer, P. (1954). *West African trade*. Cambridge: Cambridge University Press.

Beck, T., Demirguc-Kunt, A., & Levine, R., SMEs, (2005) 'Growth, and Poverty: Cross-Country Evidence' *Journal of Economic Growth*, Vol. 10, No. 3 (Sep., 2005), pp. 199-229, Springer, Netherlands.

Besley, T. and Ghatak, M. (2010) 'Property Rights and Economic Development' in *Handbook of Development Economics, Volume 5*, Elsevier.

Binswanger, H.P., Deininger, K., Feder, G. (1995) 'Power, distortions, revolt and reform in agricultural land relations' in *Handbook of Development Economics, Volume III*, Edited by J. Behrman and T.N. Srinivasan, Pages 2659-2772, Elsevier.

Blaser, J., Sarre, A., Poore, D. & Johnson, S. (2011). Status of Tropical Forest Management 2011. *ITTO Technical Series No 38*. International Tropical Timber Organization, Yokohama, Japan.

BPS. (2010). Indonesia Statistics. Retrieved from [www.bps.go.id](http://www.bps.go.id).

Bray, D.B and Tardanico, R. 2005. *Forest incomes and common property forest management: towards poverty alleviation and economic development*.

- Paper presented at the human Dimensions of Global Climate Change Conference. October. Bonn, Germany.
- Bray, D.B., Antinori, C., Torres-Rojo, J.M., (2006) 'The Mexican model of community forest management: The role of agrarian policy, forest policy and entrepreneurial organization', *Forest Policy and Economics* 8 (2006) 470–484, doi:10.1016/j.forpol.2005.08.002, Elsevier.
- Burgess, R., Hansen, M., Olken, B., Potapov, P., and Sieber, S. (2011) *The Political Economy of Deforestation in the Tropics*, London School of Economics.
- Buss, C., Elson, D., Macqueen, D., Saint Laurent, C., 2011, *Opportunities and constraints for investing in forests and trees in landscapes. Background Paper for the Investment Forum on Mobilizing Private Investment in Trees and Landscape Restoration in Africa*. Profor, World Bank, Washington DC.
- Carter, J., Felber, G. and Schmidt, K. 2007. 'Local forest-based enterprises: Supporting the livelihoods of the poor?' *Inforesources Focus* No 2/07. *Inforesources*, Zollikofen, Switzerland.
- Casson, A. Tacconi, L. and Deddy, K. 2007. *Strategies to Reduce Carbon Emissions from the Oil Palm Sector in Indonesia*. Paper prepared for the Indonesian Forest Climate Alliance, Jakarta.
- CGD (2008) *The Growth Report: Strategies for Sustained Growth and Inclusive Development*, Commission On Growth And Development, World Bank, Washington DC
- De Schutter, O. 2010. *Large-Scale Land Acquisitions and Leases: A Set of Core Principles and Measures to Address the Human Rights Challenge*. Louvain, Belgium: United Nations Special Rapporteur for the Right to Food.
- Deininger, K. (1999), Making negotiated land reform work: Initial experience from Colombia, Brazil, and South Africa, World Bank Policy Research Working Paper 2040, January 1999.
- Deininger, K. 2003. *Land Policies for Growth and Poverty Reduction*. Washington DC: World Bank and Oxford University Press.
- Deininger, K. and Byerlee, D., 2011, *Rising Global Interest in Farmland: Can It Yield Sustainable and Equitable Benefits?*, World Bank, Washington DC.
- Dietz, S., Neumayer, E., de Soysa, I., (2007), 'Corruption, the resource curse and genuine saving', *Environment and Development Economics* 12: 33-53, doi:10.1017, Cambridge University Press.
- DNPI Kaltim, (2010). *East Kalimantan Environmentally Sustainable Development Strategy (Draft)*. Dewan Nasional Perubahan Iklim and Pemerintah Propinsi Kalimantan Timur.
- EIA. (2009). *Up For Grabs: Deforestation and Exploitation in Papua's Plantations Boom*, Environmental Investigation Agency, London.
- Elson, D. (2010) 'Investing in Locally Controlled Forestry: Reviewing the Issues from a Financial Investment Perspective' Background Paper for the Forests Dialogue, Yale University, New Haven.
- Elson, D., 2011, *Cost-Benefit Analysis of a Shift to a Low Carbon Economy in the Land Use Sector in Indonesia*, UK Climate Change Unit, Jakarta.
- FAO (2010). *Global forest resources assessment 2010 country report: Indonesia* (available at [www.fao.org/forestry/fra/67090/en/](http://www.fao.org/forestry/fra/67090/en/)).
- FAOSTAT. (2010). *FAO Agricultural Data*. Retrieved 26 Jan 2011, from [www.faostat.fao.org](http://www.faostat.fao.org)
- Field, E. and Torero, M. (2004), *Do Property Titles Increase Credit Access Among the Urban Poor? Evidence from a Nationwide Titling Program*, Harvard University.
- Galiani, S. and Scharrodsky, E. (2005) *Property Rights for the Poor: Effects of Land Titling*, Universidad Torcuato Di Tella, Buenos Aires.
- GEF, *Timberland Investment & Emerging Markets: A Fresh Review & Outlook: September 2009*, Global Environment Fund, [www.GlobalEnvironmentFund.com](http://www.GlobalEnvironmentFund.com).
- Gregersen, H., El Lakany, H., Bailey, L. and White, A. (2011) *The Greener Side of REDD+*, Rights and Resources Initiative, Washington DC
- Harvard (2010), *From Reformasi to Institutional Transformation: A Strategic Assessment of Indonesia's Prospects for Growth, Equity and Democratic Governance*, Harvard Kennedy School Indonesia Program.
- IFC (2007) *Market Assessment of SME Sustainable Timber Potential in Indonesia*, PT Mitra Lingkungan

- Dataconsult / International Finance Corporation - Program for Eastern Indonesia Assistance (IFC-PENSA), Jakarta.
- INPRES 10/2011, Presidential Decree <http://sipuu.setkab.go.id/PUUdoc/17176/INPRES0102011.pdf>.
- Jakarta Post (2011) 'Forestry Firms Under Government Scrutiny' [www.thejakartapost.com/967-forestry-firms-under-govt-scrutiny.html](http://www.thejakartapost.com/967-forestry-firms-under-govt-scrutiny.html).
- Katsigris, E., Xu, Jintao, White, A., Yang, X., & Qian, W., (2010) *Forests and Incomes in China*, Rights and Resources Initiative, Washington DC.
- Kawagoe, T. (1999) *Agricultural Land Reform In Postwar Japan: Experiences And Issues*, World Bank Policy Research Working Paper 2111, Washington D.C.
- Kozak, R. 2007. *Small and Medium Forest Enterprises: Instruments of Change in the Developing World*. Washington, DC: Rights and Resources Initiative.
- LFP, Livelihoods and Forestry Programme, 2009, *Community forestry for poverty alleviation: How UK aid has increased household incomes in Nepal's middle hills*.
- Macqueen, D.J. and Cotula, L. (Editors) 2008. *Learning and growing together – proceedings of the forestry SME conference at the Protea Imperial Hotel, Pietermaritzburg, South Africa, 13-14 November 2008*. IIED, Edinburgh, UK.
- Mayers, J. 2006. *Poverty reduction through commercial forestry. What evidence? What Prospects?* The Forests Dialogue, Yale University, New Haven, USA.
- Mayers, J. and Vermeulen, S. 2002. Power from the trees: how good forest governance can help reduce poverty. WSSD Opinion series. IIED, London
- McLeish, M and Hanson, C., 2011, 'Having Your Food and Forests, Too' in *The Forestry Source*, Association of American Foresters.
- Ministry of Forestry (2009) Data Dan Informasi Pemanfaatan Hutan 2009, Direktorat Wilayah Pengelolaan Dan Penyiapan Areal Pemanfaatan Kawasan Hutan Direktorat Jenderal Planologi Kehutanan, Departemen Kehutanan, Jakarta.
- Ministry of Forestry (2010) Data Dan Informasi Pemanfaatan Hutan 2010, Direktorat Wilayah Pengelolaan Dan Penyiapan Areal Pemanfaatan Kawasan Hutan Direktorat Jenderal Planologi Kehutanan, Departemen Kehutanan, Jakarta.
- Molenaar, J.W., Orth, M., Lord, S., Meekers, P., Taylor, C., Hanu, M.D.H., Elson, D. and Ginting, L. (2010) *Analysis of the Agronomic and Institutional Constraints to Smallholder Yield Improvement in Indonesia*. Oxfam Novib and the Prince's Rainforest Project, Amsterdam.
- Molnar, A., Khare, A., White, A., Liddle, M., Bracer, C., and Bull, J. (2006). *Community-based Forest Enterprises in Tropical Forest Countries: status and potential*. Forest Trends and Rights and Resources Initiative.
- Nawir, A., H. Kassa, M. Sandewall, D. Dore, B. Campbell, B. Ohlsson and M. Bekele. 2007. Stimulating smallholder tree planting – Lessons from Africa and Asia. *Unasylva* 228, Vol. 58, 2007, pp53-60.
- Nguyen, T.Q., Nguyen, N.B., Tran, T.B., (2008) Forest Tenure Reform in Vietnam: What Lessons Can Be Learned for Policy Implementation and Poverty Alleviation in Forest Communities?, Background paper for The 12th Biennial Conference of the International Association for the Study of Commons, July 14-18, 2008, Cheltenham, UK.
- Parthiban, K.T., Vennila, S., Seenivasan, R., Anbu, P.V. and Govinda Rao, M. 2010. Adapting the quad-partite model of contract farming for industrial agroforestry. *Asia-Pacific Agroforestry Newsletter* 36: 8-10.
- Pirard, R., Cossalter, C., (2006) *Revival of Kalimantan Forest Plantations. Will They Contribute to Fill in the Fiber Shortfall of the Pulp Mills in Sumatra?* CIFOR, Bogor, Indonesia.
- Pirard, R., Irland, L.C., (2006) Missing links between timber scarcity and industrial overcapacity: Lessons from the Indonesian Pulp and Paper expansion, *Forest Policy and Economics* (2007) 1056–1070, doi:10.1016/j.forpol.2006.10.003, Elsevier.
- Place, F., Ajayi, O.C., Masters, E., 2011, *Tree-based and other land management technologies for landscape restoration in Africa*. Background Paper for the Investment Forum on Mobilizing Private Investment in Trees and Landscape Restoration, World Agroforestry Centre, Nairobi.

- Purnomo, A., 2010, 'Limits of green alarmism', Opinion piece in Jakarta Post, 30 Nov 2010.
- Putz, F. E., Zuidema, P. A., Pinard, M. A., Boot, R. G. A., Sayer, J. A., Sheil, D. et al. (2008). Improved tropical forest management for carbon retention. *PLoS Biology*, 6(7).
- Scherr, S.J., White, A. and Kaimowitz, D. 2003. *A new agenda for forest conservation and poverty reduction: Making markets work for low-income producers*. Washington, DC: Forest Trends.
- Sikor, T. 2001. The allocation of forestry land in Viet Nam: did it cause the expansion of forests in the northwest? *Forest Policy and Economics* 2 (2001), 1-11.
- Sun, C. and Chen, X. (2003) *Small and medium forestry enterprises in China: an initial review of sustainability and livelihood issues*. Research Center of Ecological and Environmental Economics (RCEEE) and International Institute for Environment and Development (IIED), London, UK.
- World Bank (2007) *Sustaining economic growth, rural livelihoods, and environmental benefits: Strategic options for forest assistance in Indonesia*. Washington, DC.
- World Bank (2010). *Adjusted Net Savings*. Retrieved October 2010, from [go.worldbank.org—3AWKN2ZOY0](http://go.worldbank.org—3AWKN2ZOY0).
- Xu, Jintao, A. White and U. Lele. 2010. *China's Forest Tenure Reforms: Impacts and implications for choice, conservation, and climate change*. Washington, D.C.: Rights and Resources Initiative.
- Zhang, Y., Uusivuori, J., & Kuuluvainen, J. (2000), 'Impacts of economic reforms on rural forestry in China', *Forest Policy and Economics* (2000) pp.27-40.

---

*The Rights and Resources Initiative (RRI) is a strategic coalition comprised of international, regional, and community organizations engaged in development, research and conservation to advance forest tenure, policy and market reforms globally.*

*The mission of the Rights and Resources Initiative is to support local communities' and indigenous peoples' struggles against poverty and marginalization by promoting greater global commitment and action towards policy, market and legal reforms that secure their rights to own, control, and benefit from natural resources, especially land and forests. RRI is coordinated by the Rights and Resources Group, a non-profit organization based in Washington, D.C. For more information, please visit [www.rightsandresources.org](http://www.rightsandresources.org).*

*This publication was made possible with the support of the Ford Foundation, Ministry of Foreign Affairs of Finland, Norwegian Agency for Development Cooperation, Swedish International Development Cooperation Agency, Swiss Agency for Development and Cooperation, and UK Department for International Development. The views presented here are those of the authors and are not necessarily shared by the agencies that have generously supported this work, nor by all the Partners of the RRI coalition.*