The REDD Rush in Indonesia

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INTRODUCTION

Globally, deforestation accounts for up to 18 percent of greenhouse gas emissions, or about 5.8 billion tonnes of CO2 equivalent released into the atmosphere each year. This is more than the total emissions from the global transport sector (IPCC 2007).

Reduced Emissions from Deforestation and Degradation (REDD) is a mechanism that proposes to use market/financial incentives to reduce the emission of greenhouse gases from deforestation and forest degradation in a measurable and verifiable way. The basic concept is to set a market value for carbon that is not released into the atmosphere, comparing a theoretical baseline set according to historical deforestation trends, to savings achieved through improved forest management (i.e., reductions in conversion to non-forest uses, controlling illegal logging, etc.). 'REDD-plus' expands the scope of REDD beyond avoided deforestation and degradation to include forest restoration, rehabilitation, sustainable management and afforestation/reforestation.

The Intergovernmental Panel on Climate Change's Fourth Assessment Report proposed that reducing deforestation would have a large and rapid effect on reducing global carbon emissions[1] (ibid). Later that year, the United Nations Framework Convention on Climate Change (UNFCCC) 13th Conference of the Parties (COP13) in Bali, Indonesia, adopted the Bali Action Plan, which launched a formal process to support REDD. One of the only 'breakthroughs' of the lacklustre 2009 Copenhagen Conference (COP15) was the agreement (Point 6) to:

> …recognise the crucial role of reducing emission from deforestation and forest degradation and the need to enhance removals of greenhouse gas emission by forests and agree on the need to provide positive incentives to such actions through the immediate establishment of a mechanism including REDD-plus, to enable the mobilization of financial resources from developed countries (UNFCCC 2010: 6).

In rainforest nations around the world, numerous preparatory initiatives are underway, including policy studies, development of appropriate institutional and policy frameworks, capacity building, and pilot projects, with support from a growing array of multilateral, bilateral and sub-national sources, including the UN-REDD Programme, the World Bank's Forest Carbon Partnership Facility, The Norwegian Forest Initiative Funding Scheme, the Indonesia-Australia Forest Carbon Partnership, and the Governors' Climate and Forests Taskforce. International environmental organisations such as IUCN, WWF and TNC are devoting increasing amounts of resources to REDD-related activities, and various private sector initiatives are also in various stages of preparation.

Indonesia, with its vast peatland forests, emits more forest carbon than any other nation, and therefore stands to gain the most financially if REDD becomes widely practiced. Indonesia accounts for approximately 30 percent of total global land use-related GHG emissions (Stern 2006: 171). National sources estimate that Indonesia could generate up to US$765 million a year in REDD+ revenue for a five percent reduction in deforestation emissions, and up to US$4.5 billion for a 30 percent cut (Jakarta Globe 2010).

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[1] The publication of the Fourth Assessment Report coincided with the IPCC and Al Gore Jr. being jointly awarded the Nobel Peace Prize, *'for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change'* http://nobelprize.org/nobel_prizes/peace/laureates/2007/

This essay provides a brief overview and background of the current global 'REDD rush', looking at a few of the major arguments in favour of and against REDD schemes. It then examines some of the possible implications of implementing REDD/REDD+ in Indonesia, questioning whether it can possibly achieve all that its proponents promise.

REDUCED EMISSIONS FROM DEFORESTATION AND DEGRADATION

Forests, Carbon, and Climate Change

Awareness of the relationship between unsustainable forestry practices and global climate change dates back at least as far as the 1970s. The 1979 Declaration of the World Climate Conference acknowledged that deforestation and land use change were contributing to the increased amount of carbon dioxide in the atmosphere (WMO 1979).

When forests are damaged or cleared, the burned or decaying wood releases the carbon stored in trees as carbon dioxide. As previously mentioned, deforestation accounts for up to 18 percent of total global greenhouse gas emissions. As well, just under 16 percent of the 32 billion tonnes of carbon dioxide emitted annually through human activity is absorbed by forests (IPCC 2007). Therefore, losing forest represents a double blow; sacrificing both the carbon storage that trees provide, and an ecosystem that can effectively absorb greenhouse gases produced by other human activity. Clearly, reducing forest loss can have a major impact on slowing or reversing anthropogenic climate change. The challenge is how to bring about this reduction.

Trading Carbon

The use of market instruments to control and reduce industrial pollution dates back to the US Clean Air Act of 1990, which sought to reduce acid rain and urban air pollution by controlling the amount of sulphur dioxide and other gases emitted by major polluters (mainly power plants). 'Command and control' regulation was considered to be excessively rigid, insensitive to geographical and technological differences, and generally inefficient. Under a new 'cap and trade' system, the US government set an overall cap on the amount of pollutants that could be discharged into the atmosphere in particular regions, then issued permits to local utility companies allocating each a portion of the total amount. The overall cap is lowered over time, aiming towards an emissions reduction target. Firms that need to increase their emissions beyond their allocation must purchase permits from those that require fewer permits. Firms that do not use their entire allocation – for instance, by installing more efficient equipment or switching fuel sources – can sell their excess credits. In effect, the buyer is paying a charge for polluting, while the seller is being rewarded for having reduced emissions (Stavins 2001).

As well, organisations that do not pollute may also participate – e.g., environmental groups can purchase and retire allowances, and hence drive up the price of the remainder according to laws of supply and demand. In the case of acid rain and urban air pollution in the north-eastern United States, this approach has proven quite successful, at far less cost to taxpayers than previous attempts to curb pollution (ibid).

More recently, the same 'cap and trade' approach has been applied to carbon dioxide and other significant greenhouse gas (GHG) emissions. The 1997 Kyoto Protocol is a legally binding international agreement to reduce GHG emissions worldwide, which came into force in February 2005. The Kyoto Protocol sets binding targets for 37 industrialised (referred as 'Annex I') countries, averaging a five percent reduction from 1990 levels over the period from 2008 to 2012. The Kyoto Protocol also introduced three market-based mechanisms to help signatory countries achieve their commitments, either at home or abroad (through offsets). These are emissions trading, the Clean Development Mechanism (CDM), and Joint Implementation (JI) (Halvorssen 2005).

Similar to the US Clean Air Act, the Kyoto emissions trading scheme creates a new commodities exchange, where companies buy and sell allowances to emit GHGs. Each Annex I country distributes

Assigned Amount Units (AAUs) or, in the case of EU member countries, European Union Allowances (EUAs), which are permits to emit one metric tonne of carbon dioxide equivalent (CO_2e) per year, up to the amount of their national target. Similar to the US Acid Rain scheme described above, this provides an incentive for companies in Annex I countries to invest in clean technologies and improve energy efficiency, and sell or 'retire' their excess permits.

In the thirteen years since Kyoto, the global carbon market has grown from zero to an estimated US$180-200 billion – with a traded volume in excess of 11 billion tonnes of CO_2e. Trading volume is projected to reach $1.4 trillion by 2020 (Bloomberg 2010). Presently, the largest multi-national, greenhouse gas emissions trading scheme in the world is the European Union Emissions Trading Scheme (EU-ETS). The EU-ETS currently covers more than 10,000 installations which are collectively responsible for 40 percent of the EU's total greenhouse gas emissions (Ellerman and Buchner 2008).

JI is another market mechanism, which allows Annex I parties to support an energy efficiency project in another Annex I country, to earn Emission Reduction Units (ERUs) – also allotted in one tonne CO_2e units – which can then be credited against the investor company's (or country's) emission reduction target.

The CDM is similar to JI, but is intended to support low-carbon growth in developing countries. Under the CDM, Annex I countries can support energy efficiency or other carbon reduction projects in non-Annex I countries to acquire Certified Emission Reductions (CERs) – equivalent to AAUs, EAUs or ERUs – to credit against their Kyoto emission targets. The CDM accounts for only a minor portion of the global carbon market. Investment in CDM projects reached a peak of around $8 billion in 2007, but has dropped since then, reaching only $2.7 billion in 2009 (McFarland 2010).

With the modest emission reduction targets stipulated for the 2008-2102 commitment period, even if the Kyoto Protocol is fully implemented by all parties, it will not result in any significant slowing of climate change. The primary purpose was to put in place the mechanisms that will be used for future conventions with far greater emission reduction targets.

Carbon 'Sinks'

The Kyoto Protocol also specifies rules regarding the use of 'sinks' (i.e., planting trees) as a way to remove or offset GHGs by sequestering CO_2 to meet emission reduction commitments. Since its introduction, there has been controversy over including afforestation (planting trees on open sites) or reforestation (planting trees on recently cleared sites) projects under the Kyoto mechanisms; some were concerned about the complexity and high cost of monitoring such programs, while others worried about issues of additionality (whether the activities would not have happened without the revenue of carbon reduction credits), leakage (whether a project merely shifts deforestation to another location) and permanence (how long the project activities can be maintained).

Presently, the EU does not allow CO_2 credits traded on the EU-ETS to be obtained from sinks. Some governments and industry groups lobby for their inclusion, while many environmental groups oppose including sinks in carbon markets, arguing that the relatively inexpensive carbon credits generated will allow major polluters to continue with business as usual, by purchasing carbon credits from afforestation/reforestation projects located in developing countries, rather than undertaking to reduce emissions from their power plants and factories at home. Presently, forest projects account for only a tiny portion of Kyoto CDM carbon reduction credits; by 2008, only 14 of 2,055 registered projects were afforestation or reforestation activities (Ellerman and Buchner 2008).

Emerging voluntary carbon markets, on the other hand, have tended to view forestry activities as large-volume, low-cost opportunities for generating offsets (Gorte and Ramseur 2008). It is a relatively simple matter to calculate how much carbon can be captured by a tree-planting project. The largest voluntary carbon markets are in the United States, centred at the Chicago Climate Exchange (CCX). Although membership is on a voluntary basis, member organisations are legally

required after joining to reduce their GHG emissions depending on their level of membership. The CCX uses units called Carbon Financial Instruments (CFIs), representing 100 tonnes of CO_2e, which can be derived from either allowances (i.e., internal reductions made at the facility site) or through supporting offsets.

Major members of the CCX include Ford Motor Company, DuPont, and Bank of America. The voluntary market's rapid expansion in the United States can perhaps be linked to the general anti-government and anti-regulation sentiment that dominates the political landscape there; it was cited as one justification of the Bush administration's refusal to ratify the Kyoto Protocol. In the spirit of free enterprise, the voluntary carbon market has spawned a burgeoning new industry of trading exchanges, registries, validators, verifiers, auditors and certifiers (McFarland 2010). Scores of NGOs, environmental organisations and research institutes are developing and promoting competing versions of voluntary certification standards, particularly for forestry-based offset projects.

Although still tiny (US$728 million – 8.7 tonnes of CO_2e – in 2008) in comparison to mandatory cap-and-trade schemes, the voluntary market has had a significant impact on global carbon trading. Proposed federal climate legislation in both the United States and Australia reference standards developed in the voluntary carbon markets. More significantly for the purposes of this essay, the voluntary markets have demonstrated the feasibility (and profitability) of investing in forestry-based carbon offset schemes.

And Then Came REDD

At the 11th Conference of Parties of the UNFCCC (COP11) in Montreal in 2005, the Coalition of Rainforest Nations, via the governments of Papua New Guinea and Costa Rica, requested an agenda item on 'Reducing emissions from deforestation in developing countries: approaches to stimulate action'. The basic proposition put forward was based on the premise that since new carbon credit markets financially rewarded polluters for reducing pollution, why not use the same mechanisms to compensate deforesters for not deforesting? Promoting the concept of carbon credits for avoided deforestation, the PNG ambassador to the United Nations argued that PNG's forest carbon was just as good as any coal or oil burnt in the West: 'A tonne is a tonne is a tonne' (BBC 2005). Furthermore, avoided deforestation would provide a number of other environmental benefits, complementing the aims and objectives of other international conventions and agreements (UNFCCC 2007: 8).

After COP11, the issue was taken up for consideration by a number of UNFCCC sub-committees, and at COP13 in Bali 2007, the Bali Action Plan called for:

> Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (ibid: 3).

The basic premise is simple. REDD is a proposal to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands. A baseline scenario of deforestation using historical data can produce a 'business as usual' projection of future deforestation and degradation. Then, activities implemented to mitigate part of this deforestation/degradation will result in a quantifiable reduction in carbon emissions, which can be certified and sold as carbon reduction credits.

The Bali Action Plan goes on, to

> [E]ncourage all Parties, in a position to do so, to support capacity-building, provide technical assistance, facilitate the transfer of technology to improve, inter alia, data collection, estimation of emissions from deforestation and forest degradation, monitoring and reporting, and address the institutional needs of developing countries to estimate and reduce emissions from deforestation and forest

> degradation; …[and to]…
> [I]dentify options and undertake efforts, including demonstration activities, to address the drivers of deforestation relevant to their national circumstances, with a view to reducing emissions from deforestation and forest degradation and thus enhancing forest carbon stocks' (ibid: 8).

The Bali Conference set off a frenzy of activities, which continues to gain momentum. The first post-Bali REDD pilot to come on line was the Ulu Masen project covering 770,000 hectares in the Indonesian province of Aceh, developed by Flora and Fauna International and Carbon Conservation Pty. Ltd, to be financed by Bank of America Merrill Lynch. The project aims to generate 3.3 million carbon credits a year to finance conservation and development projects for local communities (Government of NAD 2007). The United Nations established the Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD), the World Bank launched a new Forest Carbon Partnership Facility, and numerous bilateral aid providers began supporting REDD preparation activities in rainforest countries around the world. The largest of these to date is Norway's commitment of up to US$ 1 billion to the government of Indonesia to support development of a national climate and forest strategy (Royal Norwegian Embassy in Jakarta 2010).

Numerous key issues remain unresolved. These include the definition and scope of REDD – whether it pertains solely to reduced deforestation and degradation, or does it cover 'avoided deforestation' (i.e., conservation); problems of measurement, reporting and verification; how REDD will incorporate biodiversity conservation and social benefits; the rights of indigenous peoples and local communities as stakeholders; whether REDD should be financed via government-to-government capacity building support, or a fund established under UNFCCC, or via market mechanisms. Two early controversies were the aforementioned concern that REDD would 'flood the market' with cheap carbon credits, and the consideration that by basing funding on a baseline established using historical deforestation rates, REDD would inherently favour countries that had done a poor job of managing their forests, but not reward countries that had more successfully maintained and conserved forests.

Involving countries with high forest covers and low historic deforestation rates will be necessary to counter perverse incentives. This led to some modification of the original proposal. At the Poznań meeting of the UNFCCC in December 2008 (COP14), references to 'reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest stocks in developing countries' were subtly modified. In response to pressure from countries such as India, the semicolon was replaced with a comma, thus giving conservation and sustainable management of forests the same priority in negotiations as deforestation and forest degradation. Since then, REDD has been referred to as 'REDD-plus' (henceforth REDD+).

A policy document prepared by the Indonesia Forest Climate Alliance (IFCA 2008: 8) sets out some of the issues that must be resolved to create an effective REDD+ value chain:

1) Emissions Reference (Baseline)
    a) What are historical emissions levels from deforestation and degradation?
    b) What future emissions will occur under a 'business as usual' scenario?
    c) What will be the impact of additional planned deforestation?
    d) What is a suitable benchmark, given REDD's potential and future development needs?
2) Strategies to Reduce Emissions
    a) What are the key drivers of deforestation and degradation?
    b) What measures can be taken to tackle drivers and mitigate emissions?

c) What are strategies likely to cost, given opportunities foregone through not deforesting?
d) What are the enabling conditions for strategies to work?

3) Monitoring
   a) How can it be proven that reduced deforestation and degradation have taken place?
   b) Who has the right to sell carbon?
4) REDD Markets/Financing
   a) Who can sell carbon?
   b) How will the price of carbon be fixed?
   c) How will carbon transactions take place, and how will they be regulated?
5) Payment Distribution
   a) How might carbon payments be distributed to provide incentives to those who can reduce deforestation?
   b) Who has the right to receive payments?
   c) How can equity and fairness be guaranteed?

The document identifies a number of key risks as well, including governance risks; permanence and leakage risks; project risks – especially related to land ownership and conflict; and perverse incentives.

The influential 2006 Stern Review of the Economics of Climate Change gave the concept a major boost. The report devotes an entire chapter (Chapter 25, pp. 537-53) to discussing how complicated payment for avoided deforestation schemes will be, but comes to the conclusion that 'in the longer term there are reasons to believe that the […] technical challenges to include avoided deforestation in carbon markets can be overcome' (Stern 2006: 548).

REDD and its Discontents

Numerous commentators (e.g., Sunderlin 2010, Lang 2009) have warned that REDD/REDD+ could become just the latest and biggest incarnation of a long list of forest development and management initiatives that have failed to achieve their objectives, because environmental (or environmental and resource economics) concerns are 'in the drivers' seat', and/or because they have failed to successfully engage local communities, because they channel benefits to relatively few large forest owners, can produce 'perverse incentives', and often provoke resentment, sabotage and conflict.

A number of NGOs, environmental groups and indigenous peoples' organisations have protested against forest carbon trading schemes, usually focussing on one of two issues: the aforementioned concern about 'flooding the market' with cheap carbon credits thereby permitting major GHG producers in industrialised nations to continue with business as usual rather than investing in technologies that will reduce GHG emissions at home;[2] and the exclusion of indigenous peoples from REDD+ negotiations and possible threats to their access to the forest territories and resources upon which they depend.[3]

Still others challenge the environmental economics underpinnings of REDD/REDD+. Gergersen et al. (2010) question whether the 'opportunity cost' approach to calculating the cost of avoided

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[2] Organisations such as Greenpeace, Earth Policy Institute, the Sierra Club and the Australian Green Party – and many prominent energy company executives as well – support the introduction of carbon taxes, as being more certain, effective, and ultimately easier to administer, compared to carbon markets. (Carbon Tax Center, n.d.)

[3] AT COP14 in Poznań in December 2008, the United States, Canada, Australia and New Zealand blocked inclusion of reference to indigenous peoples and the explicit mention of rights in UNFCCC REDD/REDD+ policy documents.

deforestation. The authors are particularly critical of the research carried out by the International Institute for Environment and Development (IIED) for the Stern Review, purportedly to assess the opportunity cost of avoided deforestation initiatives.

A key concept in modern economics, opportunity cost is described as 'the cost of an alternative that must be forgone in order to pursue a certain action' (investopedia.com n.d.). The IIED research attempted to assess the opportunity cost of not deforesting in eight countries, prompting Mr. Stern to conclude that:

> The opportunity cost of forest protection in the eight countries responsible for 70 per cent of emissions from land use could be around $5 billion annually, initially, although over time marginal costs would rise (Stern: 537).

Without proposing alternate calculations or figures, Gregersen et al. (2010: 1) suggest,

> While in theory and under certain real-world conditions opportunity cost provides a useful indicator of payments needed, we see a number of problems in using it in the main political, social and economic contexts faced in the tropical countries that will be implementing REDD+.

The authors note that in many forested areas, we are not dealing with a well-functioning market system, making it difficult to estimate opportunity cost correctly. For example, they propose that in the case of slash and burn farmers or shifting cultivators that operate mostly outside established market systems:

> It is *perceived* opportunity cost by the recipient that matters in terms of providing incentive not to deforest; and that might be extremely high if *perceived* survival this coming year depends on deforesting and growing crops on the cleared land (ibid: 1-2, italics in original).

The authors also suggest that opportunity cost calculations might be inappropriate in the case of illegal logging or other illegal activities that result in deforestation; similarly, where decisions that lead to deforestation have been made for strong political reasons; where the groups involved do not really understand what they would be promising and what their alternatives are; and where property and/or land use rights are not adequately defined. In other words, opportunity cost is not a sound basis for calculation of the cost of implementing REDD+ under the conditions that prevail in most countries and regions where it is being proposed.

The criticism of opportunity costs as the basis for REDD+ design, however, deals only a glancing blow at the basic premise of the approach: at worst, using the 'real world economics' proposed by Gregersen et al. would result in higher cost figures for REDD+. It does not, however, question whether REDD+ will achieve what it is intended to do.

The general consensus in the burgeoning REDD/REDD+ literature appears to be that the scheme is worth pursuing, that it will go ahead, and that the issues and risks identified above can be addressed through the proper mix of policy, capacity building, monitoring and verification mechanisms, and distributive protocols.

REDD+, it appears, has become a major new industry. A Google search for the terms REDD and REDD+ yields nearly 10 million 'hits'. This, for a term that only came into existence five years ago! The potential for major new revenue streams – ostensibly to support improved forest management, sustainable development and poverty alleviation – present a compelling motivation.

REDD ME MY RIGHTS: THE POSSIBLE IMPACT OF REDD/REDD+ ON FOREST COMMUNITIES IN INDONESIA

Of all the countries in the world, none potentially have more to gain from REDD/REDD+ than Indonesia. Indonesia presently has the third largest expanse of tropical forest of any tropical

country, the second highest rate of deforestation (FAO 2009), and the highest level of forest and land use change-related carbon emissions (PEACE 2007). It has become a global centre of REDD+ research, planning and development. As previously mentioned, Indonesia hopes to become the major recipient of global REDD/REDD+ funding, with a projected income from REDD carbon credits of between US$765 million and US$4.5 billion per year. Presently there are over 20 REDD/REDD+ trial projects in various stages of preparation in the country; donors, venture capitalists and government agencies at various levels are tripping over one another jostling for position in the oncoming 'REDD rush'.

This essay now turns to some possible implications of REDD/REDD+ implementation on Indonesia's forests and forest communities – estimated to number between 65 and 100 million people (Colchester 2002, Fay, Sirait and Kusworo 2000). It generally views REDD/REDD+ as a continuation of Indonesia's long history of dispossession of local communities, in the name of scientific forestry.

Scientific Forestry

Indonesia, a vast archipelagic nation straddling the equator between the Indian and Pacific Oceans, used to be almost entirely covered in forest. It contains a wide variety of forests, including lowland rainforest, swamp forest, peatland forest, mangroves, dry tropical forests, montane forests, savannah forests, heath forests, and dry deciduous forests. Indonesia's forests still covered some 87 percent of the country in 1900. By the 1950s, in the first decade of Indonesia's independence, this figure remained about the same (85 percent), some 162 million hectares. Rates of deforestation then began to increase geometrically. With the dawn of industrial logging and large-scale transmigration programs in the 1970s, followed in the 1980s by a surge in mining, road-building, and a domestic timber processing industry and oil palm plantations in the 1980s, pulp-and-paper industries and timber plantations in the 1990s, Indonesia lost some 74 million hectares of forest in the second half of the 20th century (FWI/GFW 2002). What forest remains is seriously degraded. This loss has irreversibly changed the lives of the millions of Indonesians whose livelihoods depended on forest ecosystems.

The primary drivers of this process have been state control of forest land and resources, and the practice of scientific forestry. These were first introduced to the island of Java by the Dutch colonial government in the early decades of the 19th century, to maximise efficient and profitable production of native teak forests there. Peluso (1992: 53) describes the introduction of scientific forestry to the teak and 'junglewood' forests of Java in the mid-19th century:

> Territorially consolidated management of state forests, based on scientific principles […] became the accepted and legal means of forest use. […] [L]aws criminalised most traditional forest uses by forest villagers.[4]

What the Dutch colonial state initiated in Java, was later extended by ex-President Suharto's New Order government to the vast forest lands of Indonesia's outer islands, beginning with the passage

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[4] Gadgil and Guha (1992: 208-09) present a somewhat more emotional indictment of scientific forestry's introduction to India, which was taking place at about the same time:

> The central tenet of this European belief system was the primacy of the objective of making maximum profit on the market. The currency in which this profit was measured was money; so that the whole diversity of resources that was earlier of significance to humans could now be transformed into money. This happened of course because there were now technologies available to change resources from one form into another, and into products that would fetch money; and new technologies were being continually invented to transform them in newer ways. […] Add to this the fact that the maximisation of profits has to accrue to a state apparatus and not to local people, and you get an additional rule of thumb, namely that as much land as possible should be brought under as complete a control as possible by the apparatus of state.

of the Foreign and Domestic Investment Laws and Basic Forestry Law of 1967, and still intensifying when the regime finally collapsed in the wake of the 1997-98 Asian financial crisis. Despite clear evidence that forest resource extraction was being carried out in a highly destructive fashion, international agencies such as the FAO, ITTO, World Bank and IUCN lent their support to promotion of this model of forestry, along with the technocratic process of zoning Indonesia's forests.

The justification of this zoning process was to rationalise forest use. Forests were mapped and broadly categorised into 'protection forests',' production forests', and 'conversion forests', then into various sub-categories, based on biological and topographical characteristics – with no reference whatsoever to the livelihoods or land use systems of the resident peoples. This process served to legitimate the government's approach, which ignored the existence and rights of forest dwellers, while promoting logging, transmigration and large-scale plantations on community lands (Colchester 2002).

The Ministry of Forestry grew into one of the largest, most powerful, most corrupt agencies in a notoriously corrupt government. The department, which claims jurisdiction over 70 percent of the country's territory (nearly 90 percent of the 'outer islands'), employs over 40,000 people, and has close links some of the wealthiest individuals and corporations in the country as well as many prominent military leaders.

With the downfall of the New Order government in 1998, Indonesia embarked on a radical program of decentralisation, devolving many powers and functions of government to the district level. Although this process ostensibly shifts the locus of decision-making much closer to the people affected, it also had the effect of decentralising forest corruption. The chaotic early years of the *Reformasi* period were marked by a significant *increase* in Indonesia's deforestation rate, as District Heads began parcelling out logging concessions to supporters, family members and cronies, often located within lands variously allocated by different jurisdictions to protected areas, existing or disputed logging concessions, and customary community areas (Palmer and Engel 2007).

'Community Forestry'

Naturally, such a process cannot unfold without engendering serious resistance. Throughout the New Order period, protests were brutally suppressed. Most major logging companies had close ties with, or were owned outright by, military leaders. It was not until the 1990s – when it was becoming clear that Indonesia was running out of forest – that elements within the government began to reconsider forest policy, and beginning in 1998 the Ministry passed a few regulations to promote limited community management of some forest resources. At the same time, the 1999 decentralisation provided new opportunities for the re-empowerment of local customary (*adat*) institutions (Wollenberg and Kartodihardjo 2002).

Implementation of community forestry programs has been halting and half-hearted. The basic idea is to provide limited usufructory leases to communities to manage state forest lands unencumbered by any other rights or concessions – generally degraded forest land or abandoned logging concessions – to communities for periods of up to 25 years, on the condition that the community incorporates as a cooperative under the Cooperatives Act. During the first few years, there was considerable confusion as the Ministry and local governments tussled for authority in the context of Indonesia's ongoing decentralisation program. The Ministry of Forestry's support for the program is lukewarm at best, as there is suspicion that it could represent the first step toward greater acknowledgement of local community's property rights to forest lands and resources, which is still fiercely opposed within the forestry bureaucracy (Colchester 2002).

Local community reaction to the program has been tepid as well; 'most villagers perceive the land as theirs, so joining a Community Forestry program would merely slash their de facto forest rights' (Lindayati 2002: 48). Furthermore, the requirement that communities formally incorporate into a cooperative represented a significant hurdle for many community members. Throughout much of

Indonesia's history, state-sponsored cooperatives have manifested more as a system of rewarding loyal elite, than as associations of mutual benefit owned and democratically managed by members. Pincus (1996: 174) labelled village cooperatives as 'spectacular examples of political accumulation'. Since its initiation in the mid-1990s, Indonesia's Community Forestry program has disbursed Community Forestry permits for slightly less than a million hectares of degraded forest land – roughly 0.7 percent of the 133.7 million hectare national forest estate (Ministry of Forestry 2009). By comparison, some 46.5 million hectares of state forest land is deforested (ibid).

REDD+ in Indonesia

As previously mentioned, there are at least 20 different REDD+ trial programs currently under preparation in Indonesia. Many of these are exploring ways to assure that the potential benefits of REDD+ flow to local communities. The existing Community Forestry framework is the most likely institutional structure upon which these programs will be constructed.

A policy document prepared by the Indonesia Forest Climate Alliance (IFCA), established by the Ministry of forestry with support from the World Bank, DFID and GTZ, however, suggests five possible strategies for REDD+ implementation in Indonesia: i.e., reducing carbon emissions from a) oil palm plantations; b) pulp and paper plantations; c) production forests; d) protected areas; and e) peatlands (IFCA 2010: 30-55). Of these various scenarios, only the production forest and peatland schemata might involve some form of Community Forest management. From the perspective of a prospective investor, the choice between dealing with a 'rational' corporate entity (e.g., compensating a palm oil or pulp plantation owner to employ less destructive land clearing techniques and/or set aside a percentage of acreage for natural forest set-asides), a government agency (e.g., supporting improved management of national parks or protected areas), or disparate groups of impoverished, semi-literate forest fringe community members (Community Forestry), appears fairly obvious.

By this reckoning, REDD+ appears likely to become yet another episode in the process of exclusion and dispossession that has accompanied the scorched earth march of scientific forestry across the Indonesian landscape for the past 50 years.

ARE WE BARKING UP THE WRONG TREE?

At a recent conference on social forestry in Kolkata, India, Dr. Ajit Banerjee of the Kolkata Institute of Development Studies, questioned the need for financial incentives to reverse deforestation and forest degradation. Forest-dependent people, he claims, can and do preserve and enhance forests – provided that they can be assured access to the direct benefits that these forests provide.
Dr. Banerjee knows whereof he speaks. India is the only country in Asia where total forested area is actually increasing: by nearly half a million hectares over the past two decades (FAO 2009).

The Indian state of West Bengal pioneered 'Joint Forestry Management' (JFM) in the 1980s and '90s, from whence it has spread to other parts of the country. JFM endeavours to involve rural people (villages generally within three kilometres of the forest) jointly with the Forest Department, in the protection and management of their local forests, in return for entitling them to access to these forests to collect subsistence-related forest products, and to receive a share of the net income from timber sales. Forests regenerate primarily through natural processes of regrowth an coppicing, producing sufficient biomass for local people to meet their household needs for fuelwood and fodder, and to earn some money from the sale of forest products in local markets. Through the 1990s, the program expanded until by the end of 2001 more than 44 percent of all forests in the state had come under JFM (Banerjee 2007). This has led to a pronounced improvement of forest quality and quantity, along with improved welfare of millions of West Bengal villagers. Decades-long conflicts between the Forest Department, wealthy landlords and poor and landless people have largely subsided.

Dr. Banerjee suggests that injecting large amounts of cash into this scenario, through complicated and abstruse procedures and mechanisms, would be very unlikely to result in any additional improvement in the quality of forests or local livelihoods; in fact, would most likely generate new arenas of conflict as powerful – and less powerful – stakeholders jostle for their share of carbon revenue streams.

By this reckoning, Indonesia could most effectively address its deforestation problem – providing a significant contribution to efforts to curb global warming in the process – by addressing the forest tenure issues that have underpinned its disastrous experiment with scientific forestry. Progress to date on the country's Community Forestry program would appear to indicate that such reforms are not yet forthcoming. Perhaps REDD/REDD+ can provide some appropriate incentives, to the relevant stakeholders, to accelerate the reform process. On the other hand, it could create new arenas of conflict, as national and local government agencies, local, national and international business interests, and local forest users compete for their share of the expected REDD+ windfall.

One thing is certain: if REDD/REDD+ turns out to be just an extension (intensification, more likely) of scientific forestry management doctrine and practice in Indonesia, it is sure to fail. Indonesia's remaining forests, the millions of people who depend on them for their livelihoods, and the global climate, will all pay the price.

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