



WORLD GROWTH

# **How REDD Will Impoverish the Developing World and Reduce Biodiversity**

## **An Indonesian Case Study**

A World Growth Report

April 2011

# EXECUTIVE SUMMARY

***A number of developing countries have committed to reduce greenhouse gases and to participate in international REDD (Reduced Emissions from Deforestation and Forest Degradation) programs to cease deforestation and reshape their economies as “low carbon” economies. Environmental non-government organisations (NGOs) and Western donors argue this will reduce greenhouse gas emissions and protect biodiversity.***

The REDD programs will have the opposite effect. It will impoverish those economies. The related calls by environmentalists to have greater forest areas classified as protected areas is also likely to reduce both biodiversity and the economic welfare of local people.

REDD is aimed at developing countries rich in tropical forest. Around USD 5 billion has been pledged by Western donors to fund this reconstruction of the economies.

In this report, REDD programs proposed for Indonesia are reviewed as a case study. Experience with the economic and environmental impacts of national parks in Indonesia is also reviewed. The results indicate these strategies will reduce economic growth in Indonesia and exacerbate the negative environmental impacts, which are the general result of mismanagement of protected areas in Indonesia.

World Growth would expect the impact on other tropical forest economies – Papua New Guinea, Cameroon, Democratic Republic of the Congo, Gabon and Guyana – to be similar.

The first shortcoming of REDD is fundamental - it seeks to address a problem which, according to noted environmental journalist Fred Pearce of *NewScientist*, is no longer a major problem. This is the proposition that deforestation is a major source of greenhouse gas emissions. REDD's goal is to reduce deforestation's purported 17 per cent contribution to global greenhouse gas emissions. Yet research commissioned by the World Bank and the Norwegian Government in 2009 reduces the contribution of deforestation by as much as 50 per cent or more.

Despite this, aid donors have allocated almost USD5 billion to implement the REDD programs in developing countries. In the case of Indonesia, the Norwegian Government has promised USD1 billion to Indonesia and NGOs are calling for greater funding to expand protected areas.

Not only has the REDD “problem” diminished, major weaknesses in the program have been revealed in an analysis for the Organization for Economic Cooperation and Development (OECD). REDD funding and programs was assessed to be uncoordinated, unaccountable and not in the interest of recipient countries.

NGOs argue that the expansion of national parks will reduce emissions. There is no basis for that claim either. Mismanagement of national parks by NGOs has been characterised by a lack of NGO accountability, generating adverse economic impacts and high levels of deforestation.

A REDD strategy to create a ‘low carbon economy’ is to be trialled in Central Kalimantan Province in Indonesia.

The conclusion in this report is that the pilot program is likely to retard economic growth. The Indonesian Government's own analysis shows that initially REDD will cause the Central Kalimantan economy to slump. Aid money will be required to prop up the economy while new industries are established. That will not work. Foreign aid or government money never effectively substituted for the economic benefits of private enterprise.

The REDD strategy includes a moratorium on granting of new forest licenses for the forestry, mining and palm oil sectors. These are major industries in Central Kalimantan and generate 15 percent of Indonesia's national gross domestic product (GDP).

These highly productive industries depend upon access to land for expansion. Under REDD, that will be effectively frozen until there is comprehensive land reform. This cannot be done quickly. Land tenure in Indonesia is very complex. This strategy will be a brake on growth.

Export revenues would also fall. The forest and palm sectors contribute more than USD 22.1 billion in exports annually – approximately 15.6 per cent of Indonesia's total export revenue.

Environmental campaigners want the proposed moratorium extended indefinitely. If this occurred up to 3.5 million new jobs would be lost on an annual basis. The impacts would also spread beyond to households and other jobs dependent those industries.

The most astonishing feature of the REDD programs which donors are funding is that no independent analysis has been undertaken of the assessment of emissions from the countries concerned nor of the detailed economic impact of these programs.

The calls by NGOs to extend national parks to reduce emissions also lack factual support. The record in Sumatra in fact shows that failings in current management regimes, including those administered by NGOs like WWF, themselves contribute to deforestation.

Protected areas that have worked have simply shifted deforestation to neighbouring areas. Studies commissioned by environmental NGOs that underlined lack of economic opportunities as a key driver of deforestation have been ignored.

The problems being found with REDD in Indonesia are occurring in other developing countries such as Papua New Guinea. The programs will have little impact on greenhouse gas emissions, but are guaranteed to reduce economic growth in the developing countries to which they are targeted.

REDD programs in Indonesia should in the meantime be suspended and reviewed.

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# ACRONYMS AND ABBREVIATIONS

## Acronyms and Abbreviations

<b>ADB</b>	Asian Development Bank
<b>CBD</b>	Convention on Biological Diversity
<b>CEPF</b>	Critical Ecosystem Partnership Fund
<b>CIFOR</b>	Center for International Forest Research
<b>CIS</b>	Commonwealth of Independent States
<b>DNPI</b>	Dewan Nasional Perubahan Iklim
<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>G-20</b>	Group of Twenty Finance Ministers and Central Bank Governors
<b>GDP</b>	Gross Domestic Product
<b>GHG</b>	Greenhouse Gas
<b>HA</b>	hectare
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>LOI</b>	Letter of Intent
<b>NGOS</b>	Non-Governmental Organizations
<b>NPV</b>	Net Present Value
<b>OECD</b>	Organization for Economic Cooperation and Development
<b>PNG</b>	Papua New Guinea
<b>REDD</b>	Reduced Emissions from Deforestation and Forest Degradation
<b>UNEP</b>	United Nations Environment Programme
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>US</b>	United States
<b>USD</b>	United States Dollars
<b>WDPA</b>	World Database on Protected Areas
<b>WWF</b>	World Wide Fund for Nature



***The Western world has committed almost USD 26 billion to international funds for climate-related mitigation and adaptation projects. Much of this money has been directed towards developing countries under the banner of 'climate related development assistance'. The aim of the funding is to assist poor countries to become 'low carbon economies'.***

Approximately USD 5 billion has been earmarked to fund the restructuring of developing countries with claimed high levels of emissions from deforestation or land-use change.<sup>1</sup> This is provided through programs under the REDD (reduced emissions from deforestation and forest degradation) scheme.

These donations are large; they reflect a judgement by most Western donors that reorienting of developing economies towards environmental outcomes is a higher priority than raising living standards.

The clearest signal of this judgement is a pledge of USD 160 billion annually towards long-term climate financing. This is significantly more than the annual USD 90 billion for conventional development assistance.

The REDD programs being implemented are donor driven. The REDD concept is yet to be formally adopted in a treaty by parties to the United Nations Framework Convention on Climate Change (UNFCCC). The original idea behind REDD was that if developing economies with significant forested areas reduced conversion of forest land to other uses, they would generate carbon credits that could be traded into a global emissions trading scheme set up under a successor to the Kyoto Protocol. Revenue lost by curbing productive activity on converted land would be substituted by revenue from "farming carbon".

It was clear at both the Copenhagen 2009 and Cancun 2010 UNFCCC negotiations that no globally regulated system of capping emissions and trading of permits will be agreed. REDD programs – as proposed by donor nations – were not approved at the Cancun session.

Nevertheless, most of these donors are committed to a global cessation of deforestation. In promoting this ambition, they have largely adopted the reasoning and philosophy of western environmental NGOs, a number of whom have received funding from the same donors.

Now, donors, including the World Bank, encouraged by environmental NGOs, are seeking to advance this ambition through voluntary REDD programs. In effect, they are offering financial inducements to several developing countries to adopt measures which were rejected in the formal (UNFCCC) negotiating forum.

The REDD schemes commit developing countries to restructure their economies as 'low carbon' economies. Conditions to receive monies typically include a commitment to impose an immediate moratorium on conversion of forest land, a long-term commitment to ceasing deforestation, and a formal commitment to reduce emissions of greenhouse gases. Many studies have been mounted to assess how these developing countries can move to a low carbon economy. McKinsey and Company, a US-based consultancy, developed a model of how that transition can be made in the US economy.<sup>2</sup> From that, a number of variations to apply the model to other economies have been developed,<sup>3</sup> financed by Western aid donors and philanthropic foundations.

Serious economic flaws have been found in the basic McKinsey model,<sup>4</sup> but to the knowledge of World Growth, no forested developing country government has commissioned independent assessments of the model developed to demonstrate emissions from their economy, or of the economic restructuring plans which were developed with assistance from the same donors.

1. 'Climate Funds Update' accessed on March 21 2011 at [climatefundsupdate.org](http://climatefundsupdate.org). Published by the Heinrich Boll Foundation and the Overseas Development Institute.

2. McKinsey & Company, 2007, *Reducing U.S. Greenhouse Gas Emissions: How Much at What Cost*, Greenhouse Gas Abatement Mapping Initiative, Executive Report, McKinsey & Company and the Conference Board, December.

3. For example for Guyana, Indonesia and Papua New Guinea

4. Howard W Pifer III, W David Montgomery, Dean C Maschoff, and Anne E Smith, 2010. *Managing the Risk of Greenhouse Gas Policies*, CRA International Inc. January 2010 .

# INTRODUCTION

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This is a serious mistake. World Growth research shows case after case of inaccurate and skewed assessments of impacts of forestry, including emissions, in NGO analyses.

It is not surprising therefore that an aid effectiveness analysis commissioned for donors and international agencies including the Organization for Economic Cooperation and Development (OECD) and the Asian Development Bank (ADB)<sup>5</sup> found that REDD programs have thus far been uncoordinated, unaccountable and not in the interest of donor countries.

Most of the funding for REDD – and most of the activities – have been directed towards the East Asian region. Within that region the largest proposed recipient of funding has been Indonesia. It signed a Letter of Intent (LoI) with the Norwegian Government to provide one billion US dollars if Indonesia implemented the REDD scheme.

Western NGOs, the World Wide Fund for Nature (WWF) in particular, have also been arguing that, in parallel, forest conservation areas need to be expanded, not only to protect biodiversity, but also to reduce emissions of greenhouse gases. This report examines the economic impact of this REDD driven economic restructuring initiative to mitigate land-use emissions at the local, sub-national and national levels in Indonesia. A plan to restructure the economy of the Province of Central Kalimantan, the pilot of this Green restructuring program for Indonesia, is examined. As well the record of management forest conservation areas in Indonesia is also examined, including the environmental and economic impacts impact of those activities.

Lessons are drawn on the economic impacts which no doubt will be applicable to other developing countries which elect to participate in REDD programs.

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5. Capacity Development for Development Effectiveness Facility, 2010. Realising Development Effectiveness - Making the Most of Climate Change Finance in Asia and the Pacific: A synthesis report from five country studies in Bangladesh, Cambodia, Indonesia, the Philippines and Vietnam. Prepared by Nigel Thornton for the Asia Pacific Climate Change Finance and Aid Effectiveness Dialogue, 19th–20th October 2010.



# 1. REDD AND LAND USE: AN UPDATE

***REDD is based on an assumption that emissions from deforestation are high, yet new research shows they have been overstated by at least 50 percent. It cannot now be said deforestation is a significant contributor global emissions. This calls into question the vast sums of money that have been directed from aid programs towards REDD programs in developing countries.***

## 1.1 A REDD update

REDD (reduced emissions from deforestation and forest degradation) is rooted in the assumption that it is possible to make standing forests and land more economically valuable than as harvested forest or agricultural land.

Global policymakers had hoped that it would be possible to create carbon credits from REDD emissions reductions, which would feed into a global emissions trading system.

However, in the most recent round of negotiations in Cancun in 2010, the 'Cancun Agreements' provided an agreement on how forestry is to be treated. It does not include the use of carbon markets.<sup>6</sup>

The agreements request that developing countries, supported by donor funds and technology, begin building national action plans, forest reference emission levels, monitoring systems and stakeholder management systems, despite a lack of agreement on a start date for the new forestry protection measures or any firm commitment on financing options. UNFCCC scientific bodies have been asked to recommend key methodologies for the measurement of emissions from forest conversion.<sup>7</sup>

The reversal within the United Nations reflects a broader move away from REDD carbon credits by donor institutions.<sup>8</sup> REDD in its current form among donor groups is instead focused on reducing emissions through non-market means, i.e. providing aid programs that encourage reductions in economic activity involving agriculture or forestry.

Significantly, close to USD 5 billion has already been pledged to REDD programs.<sup>9</sup> The approach forestry to (colloquially described as "REDD+"; the 'plus' indicating an approach that incorporates conservation, reforestation, afforestation and sustainable forest management, something the NGOs and a number of donors objected to).

Donors have effectively disregarded this broader approach. They have included funding conditions requiring recipients of REDD funding commit to formal targets to reduce emissions; institute moratoria on conversion of land for productive purposes; and commit to long term targets to cease land conversion. In addition, very little of the current roll out of international REDD projects is being directed towards encouraging private sector investment in sustainable forest management.<sup>10</sup>

There environmental justification for seeking these commitments is weak. Deforestation emissions have been overstated (see section 1.3).

The prominence of deforestation as a climate change problem is relatively recent, and generated by campaign organizations rather than the scientific establishment. The previously prominent case against land use change was its impact on biodiversity values.

Yet it is rarely acknowledged that levels of deforestation have fallen over the past two decades;<sup>11</sup> or that biodiverse regions such as South East Asia have set aside significantly greater areas for biodiversity conservation (21 per cent) compared to Europe (4 per cent).<sup>12</sup> This greatly exceeds the 12 per cent agreed to by the parties to the United Nations Convention on Biological Diversity for biodiversity conservation.

6. UNFCCC (2010), "Outcome of the work of the Ad Hoc Working Group on long term Cooperative action under the Convention."

7. UNFCCC (2010), "Outcome of the work of the Ad Hoc Working Group on long term Cooperative action under the Convention."

8. *ibid.*

9. World Resources Institute (2010) "Summary of Developed Country's fast-start climate finance pledges," 29 November, accessed at: <http://www.wri.org/publication/summary-of-developed-country-fast-start-climate-finance-pledges>

10. UNFCCC (2010), "Outcome of the work of the Ad Hoc Working Group on long term Cooperative action under the Convention". UNFCCC. 10 December, accessed at: [http://unfccc.int/files/meetings/cop\\_16/application/pdf/cop16\\_lca.pdf](http://unfccc.int/files/meetings/cop_16/application/pdf/cop16_lca.pdf)

11. FAO, 2010. Global Forest Resources Assessment 2010. Food and Agriculture Organization of the United Nations. Rome, Italy

12. *ibid.*

## 1.2 Drivers of deforestation

Environmental campaign groups and Western aid donors now promote ‘zero deforestation’ in developing countries. This is based on the assertion that deforestation is responsible for as much as 20 per cent of global greenhouse emissions. It is effectively a call to turn all remaining forest areas into protected areas.

NGOs regularly assert that commercial forestry is the key driver of deforestation. In reality however, the drivers of deforestation are many and varied.

Climate change, agricultural expansion, commercial forestry, fuel needs and sub-standard forest management practices are the major proximate causes of forest loss.

Multidisciplinary studies indicate that the underlying drivers are highly variable and context-specific. A meta-analysis of available case studies indicates that the drivers of deforestation cannot be reduced to one or two variables, but are instead influenced by combinations of regional, economic, political and institutional factors.<sup>13</sup> Researchers acknowledge that uncovering the underlying driving forces of land-use/cover change is “a formidable task.”<sup>14</sup>

Basic social and economic factors, such as population growth and the need for food and fuel are most often the major underlying drivers of deforestation.

Research continues to show that where population growth is high and measures of income, health and education are low, large levels of deforestation occur.<sup>15</sup> Much of this is driven by subsistence agriculture.

A study of 28 developing countries from Africa, Asia, and Latin America found that countries with high population growth and rapid expansion of agriculture had higher-than-average rates of deforestation between 1968 and 1978.<sup>16</sup>

According to the FAO, deforestation is driven by the need for greater production of food for expanding populations and developing economies.<sup>17</sup> Specifically, the FAO found that agriculture is the largest contributor to

forest change in tropical Asia, the Pacific, Latin America and the Caribbean. This is also demonstrated in reports commissioned by the Secretariat of the UNFCCC. Commercial forestry accounts for just 14 percent of the area deforested/degraded annually. Eighty per cent of deforestation is driven by both subsistence and commercial agriculture; and 53 percent of deforestation supports subsistence livelihoods.<sup>19</sup>

## 1.3 Deforestation Emissions: An Update

New research commissioned by the World Bank and the Norwegian Government released at the UNFCCC meeting in November 2010, states that deforestation accounts for only 5 to 9 percent of global emissions and that these numbers are likely to fall a bit further because they do not account for carbon stored by forest regrowth.<sup>20</sup> The new findings were published by Winrock International and were an outcome of research financed by the World Bank and the Government of Norway as an input into the World Bank’s 2010 World Development Report on climate change and development.<sup>21</sup>

This is half the figure – 17 per cent – that is generally accepted within the climate policymaking community. This number derived from research undertaken by the Intergovernmental Panel on Climate Change (IPCC) for the Fourth Assessment Report.<sup>22</sup> It was influenced greatly by research produced by the World Resources Institute,<sup>23</sup> although was always qualified with a margin of error of plus or minus 50 percent. Despite the high margin of error, the policy community has generally treated it as a firm assessment.

For example, the British Government report prepared by economist Sir Nicholas Stern<sup>24</sup> gave mainstream credibility to thinking that deforestation in countries such as Indonesia, Brazil and Congo causes 17% of global climate emissions. Environmental NGOs conflated this to 20% without empirical support.

The new findings highlight that the widely used assumptions on the contribution of deforestation to global emissions have been speculative at best, and raise questions

13. Geist, H.J., Lambin, E.F., 2001. ‘What Drives Tropical Deforestation?’ LUCC Report Series 4, Louvain-la-Neuve, 2.

14. *ibid*

15. Jha, S., Bawa, K.S. 2005. Population Growth, Human Development and Deforestation in Biodiversity Hotspots, *Conservation Biology*, 20, 3, 906-912

16. Allen, J.C., Barnes, D.F., (1985) ‘The Causes of Deforestation in Developing countries,’ *Annals of the Association of American Geographers*, 75 (2) pp. 163 – 184.

17. FAO (1996) ‘Long-Term Historical Changes in the Forest Resource’, Geneva Timber and Forest Study Papers, No. 10.

18. FAO (2009). *State of the World’s Forests 2009*. United Nations Food and Agriculture Organization. Rome, Italy

19. UNFCCC, 2007. Investment and financial flows to address climate change. United Nations Framework Convention on Climate Change.

20. Harris, Nancy, Stephen Hagen, Sean Grimland, William Salas, Sassan Saatchi, and Sandra Brown. “Improvement in Estimates of Land-Based Emissions.”

21. World Bank, 2010. *World Development Report 2010: Development and Climate Change*. World Bank Group, Washington DC.

22. Intergovernmental Panel on Climate Change, 2007. *Climate Change 2007: Synthesis Report*. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva: IPCC.

23. Houghton, R.A. 2003. Data Note Emissions (and Sinks) of Carbon from Land-Use Change. (Estimates of national sources and sinks of carbon resulting from changes in land use, 1950 to 2000). Report to the World Resources Institute from the Woods Hole Research Center. Available at: <http://cait.wri.org/downloads/DNLUCF.pdf>.

24. Stern, N. (2006). “Stern Review on The Economics of Climate Change (pre-publication edition). Executive Summary”. HM Treasury, London

about the cavalier approach of donor governments to commit collectively billions of dollars to address a supposed problem which had the shakiest of underpinnings. Other recent published work that has questioned assumptions used by Stern and the IPCC.<sup>25</sup>

The Winrock research was available to the World Bank before it completed the 2010 World Development Report. The research is cited, but the results are not incorporated. The report instead reasserted the IPCC estimate (17 percent) and underlined the significance of land use change emissions.

The findings of the research were released a year later before at the UNFCCC meeting in Cancun (December 2010). They have not been refuted. It is extraordinary that donors and multilateral institutions continue to advocate financially expensive strategies to reform developing country economies, in full knowledge they will reduce growth, in the knowledge of light of the existence of this research. The results have significant implications for the credibility aid donor programs and climate mitigation financing. Many commitments to emissions reductions commitments have been based upon the earlier assumptions of the Stern work. Any projected emissions reductions from donor programs must be adjusted accordingly. Further, with the broad recognition of agriculture being the key driver of deforestation, any REDD programs that seek to curb land use change must be assessed for any negative implications for they might have for food security and livelihoods.

## 1.4 REDD and economic growth

Economic growth in developing countries requires changes in land-use. Without forest conversion, economies would not urbanise or industrialise and protection of the environment would be retarded.

One global study relates levels of deforestation to per capita gross domestic product (GDP). It finds that among 50 nations with extensive forests reported in the

FAO's comprehensive Global Forest Resources Assessment 2005, no nation with a per capita GDP exceeding USD 4,600 has a net loss of forest area.<sup>26</sup>

The results of an FAO study led by the Centre for International Forestry Research (CIFOR) in Indonesia are instructive.<sup>27</sup> The study combined the use of satellite imagery of forest cover with socio-economic data from several national surveys to investigate the drivers of small-scale deforestation in the primary forest areas of Kalimantan, Sumatra and Sulawesi, which together constitute about 60 percent of Indonesia's total forest cover.

The results indicate that isolated areas with limited transport facilities and poor market access experience higher deforestation. It demonstrated the classic 'inverted U' relationship to which economists regularly refer between poverty and deforestation which implies that with rising prosperity, deforestation increases until a certain level of wealth is reached, after which it declines.

The thesis is that in initial stages of development, as people become wealthier they put more of their new-found wealth into the expansion of agricultural land and production, at the expense of forest areas. However, as greater levels of funds become available these are spent on alternative measures such as agricultural intensification or better access to other income generating options – the study found that greater off-farm opportunities were associated with less forest clearing.

REDD effectively disrupts this pattern by promising a level of financial support to cease land use change. The solution that has been proposed by developed countries is vast aid payments that will effectively subsidise developing countries not to engage in land-use change.

The sums promised are vast. It is estimated that almost USD5 billion has been pledged for forest and climate related initiatives in developing countries.<sup>28</sup> Less than 10 per cent of this figure has been made available for projects.

25. van der Werf, G.R., D.C. Morton, R.S. DeFries, J.G.J. Olivier, P.S. Kasibhatla, R.B. Jackson, G.J. Collatz, and J.T. Randerson. 2009. CO2 emissions from forest loss. *Nature Geoscience* 2: 737–38.

26. Kauppi, P.E., Ausubel, J.H., Fang, J., Mather, A.S., Sedjo, R.A., Waggoner, P.E., 2006. 'Returning forest analysed with the forest identity,' *PNAS*, 103, 46, 17574–17579.

27. Purnamasari, R.S., 'Dynamics of small-scale deforestation in Indonesia: examining the effects of poverty and socio-economic development,' *Unasylva*, 234/235, 61, 14–20, 2010

28. See Capacity Development for Development Effectiveness Facility, op. cit.

The ability of these programs to deliver net economic benefits as promised to communities in developing countries is highly questionable. The OECD-commissioned climate aid effectiveness report referred to earlier in this report has roundly criticised the current state of climate financing, stating that:<sup>29</sup>

- Accessing funding is difficult for developing countries;
- It is unlikely climate change would be part of domestic political discourse if the funds were not available;
- Funding is supply driven and not truly needs based;
- Donor funding objectives have difficulty aligning with recipient development goals;
- Reporting and monitoring is inadequate by international standards.

In short, the climate change agenda in developing countries is being driven by political objectives in leading western states and some international development institutions, such as the World Bank, not the needs of the world's poor.

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29. See Capacity Development for Development Effectiveness Facility, *op. cit.*



## 2. PARKS VERSUS THE POOR IN SUMATRA

**Protected forest areas are being put forward by campaigners as a straightforward measure to reduce emissions from land use change. The problems with protected areas are twofold. First, they potentially economically displace local communities; second, they are no guarantee against deforestation and greenhouse gas emissions.**

### 2.1 Protected Areas – An Overview

The World Database on Protected Areas (WDPA) lists over 100 000 Protected Areas worldwide.<sup>30–31</sup> The last twenty years has seen an increase of almost 5 million km<sup>2</sup> of terrestrial protected Areas, and a proportion increase from 9.6 per cent of the world's land area to 12.9 per cent. The United Nations Environment Program (UNEP) calculates that terrestrial Protected Areas have increased approximately seven-fold since the early 1970s.

This growth has been most significant in the developing world. In the last twenty years, protected areas in developing countries grew from 9.4 per cent of total land area to 13.9 per cent. The proportion of protected areas to total land area in developing countries has overtaken the developed world's percentage of 13.6 per cent. Similarly, absolute land area designated as protected areas in the developing world greatly outstrips that found in developed countries. Because developing countries span a larger combined land area, the land use change in terms of total area is significant.

By 2009 more than 60 per cent of the world's protected areas were in developing countries, with an additional 10 per cent in the Commonwealth of Independent States (CIS). The overall increase in protected areas has been attributed to concerted environmental policies which include developments such as the CBD's Program of Work on Protected Areas and the Ramsar Convention.<sup>32</sup>

### 2.2 The Costs of Protected Areas

It is conventional wisdom that protected areas or national parks are beneficial to communities and environments. The removal of economic activity from land does, however, impose a significant opportunity cost on affected communities and national economies.

Yet very few studies have attempted to quantify the economic cost of protected areas for local communities.

Those that have undertaken the analysis have consistently found that benefits from protected areas accrue at a national level or international level. Inevitably the cost is borne by local and indigenous communities.

Costs cannot easily be compared as methodologies are different. However, assessments of local economic costs range from USD39 per household annually to USD158 per capita annually.<sup>33</sup> Fully quantifying the global benefits of values such as biodiversity is difficult and relatively new; the general theoretical conclusion is that benefits, if any, are distributed globally. A UNEP survey of the cost of protected areas to local communities defined a series of costs associated with protected areas:<sup>34</sup>

- *Physical displacement*  
An estimated that 900,000 to 14.4 million people have been physically displaced by the establishment of protected areas. International NGOs have been singled out as being responsible for large-scale displacements without compensation. Projects undertaken by WWF in Central Africa physically displaced approximately 20,000 people across six conservation projects. Only one of these projects offered full compensation for one of the communities affected.<sup>35</sup>
- *Land tenure changes*  
Changes in land tenure without proper enforcement provide greater competition for non-restricted lands and can, therefore, produce economic losses.
- *Restricted access to resources*  
One existing study of the revoking of logging permits around the Yangtze River estimated that approximately 1.1 million jobs were lost, as were health and education services provided by the state-owned forestry company.

30.

31. UNEP-IUCN, World Database on Protected Areas, United Nations Environment Programme and International Union for Conservation of Nature (joint project), accessed at: <http://www.wdpa.org/Default.aspx>

32. An international convention for the protection of wetlands

33. R. Butler, L. Pin Koh, and J. Ghazoul, 'REDD in the red: palm oil could undermine carbon payment schemes', *Conservation Letters* 2: 67-73, (2009)

34. L. Coad, et. al. (2008)

35. M. Cernea, & K. Schmidt-Soltan, (2006).

- *Wildlife conflicts*  
Increased numbers of predatory carnivores can result in livestock losses as well as losses to human life. Similarly, crop-raiding by large animals is also common. Where losses occur – particularly for deaths or injuries to humans – there is little recourse for compensation.

## 2.3 The failure of protected areas in Sumatra

Protected areas in developing countries can often fail to deliver the environmental outcomes that are hoped for. Pressures on existing forest areas that may be driving habitat loss or species loss are generally driven by population pressure. In these cases, particularly where population growth is high, attempting to restrict land use results in ongoing environmental losses and economic displacement. This has been particularly acute in Indonesia, where a combination of rapid population growth and large tracts of productive land has resulted in mounting international pressure for the establishment of protected areas, and the subsequent failure of those areas.

Indonesia currently has approximately 23 million ha of its total forest area set aside purely for conservation purposes.<sup>36</sup> This is equal to approximately 18.4 per cent of total forest area. It is in addition to 32 million ha of environmental protection forests – equal to 25 per cent of total forest area. By way of comparison, this is an area larger than the whole of Spain.

There have, however, been ongoing problems with Indonesia's protected areas. According to the United Nations Environment Program (UNEP), illegal logging has taken place in 37 of 41 national parks in Indonesia.<sup>37</sup> This is partly a result of spatial planning; Indonesia's protected area network has generally been laid over existing land-use frameworks with little concern for local use.<sup>38</sup> Parks have also generally been under-resourced. One survey estimated that an average of USD 0.18 was spent per hectare in Indonesia's national parks, with even less in other conservation areas.<sup>39</sup>

Almost one-quarter of conservation areas – 5.5 million ha -- are on the island of Sumatra. There is a greater concentration of protected areas on Sumatra than any other Indonesian islands.

Conservation areas in the provinces of Riau and to a lesser extent Jambi have been singled out by environmental campaigners for expansion, in particular the Bukit Tigapuluh National Park and Tesso Nilo National Park. The reasons for this have been to reduce greenhouse gas emissions from deforestation within the provinces, and to further conserve biodiversity values. WWF in particular has singled out Riau's forests, claiming that emissions from land use change in Riau are, on their own 'globally significant'.<sup>40</sup>

Yet it has been widely documented that the existing conservation areas in Sumatra have largely failed, despite ongoing financial support for NGO advocacy activities. According to reports, almost one-third of Tesso Nilo National Park and two-thirds on Bukit Tigapuluh have been either deforested, logged or encroached.<sup>41</sup>

The establishment of these parks followed a targeted lobbying campaign by WWF that commenced in the late 1990s. The park was declared in 2004. WWF campaigned to have the park expanded and received almost USD1 million for advocacy activities to have the park extended.

WWF itself acknowledged that 20 per cent of national park staff were engaged in illegal logging and encroachment<sup>42</sup> and that existing management had taken "no firm action" in dealing with this issue.<sup>43</sup>

Encroachment within and adjacent to the park boundary is significant. Inside the territory most recently added to the Protected Area, encroachment was estimated to have doubled between 2005 and 2006 (from 18,000 ha to 35,600 ha).<sup>44</sup>

Protected areas in Sumatra have also been found to create a 'leakage' effect, by which any prevented or avoided deforestation within the protected area is simply pushed to other areas outside park boundaries.

36. CEPF, 'Expansion of Bukit Tigapuluh National Park and Protection of Its Wider Ecosystem', Final Project Completion Form, (Critical Ecosystem Partnership Fund, 2008)

37. C.Nelleman, L. Miles, B P Kaltenborn, M. Virtue. And H. Ahlenius.(Eds.), 2007. 'The Last Stand of

the Orang-Utan: State of emergency: Illegal Logging, Fire and palm Oil in Indonesia's National Parks'. United Nations Environment Programme, GRID--Darendal, Norway, www.grida.no.

38. Vince Deschamps and Paul Hartman, 2005. Trends in Forest Ownership, Forest Resources Tenure and Institutional Arrangements: Are they contributing to better forest management and poverty reduction? Case Studies from Indonesia. Prepared For the Food and Agriculture Organization Regional Workshop, Bangkok, Thailand October 17-21, 2005

39. World Bank, 2001. Indonesia: Environment and Natural Resource Management in a Time of Transition. World Bank, Washington DC

40. Uryu, Y., Mott C. et al. 2008. Deforestation, Forest Degradation, Biodiversity Loss and CO2 Emissions in Riau, Sumatra, Indonesia. WWF Indonesia Technical Report.

41. CEPF, 'Creation and Management of the Tesso Nilo Protected Area as a Centrepiece of Sumatra's Tesso Nilo Bukit/Tigapuluh Conservation Corridor', Final Project Completion Form, (Critical Ecosystem Partnership Fund, 2007)

42. CEPF, 'Expansion of Bukit Tigapuluh National Park and Protection of Its Wider Ecosystem', Final Project Completion Form, (Critical Ecosystem Partnership Fund, 2008)

43. CEPF, 'Assessing Five Years of CEPF Investment in the Sumatra Forests Ecosystem of the Sunderland Biodiversity Hotspot', (Critical Ecosystem Partnership Fund, 2007)

44. CEPF, 'Creation and Management of the Tesso Nilo Protected Area as a Centrepiece of Sumatra's Tesso Nilo Bukit/Tigapuluh Conservation Corridor', Final Project Completion Form, (Critical Ecosystem Partnership Fund, 2007)

## 2.4 Analysing the failures

Indonesia has had consistently high population growth for the past three decades. Riau in particular has had the highest or second highest provincial population growth in Indonesia for the past three decades.

Population growth places considerable pressure on natural habitat; numerous studies have found positive correlations between human population and deforestation. Placing forested areas 'under threat' from population growth therefore acts as a solution for the proximal rather than underlying cause of deforestation or habitat loss.

Advocates of protected area expansion in Riau and Jambi were acutely aware of the economic and demographic conditions surrounding proposed park areas.

A study undertaken by WWF in 2002 to investigating legal and illegal employment also indicated that the establishment of the Tesso Nilo Protected Area would impinge heavily on the development of local communities. The study found that the establishment of the Protected Area would be unable to create as many jobs as logging and wood processing were contributing to the provincial economy in Riau.<sup>45</sup>

Further, WWF has been acutely aware of the contribution of smallholder farming for crops such as coffee to deforestation in national parks such as Bukit Barisan, where coffee crops occupy as much as 15 per cent of park area.<sup>46</sup> Other studies have attributed the high levels of encroachment in Bukit Barisan to high population densities.<sup>47</sup>

Other publicly available research has reached similar conclusions. The Kerinci Seblat National Park in Southern Sumatra has experienced similar levels of forest loss to the Tesso Nilo and Bukit Tigapuluh national parks. Research has found that programs within the park that attempted to deal with forest loss failed to gather empirical evidence on the underlying drivers of forest loss.<sup>48 49</sup>

The Gunung Leuser National Park in Sumatra, which has received high levels of international attention because of its orang-utan populations has suffered high levels of deforestation and habitat loss. This has been attributed to lack of effective enforcement strategies within the national park as well as a general lack of funds for the enforcement programs.<sup>50</sup>

Field research has shown that the existing protected area system in East Kalimantan is generally degraded or key reserve areas are yet to be established.<sup>51</sup>

Simply, the broad consensus is that the failure of relatively small protected areas is a combination of lack of resources and long-term economic and demographic pressure on land use.

## 2.5 Who is Accountable?

There is a lack of accountability among aid donors and non-governmental organizations in their implementation of protected area projects and their impact upon affected populations. A recent study of 88 biodiversity conservation projects implemented by the Global Environment Facility that restricted access to resources, less than half were successful in attempting to provide local communities with alternative incomes or sustainable use regimes.<sup>52</sup>

Of these 88 projects, just 15 projects undertook monitoring and evaluation programs that provided evidence of positive impacts on impoverished communities. Total project financing for these biodiversity projects was in the region of USD990 million.

Projects handled by non-government organizations do not fare better. While individual management reports are not made public, a 2007 survey of WWF<sup>53</sup> and its work on poverty found that around 20 per cent of WWF projects explicitly addressed livelihoods and poverty in its assessments. Of these, half had developed indicators for monitoring poverty-related outcomes; and only 60 per cent of this number was actually implementing these indicators. Less than half

45. CEPF, 'Use of Forest Resources in Riau: A Look at Legal & Illegal Employment', Final Project Completion Form, (Critical Ecosystem Partnership Fund, 2004)

46. WWF, 2007. Gone in an Instant How The Trade In Illegally Grown Coffee Is Driving The Destruction Of Rhino, Tiger and Elephant Habitat Bukit Barisan Selatan National Park Sumatra, Indonesia.

47. Chatham House, 2008. Illegal Logging and Related Trade: Pilot Assessment of the Global Response. Energy, Environment and Development Programme of Chatham House, London

48. Linkie, M. and Smith, R.J. and Zhu, Y. and Martyr, D.J. and Suedmeyer, B. and Pramono, J. and Leader-Williams, N. (2008) Evaluating biodiversity conservation around a large Sumatran protected area. *Conservation Biology*, 22 (3), pp. 683-690. ISSN 0888-8892

49. D. Gaveau, et al. 'Evaluating whether protected areas reduce tropical deforestation in Sumatra', *Journal of Biogeography*, 36, 2165-2175, (2009)

50. J. M. Yarrow Robertson and Carel P. van Schaik, 2001. Causal factors underlying the dramatic decline of the Sumatran orang-utan. *Oryx* Vol 35 No 1 January 2001

51. Paul Jepson, Frank Momberg and Hans van Noord, 2002. A Review of the Efficacy of the Protected Area System of East Kalimantan Province, Indonesia. *Natural Areas Journal* 22:28-42

52. Global Environment Facility Evaluation Office, The Role of Local Benefits in Global Environmental Programs, Evaluation Report No. 30. (GEF, Washington, 2006)

53. J. Rietbergen-McCracken, et al. WWF and poverty alleviation: Final report of a cross thematic programme mapping and analysis of WWF project activities related to poverty alleviation and livelihoods, (Produced with support from the Swedish International Development Cooperation Agency, WWF, Copenhagen, 2007)

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of the projects that addressed poverty were considered successful by project managers. Just over 50 per cent of poverty projects undertook socio-economic baseline work at the commencement of the project. In these cases, the baseline work was “late (sometimes three or four years after the projects started), incomplete, or limited in their coverage [or] would offer little in the way of comparative data for the future identification and measurement of project impacts.”

The lack of a consistent framework for the assessment of negative impacts continues to impede genuinely assessing the impact of protected area projects. The development of such a framework is critical given that there is a strong push by non-governmental organisations to increase funding for protected areas under both the Convention on Biological Diversity and the UNFCCC. WWF in particular has called for the doubling of the size of protected forest areas – to 20 per cent of forest area -- for both climate change mitigation and for biodiversity protection.<sup>54</sup>

## 2.6 Protected Areas and reducing emissions

There has been considerable pressure from Western environmental campaigners directed towards the Indonesian government to establish protected areas as a way to reduce emissions. However, the negative economic impacts of protected areas and their lack of effectiveness in producing strong environmental outcomes mean that a protected areas strategy should be questioned.

The alignment of the goals of largely non-domestic environmental campaigners with Indonesian national development goals should also be questioned.

The seeming refusal of WWF to acknowledge that its recommendations on the establishment of protected areas in Sumatra might have a detrimental effect on the welfare of local populations is reprehensible at best. Worse still is its ongoing recommendations for strategies that have clearly failed within the Indonesian context.

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54. WWF, 'WWF Main Asks at CBD COP 10 - Position Paper 10th Conference of the Parties to the Convention on Biological Diversity (18 – 29 October 2010, Nagoya, Japan)', (World Wide Fund for Nature, 2010)



## 3. THE PERILS OF LOW CARBON GROWTH

*Indonesia's starting strategy to reduce greenhouse gas emissions is to make Central Kalimantan the 'pilot province' to develop a low carbon economy for Indonesia. The development plan released by the Government is unrealistic, untested and most likely to reduce economic growth.*

### 3.1 The Pilot Province Concept

At the September 2009 G-20 summit, President Yudhoyono committed to reducing Indonesia's carbon emissions by 26 percent by 2020. This commitment was reaffirmed at the UNFCCC negotiations in December 2009.

The commitment would be increased to 41 per cent contingent upon international financial support. Indonesia subsequently signed a letter of intent (LoI) with the Government of Norway, committing to a suite of activities to reduce greenhouse gas emissions in return for USD 1 billion. One of the activities was to establish a pilot province for REDD activities; Central Kalimantan was named as the pilot province in December 2010.

Indonesia's National Council on Climate Change (DNPI) had previously developed a series of reports to evaluate potential reductions in Indonesia's carbon emissions. These plans are based on the Greenhouse Gas (GHG) Abatement Cost Curve analysis developed by McKinsey & Company, which has been criticized due to its omission of many economy-wide costs and impacts and overstatement of emissions savings.

DNPI released three additional reports for the provinces of Central Kalimantan, East Kalimantan and Jambi. The reports also outline key abatement opportunities, including restricting land use change. The regional reports are based on the proposition that economic growth could be transferred from thriving domestic industries, which require land use change, to new undeveloped 'low-carbon sources of growth'.

### 3.2 Implications for Central Kalimantan

The DNPI report<sup>55</sup> estimates that Central Kalimantan's annual emissions are approximately 292 MtCO<sub>2e</sub>, rising to 340 MtCO<sub>2e</sub> in 2030. It also estimates that emissions from cultivating on peat land and land use change represent up to 98 percent of Central Kalimantan's greenhouse gas (GHG) emissions.

DNPI estimates that these emissions can be reduced by up to 282 MtCO<sub>2e</sub>, with 50 percent in reductions from conserving peatland and 48 percent by ceasing land conversion. In effect, this means restraining development of the palm oil industry, a major driver of economic growth in Central Kalimantan.

The Government's 'low-carbon growth plan' is based on the proposition that economic growth will be transferred from thriving industries, such as palm oil, to undeveloped low-carbon industries, such as eco-tourism.<sup>56</sup>

The report identifies under-developed industries, such as eco-tourism and aquaculture, as key growth industries and makes severely unrealistic expectations of possible future growth, including that<sup>57</sup>:

- the gap in crop yield between Central Kalimantan and East Java can be reduced by half, (while at the same time restricting the conversion of forest to crop estates);
- the aquaculture sector in Central Kalimantan will be able to increase by over 220 percent to match the future growth rate expected in the sector for Asia as a whole;

55. Dewan Nasional Perubahan Iklim and the Government of Central Kalimantan, 2010. Creating Low Carbon Prosperity in Central Kalimantan. DNPI, Jakarta.

56. DNPI and Government of Central Kalimantan, 2010, pg. 21

57. DNPI and Government of Central Kalimantan, 2010, pgs. 16-18.

- Central Kalimantan could transition to a growth rate in tourists similar to that achieved by Bali in the last 20 years – more than double its historical growth. Bali is a unique global tourist destination – the idea another province without the same attributes could build a comparable tourist industry is unrealistic; and
- Central Kalimantan could have growth in the financial services industry greater than 1.5 times national growth rates.

These high expectations of growth by 2030 are unrealistic, particularly within a short timeframe of less than 20 years.

What the DNPI reports are effectively advocating is a restructure of Central Kalimantan's heavily land-based economy directed by Government officials and funded by foreign aid donors.

Restrictions on agriculture industries, such as limiting the conversion of forest to palm oil plantations, would deny Central Kalimantan considerable economic benefits. It could condemn rural populations to declining standards of subsistence.

DNPI identifies the development of future estate crops, such as palm oil, on non-forested land (including degraded land rather than converting forest for agriculture purposes) as one of its key *“low-carbon sources of growth”*, stating: *“to minimize damage from the expansion of palm oil plantations, future palm oil plantations should be allocated to already degraded lands (rather than opening new forests)”*.

DNPI assumes that there will be little loss to industry from restricting the conversion of primary forest as the majority of new plantations can be allocated to degraded land. As such, they only include the foregone revenue from one-time timber extraction as the opportunity cost of avoiding forest conversion, and not the entire lost revenues from crop production.<sup>58</sup>

The assumption that all plantations will be able to be successfully developed on degraded land is unsupported and results in a significant underestimation of the costs of implementing abatement options.

The successful use of degraded land must also be coupled with secure land rights to ensure that those who invest in restoring degraded land are able to benefit from it. It is unrealistic and unfair to assume that Central Kalimantan agricultural and palm oil producers can cease conversion of forest land and shift to producing on degraded lands without secure land title and a system for the classification and identification of suitable degraded land.

Yet the DNPI report completely fails to address the issue of land tenure in Central Kalimantan and Indonesia more broadly.

### 3.3 Land Reform, REDD and Indonesia

In Indonesia less than 40 percent of land holdings have been titled. Most people hold land informally and most land, especially on the outer islands, are held by custom.<sup>59</sup> Land records that exist, are often inconsistent.

The Indonesian Constitution recognizes customary rights, but these rights are subordinate to national interest and state power. As no effective procedures exist to title or secure customary land, land for plantation can often be acquired in the form of leases, and conflict with customary land holders can ignite.

The REDD concept gives compensation to forest owners for lost opportunities from avoiding deforestation. A lack of secure land rights and competing unclear land boundaries, means that the REDD scheme is likely to result in a freeze on further development (something the NGOs would want), land grabbing and increased land conflict.

Clear land ownership in Indonesia is required before a program such as REDD can be successful. Without it, REDD is likely to result in reduced economic growth, inequitable outcomes and increased conflict. The Governments of Indonesia and Norway recognize the need for secure land tenure in the LOI, stating that *“appropriate measures to address land tenure conflicts and compensation claims should be taken from early 2011 onwards”*<sup>60</sup>. These measures need to be developed and implemented before any moratorium on land use change can be implemented.

58. DNPI and Government of Central Kalimantan, 2010, pg. 50

59. Alansi Masyarakat Adat Nusantara, (2010), Indonesia: palm oil development on indigenous peoples' lands, A case study on Land Rights and the Right to Food submitted to SawitWatch and Forest Peoples Program.

60. The Government of the Kingdom of Norway and the Government of the Republic of Indonesia, (2010), Letter of Intent between the Government of the Kingdom of Norway and the Government of the Republic of Indonesia on “Cooperation on reducing greenhouse gas emissions from deforestation and forest degradation”, pp. 3.

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The case for freezing land conversion is also based on claims about environmental impacts which are nebulous or lacking technical underpinning.

Clear ownership in managing forests in Indonesia has been found to result in more sustainable forest management and that less government involvement, but more secure land rights, results in successfully rehabilitated degraded land.<sup>61</sup> If the tenure problem in Indonesia is not addressed, it risks further degradation of Indonesia's forests such as from forest fire and poor land use management.<sup>62</sup>

There is an urgent need for the land right issue to be tackled in Indonesia. But in the absence of empirical data that land clearing in Central Kalimantan is the leading generator of carbon emissions, poor data on the carbon cycle of palm oil cultivation, and clear indications a freeze on development would retard economic growth, the logic of freezing land use in Kalimantan until systems for land use are reformed is weak. Land reform should be the first step of any REDD program in Central Kalimantan or anywhere else in Indonesia. This does not however make the case for freezing all further land development. There is no demonstrable environmental or economic justification for it.

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61. Suyanto et al (2002) pp. 1.

62. Suyato et al (2002) pp. 2

## Data Deficiencies in REDD: An Example from Papua New Guinea

In 2008 Australian academic Phil Shearman released a report claiming that “half of PNG’s forests will be gone” by 2021 as a result of rampant deforestation. Reasoned and systematic research has subsequently shown these findings to be grossly overstated. Despite this, the research is forming the basis for UN REDD programs in Papua New Guinea.

Shearman employs flawed methodology to arrive at his findings. His research is based on a dataset produced by the University of PNG’s Remote Sensing and Land-Use Project (RSLUP). This data set uses a 1972 land cover map based on aerial photographs taken between 1972 and 1975 to gain a baseline assessment. A land cover map for 2002, produced through remote sensor and satellite imagery, was then superimposed onto the 1972 map using a Geographic Information System.

Colin Filer, also an Australian academic, comprehensively illustrates the inaccuracies of the RSLUP dataset; the forest cover in the baseline map of 1972 land cover is greatly exaggerated through the blurring forest definitions. An alternative reliable data set – the Forest Inventory Mapping System (FIMS) produced for the PNG Forest Authority in 1996, calculates the forest area in 1975 as significantly smaller than the RSLUP estimates by a difference of almost 40 000km<sup>2</sup>. The RSLUP’s exaggerated baseline measurement for forest cover in 1972 greatly distorts the final results when extrapolated over several decades.

Given the problems with the RSLUP, Filer believes that the FIMS datasets “remain the best estimates of deforestation and there is little evidence to suggest that processes of conversion have changed in the 13 years since that study was completed.” Despite its accuracy, this dataset was disregarded by Shearman without providing clear reasoning.

Shearman also makes a number of flawed assumptions. First, he assumes that once cleared, formerly forested land does not regenerate. This is inconsistent with known facts about forestry in PNG, and significantly distorts the final calculated rate of deforestation. Second, Shearman assumes that large-scale commercial logging is the only driver of forest degradation in PNG. In actual fact shifting agricultural practices of local populations had already caused significant deforestation by the 1970s. Deforestation is not necessarily permanent. However, Shearman assumes any area of degraded forest will never regenerate and will be cleared or degrade to non-forest within a few years.

Poor methodology, inaccurate data sets, and incorrect assumption lead Shearman to grossly exaggerate the rate of deforestation in PNG. Shearman’s findings suggest that primary forest area covered 33 million hectares of PNG in 1972 and just 25.3 million in 2002. Thus, Shearman claims that 1.41% of PNG forests were deforested annually over this time period reaching a rate of deforestation at 360,000 ha per annum.

Shearman’s annual rate of deforestation is almost three times the rate calculated by the FAO in their latest assessment of deforestation in PNG. FIMS shows that between 1975 and 1996, PNG’s forested area was permanently reduced through logging and land clearance by only about 4% – within that a significant area (almost 20 000km<sup>2</sup>) was regenerating.

The use of the Shearman data has led the UN REDD program to conclude that there is an ‘imminent threat’ to PNG’s forests. Use of other datasets and dissenting opinions shows otherwise.

*Sources: P. Shearman, et. al, 2009; C. Filer, et. al, 2009; FAO 2010; Bourke & Harwood, 2009*



## 4. THE OPPORTUNITY COST OF THE FOREST MORATORIUM

*A moratorium on new forest, plantation and mining developments in Indonesia has been heralded by environmental campaigners as a breakthrough for global climate negotiations. Its impact on employment, government revenues and economic growth could be severe.*

### 4.1 The Moratorium: An Overview

On the 26<sup>th</sup> of May 2010, the Government of the Republic of Indonesia and the Government of the Kingdom of Norway signed a Letter of Intent (LOI) on “Cooperation on reducing greenhouse gas emissions from deforestation and forest degradation”. The LOI comprises a framework for Indonesia to receive financial contributions from the Norwegian Government in return for verified emission reductions. As part of the agreement, Indonesia is to impose a two year suspension on all new concessions for the conversion of peat land and natural forest for the (non oil and gas) mining, palm oil cultivation and forestry sectors.

The suspension on forest clearing was to be implemented in January 2011. At the time of writing, details had not been finalized.

The moratorium on conversion commences when the President signs a decree to make the suspension legally binding. Currently, there several draft decrees which could be considered including a Ministry of Forestry draft decree which applies only to primary forests, and a REDD+ Task Force draft decree which applies to both primary and secondary forests.<sup>63</sup>

### 4.2 Deforestation and rural poverty in Indonesia

Indonesia has some of the largest forest resources in the world, with more than 110 million hectares (or 60 percent) of its total land as permanent forest areas. It also has a significant number of poor, with 32.5 million Indonesians living below the national poverty line.<sup>64</sup>

Poverty is a largely rural occurrence in Indonesia. Over 60 percent of Indonesia’s poor are located in rural areas, of which the poorest tend to be smallholders and farm labourers working on other people’s land.<sup>65</sup> Agriculture provides employment to over 40 percent of Indonesia’s population.<sup>66</sup> As such, growth in the agriculture sector is crucial in the reduction of poverty.<sup>67</sup> The growth of agriculture and forestry sectors is dependent on the availability of land for conversion for agricultural and forestry purposes.

Under the current growth scenario, Indonesia’s Council on Climate Change (DNPI) estimates that rates of deforestation are expected to remain constant at 1.1 million hectares annually. Approximately 21-28 million hectares of forest land will be converted to timber, Palm Oil and Food crop plantations by 2030.<sup>68</sup>

Of the area converted, 10 to 13 million hectares of forest area is required to be converted into croplands with the sole purpose to “*feed and support the growing population*”. Consequently, cessation on the conversion of forest will not only result in a loss of economic growth, but will also put Indonesia’s food security at further risk.

### 4.3 Impacts on palm oil cultivation

Palm oil cultivation and production is one of Indonesia’s key agricultural commodities, with more than 7 million ha of oil palm plantations in 2008, from which over 18 million tonnes of palm oil was produced.<sup>69</sup> For the past decade, palm oil has been Indonesia’s largest agriculture export with over \$14.5 billion in palm oil related products exported in 2008.<sup>70</sup>

63. REDD-monitor.org, (2011), Indonesia: The three draft decrees, accessible at: <http://www.redd-monitor.org/2011/01/12/indonesia-the-two-draft-decrees/>, last accessed 28 February 2011

64. Statistics Indonesia (2010), Number and Percentage of Poor People, Poverty Line, Poverty Gap Index, and Poverty Severity Index by Province, accessible at: [http://dds.bps.go.id/eng/tab\\_sub/view.php?tabel=1&daftar=1&id\\_subyek=23&notab=3](http://dds.bps.go.id/eng/tab_sub/view.php?tabel=1&daftar=1&id_subyek=23&notab=3) last accessed September 2010.

65. World Bank (2010), Data, accessible at: <http://data.worldbank.org/>, last accessed 28 February 2011.

67. A 2004 study showed that agricultural GDP growth in Indonesia is beneficial in reducing poverty, particularly in rural areas. Specifically, annual growth of 1 percent was found to reduce total poverty by 1.9 percentage points (urban poverty by 1.1 percentage points and rural poverty by 2.9 percentage points) see Asian Development Bank (2006), Indonesia: Strategic Vision for Agriculture and Rural Development, pg 12.

68. Dewan Nasional Perubahan Iklim (DNPI), Indonesia’s Greenhouse Gas Abatement Cost Curve, 2010, pp. 18.

69. Indonesian Palm Oil Commission (2008), Indonesian Palm Oil Statistics 2008, pp. 2-3.

70. Indonesian Palm Oil Commission, pp.35

The palm oil industry has experienced significant growth in recent years with approximately 2 million ha of new plantations between 2002 and 2008. Increased global demand for palm oil is expected to fuel this growth into the future. By 2020, global consumption of palm oil is expected to increase to almost 60 million tonnes.<sup>71</sup>

Palm oil contributes significantly to poverty alleviation.<sup>72</sup> In many regions in Indonesia, it is the dominant estate crop and major contributor to economic development. Palm oil production provides many of Indonesia's rural poor with sustainable and secure income. It is estimated that palm oil production in Indonesia could potentially reach over 6 million lives and take them out of poverty.<sup>73</sup>

Increased global demand presents Indonesia with an incomparable opportunity for economic growth. Butler et al (2009) estimate that converting a hectare of forest for palm oil production can have a net present value (NPV) of up to \$9,630 per hectare and revenue of \$83,594 per hectare over 30 years.<sup>74</sup> This figure could be even larger with the World Agroforestry Centre estimating the NPV of oil palm ranging from \$USD3,424 per hectare (at private prices) up to \$USD14,223 per hectare (at social prices<sup>75</sup>).

Based on the Butler et al (2009) figures, and assuming that 7 million hectares of forest area in Indonesia will be converted to palm oil plantations by 2030,<sup>76</sup> a cessation on conversion will cost Indonesia over USD 585 trillion in lost revenue. This conversion could also yield NPV to Indonesia of USD 67.4 trillion (or up to USD 100 trillion based on the World Agroforestry Centre's estimates, using social prices).

The palm oil industry employs approximately one direct worker for every eight hectares of oil palm plantations and one worker in related industries for every three hectares of oil palm.<sup>77 78</sup> Restricting the conversion of 7 million hectares of forest land to oil palm will cost Indonesia direct employment for

875,000 workers annually, as well as employment for over 2.3 million workers in related industries. Given an average household size of 4 persons,<sup>79</sup> restricting conversion has the potential to impact over 9.2 million people in Indonesia each year.

#### 4.4 Impacts on the forest industry

The forestry, pulp and paper industry makes a significant contribution to the Indonesian economy. In 2009, the Forestry sector contributed almost \$5.1 million (45 trillion rupiah) to Indonesian GDP. In addition, wood and other products and Paper and printing products contributed \$9 million (80 trillion rupiah) and \$6.9 billion (61.1 trillion rupiah) to GDP, respectively.<sup>80</sup>

Forestry products make an important contribution to Indonesia's exports. Total exports of forest products (including furniture) were valued at USD 7.6 billion in 2007, up from USD 4 billion in the early 1990s. In recent years this represented 10.6 per cent of Indonesia's non-mineral exports. Some commentators have also estimated that the forest industry contributes approximately USD 400 million to government revenues annually.

In 2009, almost 26 million ha was designated as production forest estate in Indonesia.<sup>81</sup> DNPI estimates that by 2030 up to 8 million ha of forest area in Indonesia will be converted to pulp wood plantations, alone.<sup>82</sup> It states that even larger areas may be required due to general increases in the demand for wood products in construction and bio-energy.

The World Agroforestry Centre estimates the NPV from logging in Indonesia at between USD 398/ha (for low density forest at private prices) to up to USD 4,092/ha (for high density forest at social prices). The NPV for timber plantations for pulp<sup>83</sup> is estimated at between USD 575 (at private prices) and USD 1,301 (social prices).<sup>84</sup>

71. Food and Agricultural Policy Research Institute (2010), U.S. and World Agricultural Outlook. FARPI, Iowa.

72. World Growth (2009), Palm Oil – The Sustainable Oil. Arlington, VA. Available at: [http://www.worldgrowth.org/assets/files/Palm\\_Oil.pdf](http://www.worldgrowth.org/assets/files/Palm_Oil.pdf)

73. Goenadi (2008), Prospective on Indonesian Palm Oil Production, Paper presented on the International Food & Agricultural Trade Policy Council's Spring 2008 Meeting, 12 May 2008, Bogor, Indonesia, pp. 3.

74. Butler, R. Koh, L. and Ghazoul, J. (2009), REDD in the red: palm oil could undermine carbon payment schemes, *Conservation Letters* 2, pp. 67-73

75. Private refers to observable revenues and cost reflecting market prices received or paid by farmers, merchandisers or processors in the agricultural system. Social prices are given by world prices for goods that are importable and exportable.

76. DNPI (2010), pp. 19.

77. Based on employment in Malaysia of 570,000 direct workers and 1.4 million workers in related industries for 4.3 million hectares, see MPOB and APOC, (2010), Palm oil development and performance in Malaysia, presentation to USITC, Washington DC, accessible at: <http://www.americanpalmoil.com/pdf/USITCpre-PublicHearing-V2.pdf>, last accessed 28 February, 2010.

78. The World Agroforestry Centre estimates that the labour requirement for oil palm establishment is 77 labour days per hectare per year during operation (1 person per 3.3 hectares) and 321 labour days per hectare per year during establishment (1 person per 0.8 hectares).

79. Government of Indonesia, (2010), Core document forming part of the reports of the States parties, pp. 8, accessible at: [www2.ohchr.org/english/bodies/docs/HRI.CORE.IDN.2010.doc](http://www2.ohchr.org/english/bodies/docs/HRI.CORE.IDN.2010.doc), last accessed 28 February 2011.

80. Statistics Indonesia (2009a), Gross Domestic Product at 2000 Constant Market Prices by Industrial Origin, accessible at: [http://dds.bps.go.id/eng/tab\\_sub/view.php?tabel=1&daftar=1&id\\_subyek=11&notab=3](http://dds.bps.go.id/eng/tab_sub/view.php?tabel=1&daftar=1&id_subyek=11&notab=3), last accessed 28 February 2011.

81. Statistics Indonesia (2009b), Area of forest concession estates by province, 2004–2009, accessible at: <http://dds.bps.go.id>, last accessed 28 February 2011.

82. DNPI (2010), pp. 19.

83. HTI Acacia mangium for pulp

84. The return is calculated over a period of 25 years.

Using World Agroforestry Centre and DNPI estimates, a cessation on the conversion of 8 million hectares for pulp wood plantations would cost the Indonesian economy an industry with a potential NPV of over USD10.4 trillion, over 25 years for pulp wood alone. This figure is likely to be much higher after taking into consideration returns for lumber, etc.

Forest related industries also provide a key source of income and livelihoods for a large number of Indonesia's poor. Currently, over half a million people are formally employed in the industry. Assuming a total labour requirement for pulp of 1 person per 3 hectares (this figure is much higher at 3 persons per hectare for the establishment phase),<sup>85</sup> restricting the conversion of forest to pulp plantations could cost the Indonesian economy 2.6 million jobs, annually. Given an average household size of 4 persons,<sup>86</sup> restricting conversion has the potential to impact over 10.4 million people in Indonesia each year.

#### 4.5 The net impacts of the moratorium

The net impacts of any proposed moratorium are difficult to quantify. However, it is possible to estimate the combined impacts upon the forest products and palm oil sectors and, to a lesser extent the mining industry.

Environmental campaigners are currently proposing that the proposed two-year moratorium be extended indefinitely. The impacts would be devastating to Indonesia's economy. Such an action would stop creation of up to 3.5 million jobs annually; its impact on households and indirect employment would be much higher.

Similarly, growth in export revenues would be severely reduced. The forest and palm sectors contribute more than USD 22.1 billion in exports annually – approximately 15.6 per cent of Indonesia's total export revenue.

Growth in government revenue would also be curtailed significantly, particularly from the mining sector. Sectoral government revenue increased by 14.5 per cent between 2003 and 2006, and jumped a further 40 per cent between 2006 and 2007 to more than USD 48 billion.

Simply, the combined contribution of the forest sector, non oil and gas mining sector and food crops to GDP is approximately 15 per cent. Growth has been significant in the mining sector in particular, growing from 2.8 per cent in 2004 to more than 4.5 per cent currently. Any curbs on these three sectors would have widespread ramifications for the economy as a whole.

85. Based on World Agroforestry Centre Data of 0.336 persons per hectare annually for operation. This figure is 3.1 persons per hectare in the establishment phase.

86. Government of Indonesia, (2010), Core document forming part of the reports of the States parties, pp. 8, accessible at: [www2.ohchr.org/english/bodies/docs/HRI.CORE.IDN.2010.doc](http://www2.ohchr.org/english/bodies/docs/HRI.CORE.IDN.2010.doc), last accessed 28 February 2011



## 5. CONCLUSIONS AND RECOMMENDATIONS

***The goal of Indonesia to reduce its greenhouse gas emissions by 26 per cent (and up to 41 per cent) is ambitious. However, there is the considerable risk that this goal either will not or cannot be achieved practically. It is highly unlikely that it could be achieved without severely negatively impacting the economic welfare of a large section of Indonesian society.***

A number of strategies being proposed to achieve this goal – particularly by environmental campaign groups – have limited chance of producing a successful environmental outcome. This is made worse by a determination by these groups to ignore any negative economic impacts these projects may have.

Given that a major downward revision of the expected emissions from deforestation is occurring, the Government of Indonesia would be warranted in deferring commitments to meet its target to reduce emissions until an independent analysis is undertaken of the greenhouse gas emissions from Indonesia.

In addition, an independent review of the costs and implication of the Central Kalimantan Plan should be undertaken.

Indonesia has already recognized the possible risks of REDD activities. In its submission to the World Bank's Forest Carbon Partnership Facility in 2009, it stated that "effective REDD should cover an appropriate balance between social, environmental, and economic issues. Focusing on any of these dimensions is unlikely to achieve permanent emissions reductions. For example, a focus on efficient reduction of emissions alone is unlikely to have a long-term impact on the drivers of deforestation, for example forest encroachment and could result in negative impacts on people, leading to further deforestation."<sup>87</sup>

The REDD+ framework agreed in the UNFCCC negotiations provides scope to improve sustainable forest management. It would be practicable for the Government of Indonesia to make that an initial REDD program. Brazil secured significant funding from the World Bank and the Government of Norway to improve sustainable forest management.

Other tropical forested economies would do well to heed the Indonesian experience. It demonstrates that until now donors have been more interested in using

funding to leverage developing countries to undertake green restructuring to create a low carbon economy without regard to the facts of the situation or the adverse economic consequences of doing so.

It is in the interests of all tropical forest economies to insist that the REDD programs to be funded include as leading goals the development of sustainable forest management practices, improvements in government management of forestry regimes, and to fund the commissioning of independent assessment of carbon emissions and the economic impacts and practicality of strategies to reduce emissions.

World Growth therefore makes the following recommendations before the implementation of any large-scale conservation projects or projects that aim to reduce emissions in tropical forested developing countries:

- A complete and comprehensive emissions profile should be completed that is based on empirical, ground-up field research, particularly for any projects that involve estimates of emissions from land-use change;
- Economic impact assessments of any future or proposed protected areas programs in Indonesia should be completed;
- A broad ranging Government study into the economic impact of existing protected areas should be completed;
- All REDD-based projects or projects that aim to reduce emissions should be preceded by full economic impact assessments;
- Results of any economic impact assessments should be made public;

87. Government of Indonesia, 2009. Indonesia Readiness Plan (R-Plan) Proposal to the Forest Carbon Partnership Facility of the World Bank. Hosted at [www.forestcarbonpartnership.org](http://www.forestcarbonpartnership.org).

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- Private sector industries that are to be impacted by any proposed emissions reductions targets should be consulted to further assess any negative impacts;
  - A comprehensive assessment of any impact on government revenues by any projects should be undertaken;
  - A consistent methodology for monitoring and evaluating the impacts of REDD programs should be developed;
  - All REDD programs should be assessed for their alignment with national development goals.



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### **About World Growth**

World Growth is a non-profit, non-governmental organization established with an educational and charitable mission to expand the education, information and other resources available to disadvantaged populations to improve their health and economic welfare. At World Growth, we embrace and celebrate the new age of globalization and the power of free trade to eradicate poverty and improve living conditions for people in the developing world.

### **Our Philosophy**

World Growth believes that helping the developing world realize its full potential is one of the great moral aims for those of us fortunate to live in the wealthy developed world. We also believe that a misdiagnosis of what ails the underdeveloped world has yielded policy prescriptions that have been useless or even harmful to the world's 'bottom billion.'

World Growth believes that there is enormous untapped human and economic potential around the world. In order to unlock that potential, and allow the poorest of the world's poor a better life, it is necessary to realize changes in institutions and policies that permit growth and human flourishing.

Instead of aid and handouts, what the populations of developing countries need are social and political situations and infrastructure that foster productive economic activity and generate robust economic growth. These include, but are not limited to, property rights and protections, the rule of law, free markets, open trade, government accountability and transparency.

For too long, well-meaning governments, aid agencies and others have promoted policies that fail to address the true problems that afflict poor societies. As a result, too many people around the globe remained locked in pre-modern conditions where their talents and inherent capacities are shackled.

The people of the developing world are fully capable of helping themselves to ensure a more prosperous existence. The path to prosperity does not begin with handouts from the West. Instead it requires identifying the genuine obstacles to growth and highlighting paths to reform that will yield sustainable and lasting change.

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