A Poverty Environment Partnership (PEP) Report

Making REDD work for the Poor

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EXECUTIVE SUMMARY - Policy conclusions

1. **Provision of information** is required at national and local levels to ensure equitable negotiation of REDD agreements. Information should at a minimum contain basic details of how REDD mechanisms work, realistic expectations of benefits and possible implications.
2. **Provision of upfront finance and other mechanisms for reducing costs** to help improve the equity of benefit distribution in REDD. This may help bridge the gap between project/programme initiation and payments for the delivery of emission reductions.
3. **Use of 'soft' enforcement and risk reduction measures:** 'Hard' enforcement measures such as financial penalties are likely to affect the poor disproportionately. Project investors and/or developing country governments should apply 'soft' measures such as non-binding emission reduction commitments where possible.
4. **Prioritise 'pro-poor' REDD policies and measures:** Whilst different REDD options may give rise to similar levels of emissions reductions, impacts on the poor will be varied and should be analysed on a case-by-case basis. To ensure social benefits, a strong 'pro-poor' political commitment is required from the outset.
5. **Provide technical assistance to national and local governments, NGOs and the private sector:** technical assistance will be needed to increase investment and the visibility of the poor. Key areas include: establishing reference scenarios/levels for measuring performance; improved data collection on small-scale enterprise and subsistence values; financial systems and verification services for REDD; and landscape planning approaches.
6. **Support to strengthen local institutions and improve access to legality:** To ensure 'voice and choice' in REDD design and implementation, improved access to appropriate legal support will crucial for poor people. This is especially the case with REDD, where new and unfamiliar legal structures may be required, and where approaches may be experimental.
7. **Maintain flexibility in the design of REDD mechanisms:** Flexibility, for example, including the use of nationally specific standards or regular review processes, will be crucial to minimise risks such as communities being locked into damaging long-term commitments.
8. **Clear definition and equitable allocation of carbon rights:** rights to own and transfer carbon will be essential for REDD emissions trading. As these will govern land management over long timescales, consultation will be needed in their formulation. Where national governments retain carbon rights, equitable benefit sharing agreements will be needed.
9. **Development of social standards for REDD and application of existing extra-sectoral standards to REDD systems** could improve benefits for the poor by ensuring that processes such as public consultation are thoroughly carried out. Standards should also be developed for ongoing social impact assessment at project and national scales.
10. **Balance rigour and simplicity:** Mandating complex standards can have perverse effects in market systems, such as reduced access to markets by small producers. REDD-related standards need to be simple and accessible but also robust.
11. **Ensure broad participation in the design and implementation of REDD,** for example, through improving access to international debates by developing countries and NGOs. It will be important to consider the most appropriate level at which to assign decision making powers over REDD to achieve maximum participation of the poor.
12. **Measures to improve the equity of benefit distribution:** Issues such as risk aversion and cost-effectiveness are likely to lead to highly variable benefit distribution. Use of tools such as taxes to redistribute benefits and strengthening of local institutions may improve equity.
13. **Avoid perverse effects of REDD due to limited direct benefits:** Incentive schemes where benefits are concentrated can create perverse effects such as in-migration and conflict. Benefits will therefore need to be distributed across wide areas and actors, and combined with strong accountability measures to ensure that beneficiaries are legitimate.
14. **Ensure accountability and transparency in REDD processes,** for example through third party verification and strengthened democratic processes. This could help reduce perverse effects such as corruption that can adversely affect the poor.
15. **Alignment with international and national financial and development strategies**, such as Poverty Reduction Strategies. This could help to raise the profile of the poor within REDD and improve sustainability by integrating REDD into wider processes.
16. **Ensure longevity in REDD mechanisms:** Stable and predictable benefits associated with REDD could provide increased security to the poor. At community and individual levels, benefits need to be distributed over the lifetime of REDD projects and assumptions about the sustainability of alternative livelihood approaches should be critically evaluated.
17. **Use of broad definitions** for land use types that can be included in REDD systems could help increase overall coverage of REDD, thereby increasing income and growth potential, and could facilitate inclusion of potentially pro-poor activities such as agroforestry.

Executive summary

Deforestation and degradation account for around 20% of global anthropogenic greenhouse gas emissions, widely believed to drive climate change. Growing concerns about the impacts of climate change have fuelled international interest in developing mechanisms to slow deforestation and degradation rates. Most proposals for such mechanisms to 'Reduce Emissions for Deforestation and Degradation' (REDD) are still on the drawing board but they are all based on the idea that developed countries would pay developing countries to reduce rates of deforestation or degradation by implementing a range of policies and projects. By linking these payments to carbon markets (i.e. putting a value on the carbon emissions that are avoided), large sums of money could flow to developing countries. With some estimates exceeding $30 billion per year, these could dwarf existing aid flows to the forest sector in developing countries. The potential contribution to rural poverty reduction could be immense, but REDD mechanisms may also entail new risks. This paper presents a framework for understanding the linkages between REDD and poverty, and conducts an initial analysis of the poverty implications of REDD.

Understanding REDD-poverty linkages

Whilst there are many reasons to 'make REDD work for the poor', notably the potential to enhance the sustainability of REDD systems by reducing conflict over resources, there are various interpretations of what this would mean in practice. Two major options include 'no harm' REDD, which aims to avoid increased threats to the poor, and 'pro-poor' REDD, which actively seeks to deliver benefits to the poor. Different stakeholders in REDD may be interested in different options, but there are concerns that adding poverty reduction objectives could reduce the overall effectiveness and efficiency of what is essentially an environmental mechanism.

In practice, it may be difficult to distinguish between these alternatives. This report takes a broad view of the linkages between REDD and poverty. It looks at poverty in terms of risks and benefits from three angles: income and growth (e.g. increased or decreased income from REDD projects); equity (e.g. the distribution of benefits within or between communities; or distribution over time); and voice and choice (e.g. the ability of different individuals or groups to participate in decision making related to REDD). These different aspects of poverty are considered at four scales: individual; community; national; and international.

How REDD works

REDD is based on the idea that funds are provided to developing countries for reducing emissions from deforestation or forest degradation through the implementation of various policies and measures. Examples include strengthened law enforcement, fire management and sustainable forest management, but any approach that reduces deforestation and degradation could in theory be applied. In this paper, 'REDD' is used as a generic term for a range of options and financing mechanisms that can be used to reduce deforestation and forest degradation, with the goal of mitigating climate change.

There are many different ways in which REDD could be implemented. This has led to much debate and alternative proposals to address technical hurdles and political differences. The current high level of uncertainty makes analysis of the poverty implications of REDD more difficult. Nevertheless some key design variables can be identified that are assessed in this paper. These include:

- **Reference scenarios or levels:** In most proposals for REDD, the magnitude of emission reductions is assessed by comparing actual deforestation and degradation rates against a reference scenario (commonly called a 'baseline') of what would have happened in the absence of the policy or measure. These scenarios could be applied at country and/or project level and may be based upon historical data only or include projections of expected future deforestation.

- **Scope of accounting system:** This relates to whether emissions from deforestation *and* forest degradation are included in REDD and whether land use change in other ecosystems is included, such as peat lands which rank amongst the most important terrestrial carbon sinks. The precise definitions of 'deforestation', 'forest', etc. under different REDD proposals are crucial to assess potential social impacts.
- **Framework:** This relates to whether REDD is included within a future international climate regime under the UNFCCC, which is still far from certain. There are proposals for REDD to be included within existing carbon market mechanisms under the Kyoto Protocol; under a separate Protocol (where trading of REDD credits would be isolated from other carbon markets); or as a separate fund or funds under the Convention.
- **Financial mechanism:** This is related to the choice of framework. Finance for REDD could be delivered via an international fund or through market mechanisms, where carbon credits are traded between 'buyer' countries, or companies, and 'seller countries', or project implementers. Market mechanisms could be regulated under the UN system or via voluntary carbon markets using informal standards and verification procedures.
- **Liability:** REDD programmes or projects could involve high financial risks, especially in relation to the possibility that emissions reductions are not permanent, due to fires, conflict, illegal activity etc. Various options have been proposed to deal with these risks, such as paying for credits only upon verification that emissions reductions have occurred, or holding reserves of credits as insurance against potential loss.
- **Spatial scale:** In project-based approaches, REDD finance would be contingent on a reduction in forest loss within a given project or forest area, compared to some agreed reference scenario or level. Credits would be awarded to the project implementer (a private company, local government or community). In national approaches, a national reference scenario or level for reducing forest loss, linked to national accounting and monitoring systems, would be used. The latter approaches imply that payments would be made to national governments, which would determine how to use the funds in order to achieve the agreed emission reductions. A combination of these two approaches would be possible.

Clearly, which REDD options are chosen and how they are implemented will have enormous potential implications for the poor. Additional issues, which could have significant implications for the poor, include: who manages REDD funds; how authority is distributed in the REDD 'supply chain'; the nature of benefit sharing systems; the form of monitoring, reporting, verification, compliance; and legal mechanisms relating to REDD. The specific policies and measures chosen by governments or project implementers to address the drivers of deforestation and degradation will also have significant poverty implications.

The poverty implications of REDD

The poverty implications of REDD may be assessed from two perspectives: first, in terms of the key REDD design variables, listed above, and second, in terms of cross-cutting concerns which are likely to arise in any REDD scheme:

Poverty implications relating to the main REDD design variables

Given the current uncertainty over the future form of REDD, it is difficult to say which options for REDD are more likely to be 'pro-poor'. However, some general conclusions include:

The way that reference scenarios are established will have significant equity implications at all scales. If REDD focuses narrowly on reducing rates of emissions, and if reference scenarios are based primarily on historical emissions, then countries and areas exhibiting higher emissions rates are likely to benefit most from REDD financing. High-Forest Low-Deforestation countries such as the Democratic Republic of Congo, for example, are unlikely to benefit much, because such countries have historically suffered less deforestation or, like Costa Rica or India, they have a better track record of forest conservation.

Volumes of finance are likely to vary significantly between different options. Market-based schemes are likely to raise more funds, which might bring income and growth benefits

for developing countries and the poor. However, they might suffer from greater efficiency-equity trade-offs (i.e. favouring least-cost strategies that maximise emission reductions) than alternative funding arrangements with a 'pro-poor' remit. Large volumes of finance could also result in negative impacts on the poor, if they lead to rent seeking by officials or other forms of elite capture, or by overloading institutions with limited capacity to manage finances.

Risk management mechanisms, particularly relating to the delivery of emission reductions, could have large poverty implications. Payment on delivery could have adverse equity effects by reducing access to REDD revenues for smaller producers, due to lack of upfront funding, or deter forest nations from implementing 'pro-poor' REDD measures because of perceptions that such approaches are high cost. Hard enforcement mechanisms, such as penalties or fines, could also disproportionately affect the poor.

Decisions on rules governing REDD could have significant equity implications. For example, the definition of a 'forest' or technical constraints on measuring and accounting for land degradation could prevent some land-use options from being included in REDD systems, including those options with large potential benefits for the poor, such as agroforestry or community forestry. Highly complex rules and reporting requirements could also act as a barrier to countries with low capacity to implement such systems. How definitions are interpreted will also be important. For example, there is a danger that some 'degradation' activities that can be crucial for the poor (such as shifting cultivation) may be penalised in REDD systems without adequate alternatives provided.

National versus project-based approaches may have different impacts on the poor. National approaches where governments receive REDD finance may be more centralised, and poverty implications are likely to depend on whether structures are in place to devolve finances and authority to lower levels. There is a risk that the poor will have a smaller role in the design and implementation of REDD, in national systems. On the other hand, national REDD may be better aligned with existing financial systems, and could enhance efficiency by lowering transaction costs relative to multiple independent projects, as well as helping to strengthen government systems.

Cross-cutting concerns relating to REDD

Experience from similar systems (such as existing carbon markets or payments for ecosystem services) and the wider development literature raise a number of issues that are likely to arise in REDD schemes, regardless of the type of system that is established.

Effects on food and commodity prices: Large-scale implementation of REDD could have implications for food prices, if it takes land out of food production. Higher food prices would positively affect net producers but would negatively affect net consumers. In addition, REDD may affect local commodity prices by increasing the price of land (with either positive or negative poverty implications, depending on the distribution and security of tenure) or by reducing the availability of non-timber forest products (for example, if people are excluded from forests conserved through REDD mechanisms).

Knowledge and interpretation of opportunity costs: The success of REDD will partly depend on the accurate evaluation of the opportunity costs of all stakeholders involved. Limited data on small-scale forestry activities and biases towards more visible activities, as is the case in many countries, could result in activities with high potential benefits for the poor being left out of REDD schemes, which might then not provide sufficient value either to be effective or to ensure no harm.

Benefit sharing mechanisms: REDD-related benefit flows could be more stable, regular and long term than other sources of income, such as existing employment, and could enhance the security of the poor in the face of exogenous shocks due to changes in market prices or natural disasters. However, finding ways to distribute REDD finances equitably is likely to be challenging. Elite capture of benefits at national and local levels and conflicts arising from the increased value of land due to REDD could be major problems.

Information availability and understanding: REDD systems are likely to be complex and based on concepts unfamiliar to many people, including the poor. Lack of information and understanding could prevent the poor from accessing REDD benefits and could reduce their ability to negotiate REDD agreements with investors, whether they are governments or the private sector. Information failures could also result in perceptions of infringement of sovereignty or local rights, generating political resistance to REDD schemes.

The role of carbon rights: Many REDD systems will create a new form of tradable commodity in the form of carbon rights. These may influence how land is managed over long time periods and who receives the benefits from REDD. Carbon rights are also likely to be linked to land ownership. There are concerns about how this might restrict long term land use options for the poor and possible conflicts between legal land owners, those who assert a claim to land, and governments. Where land ownership is unclear or disputed, it is unlikely that REDD can deliver significant benefits to the poor or be an effective instrument for addressing climate change.

Verification and compliance systems: These could increase the overall income potential of REDD systems, through increased revenues and added value, for example via the development of local verification services. However, it is not clear how much of this activity would benefit the poor. High compliance costs could act as a barrier for small producers. Experience of existing verification systems used in the forest sector suggests that there could be biases against smaller producers and the poor, compared to larger operators.

Corruption, accountability and transparency: High levels of corruption and low transparency and accountability are likely to deter investors in REDD, reducing income and growth potential. They will also reduce potential benefits and increase risks for the poor, due to likely higher levels of elite capture and rent seeking behaviour.

REDD policies and measures: There is considerable variation in the risks and benefits relating to possible policies and measures to achieve REDD objectives. Some options, such as community forestry, appear to have potential to deliver pro-poor benefits directly at local and individual scales, whilst others may make a greater contribution to national development goals, with potential indirect benefits to the poor. In both cases, a combination of institutional constraints, lack of capital, insecure land tenure, information asymmetries and high transaction and administration costs may reduce benefits for the poor. Integrating REDD policies with each other and with wider development strategies will be crucial.

Conclusions

Much uncertainty remains over the form of potential international REDD mechanisms, making it hard to judge their implications for the poor. Nevertheless, it is clear that decisions at the international level will have a large effect, particularly in terms of the volume of finance for REDD and its international distribution. In particular, the integration of REDD in carbon market systems under a future international climate framework would appear to have enormous potential income and growth benefits for developing countries. Under certain conditions, and in certain contexts, these benefits could be passed on to the poor.

The potential risks to the poor from REDD, such as elite capture of benefits, potential loss of access to land and lack of voice in decision-making, are also large. This is because of the likely scale of the systems envisaged, the complexities of monitoring and tracking carbon in the landscape, and the strong environmental, private sector and developed country interests to establish REDD mechanisms quickly. Concerted efforts are required to ensure equitable benefit distribution; robust systems of accountability; effective conflict resolution; and support for small-scale REDD.

In many cases, REDD may do ‘no harm’ to the poor for the simple reason that REDD-related activities and benefits might never reach them. The large political forces driving the development of REDD and the technical complexities of implementing REDD systems are likely to prevent poor countries and poor people from taking advantage of the opportunity, unless major efforts are devoted to making REDD work for the poor.

1 Introduction

Tropical deforestation and related processes of tropical forest degradation (DD) have re-gained prominence over the last two years as key issues on the international environmental agenda. This is largely due to the links between DD and climate change. Human induced climate change is caused by the emissions of greenhouse gases (GHG), such as carbon dioxide, into the atmosphere (IPCC, 2007). Deforestation and degradation can lead to emissions of carbon dioxide from carbon stored in trees when they are burnt or decay, or from soils when they erode or dry out (e.g. Houghton, 2005).

DD accounts for about 20 percent of anthropogenic emissions of GHG that contribute to climate change. Hence interest in developing international mechanisms to slow DD has been growing. In particular, discussions are underway on incorporating incentive mechanisms in which developed countries pay developing countries to reduce DD, into a future UN climate regime (beyond 2012). Such systems may be linked to carbon markets, in a similar way to existing flexible mechanisms under the Kyoto Protocol, or they may be established separately under either voluntary or regulated regimes. At present, international negotiations about their exact form are wide ranging.

One of the most widely discussed is a mechanism to encourage 'Reduced Emissions from Deforestation and Degradation' (REDD). This scheme would seek to encourage developing countries to reduce DD relative to a business-as-usual scenario of what has been taking place to-date, as well as what might happen in the future. However, other options are still on the table which use different methodologies and different terminology (Box 1).

Box 1: Changing terminology on reducing tropical forest loss

Conserving carbon stocks in standing forests was originally referred to as 'avoided deforestation' (AD). However, there is an argument in favour of the alternative term 'reduced deforestation', as this is less redolent of complete 'forest conservation' (Skutsch et al. 2006). Given that the main aim is to preserve biomass (and therefore carbon), other land-uses, such as certain forms of sustainable forest management, could be equally effective.

Forest degradation can also result in GHG emissions and therefore 'Reducing Emissions from Deforestation and Degradation' (REDD) has been adopted by many agencies and initiatives (e.g. the World Bank's Carbon Partnership Facility) to describe mechanisms to reduce emissions from both deforestation and degradation.

However, this does not necessarily include payment mechanisms that are being proposed based on the maintenance of carbon stocks, as opposed to REDD payments based on emissions avoided. This could have implications for the relationship between such incentive mechanisms and poverty (see section 4).

In addition, by definition, much of the current REDD debate focuses narrowly on forests, however some argue that there should be a broader consideration of a range of natural carbon sinks and sources (e.g. grasslands; marine ecosystems, etc.) as well as connections to other ecosystem services (e.g. water and biodiversity).

For simplicity this paper focuses on forests and uses the term REDD for any climate change mitigation scheme designed to reduce deforestation and degradation. Distinctions are made where necessary.

Note that a glossary of REDD-related terms is included in Annex 1 of this report

To-date there has been little systematic analysis of the potential social implications of such mechanisms, especially for the poor. This is partly due to the fact that the negotiations are still dominated by political and technical issues, combined with a lack of certainty about which options are most likely to be agreed by policy-makers.

The objective of this paper is to investigate these issues as far as possible at this stage. It does this by unpicking the main 'design' elements of REDD that are being discussed and using existing evidence from the forestry, climate and development literatures to try to analyze the potential implications of these choices for the poor. It focuses on generic implications across countries but gives some case examples illustrating issues in certain contexts (focusing on Brazil, Democratic Republic of Congo and Indonesia – the top three

most tropical forested countries on Earth, each with different drivers and rates of deforestation). Using this evidence it outlines possible approaches for developing REDD mechanisms that support poverty reduction efforts, which can be used by policy makers, donors, NGOs and the private sector. Given the broad audience and the general lack of existing REDD mechanisms, the paper also offers a framework for structuring more in depth research on the poverty implications of REDD, which will be crucial in the 'demonstration phase' up to the 15th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC COP15) in late 2009.

In an effort to add value to the existing (sparse) literature on the social implications of REDD, the report:

- Focuses on the poor because, whilst recognising that combating climate change is in the interests of the poor given that dangerous climate change will disproportionately impact this group (IPCC, 2007), there has been: (1) little explicit discussion of poverty within the current REDD debate (as above); (2) the poor are likely to have least voice in the design of REDD and according to some (e.g. Lohmann, 2006); (3) market-based carbon offset mechanisms may be particularly risky for the poor; (4) the global scale of REDD dialogue and design may lose focus on local challenges and issues; and (5) there are signs that discussion about possible benefit flows (or 'co-benefits') linked to carbon markets are oversimplified (e.g. see Peskett and Iwata, 2007), for example in the use of 'community' without disaggregating differences within communities. This may also be the case for REDD.

- Focuses on the linkages between REDD, or similar mechanisms, as a potential influencing factor in poverty or poverty reduction, rather than the existing linkages between poverty, forests and deforestation; which have been explored by others e.g. Angelsen and Wunder (2003).

- Takes a broader perspective on poverty than many previous studies on carbon forestry, which often focus on implications at the project level (e.g. Corbera and Adger, 2003; Boyd et al. 2007) rather than more macro-scale implications (such as contributions to growth). This is important given that: (1) REDD as an international response to deforestation implies a possible scaling up of financial flows and the mechanisms used to deliver these, which could have significant implications for developing countries and for the poor; (2) there are likely to be differences between REDD as opposed to Afforestation and Reforestation (A/R), which are currently the only forestry practices allowed in existing incentive mechanisms under the Kyoto Protocol.

Finally, beyond the practical issues outlined above, it is important to ask whether making REDD work for the poor implies that it must always make a positive contribution to poverty reduction, or rather that REDD should follow a more modest 'no harm' principle. This is a pragmatic as well as moral argument (Box 2). The choice could affect the way that REDD is designed - for example, loading numerous social criteria on to an instrument primarily designed to tackle climate change could reduce overall investment. In practice, distinguishing between 'no harm' and 'pro-poor' may be difficult. This paper takes as a minimum the 'no harm' principle.

BOX 2: Why should REDD work for the poor?

- **Moral argument** that the poor have a right to an equitable share of any benefits accruing from REDD – at least where they have some legitimate claim to rights over the forest
- **Improved sustainability of REDD in the long term:** In many instances, careful attention to distributional impacts and the encouragement of local-level stewardship of natural resources has been essential to achieve sustainable development objectives (Wells and Brandon, 1992; Fisher et al., 2005). Moreover, lower levels of poverty in some contexts can actually lead to greater sustainability through decreased pressure on forest ecosystems (Soriaga and Walpole, 2007). REDD is different due to the potential scales of financial flows theoretically available. Previous attempts to stem deforestation (e.g. conventional protected areas) have shown that if marginal communities benefit from them, they can become pro-forest conservation i.e. 'forest guardians'; it they do not feel as if they are benefiting they can become anti forest conservation [and destructively so]**.** The same is likely of REDD, depending on how it is structured, only at a larger scale, and in an even more polarising manner due to the potential inequalities that could be triggered.
- **Risk reduction in projects and for investors and buyers:** (1) Multiple-benefit Agriculture Forestry and Other land Use (AFOLU) projects can minimize leakage and non-permanence risks, since local people are less likely to be driven to undertake resource-depleting activities on- or off-site. (2) Projects that deliver tangible social and environmental benefits to the host country are often preferred and less likely to face approval and implementation roadblocks from local communities and the government. (VCS, 2007)
- From a market perspective a focus on 'pro-poor' forms of REDD may **increase returns and create 'niche' markets**, as some of the standards schemes currently aim to do (e.g. Gold Standard, 2008)
- **Political motivation:** At an international level demonstrating REDD which works for the poor is more likely to gain wide acceptance for REDD in the international climate change process. Evidence suggests that early action on REDD has mutual beneficial links to the achievement of other international processes, such as delivery of the Millennium Development Goals which will be undermined by worsening climate change.
- **Contractual/legal obligations: some organisations have to ensure low social impact:** For example the World Bank Safeguard Principles and those of many donor agencies.

The paper is organised in 6 sections. **Section 2** outlines the background to the REDD debate, what it is and how it has evolved, and presents a framework for understanding the poverty linkages., **Section 3** outlines in more detail the main design components of REDD at international and national scales. **Section 4** uses the poverty framework to analyse the potential implications of REDD for the poor arising from key design choices. Finally **section 5** summarises how REDD may be made to work better for the poor.

2 The evolution of the REDD and poverty debate

2.1 Forests, carbon markets and social issues

Forest ecosystems contain twice as much carbon as the total amount contained in the atmosphere, and so can be significant sources of carbon dioxide when they burn or decay. Tropical forests, in particular, hold a large share of the world's terrestrial carbon, with a range of 120 to 400 tons per hectare (Lawrence, 2007), or up to 3000-6000 tons per hectare for certain carbon-rich peat forests (Hooijer et al., 2006). It is estimated that deforestation and other forms of land degradation – mainly in the tropics – may account for up to one fifth of all anthropogenic greenhouse gas emissions (Santilli et al., 2005; Stern, 2006; UNFCCC, 2006; IPCC, 2007).They are also among the most threatened ecosystems in the world and by some estimates are expected to be lost at a rate of 5% per decade over the next 30 to 50 years (Chomitz et al., 2006).

Despite the huge contribution that deforestation and degradation make to global carbon emissions, existing regulated carbon market mechanisms relating to forestry in developing countries (the Kyoto Protocol's Clean Development Mechanism (CDM)) currently only cover aforestation and reforestation projects, which sequester carbon from the atmosphere as trees grow (Box 3). The reasons why deforestation and degradation has been limited from regulated markets under Kyoto in this way include:

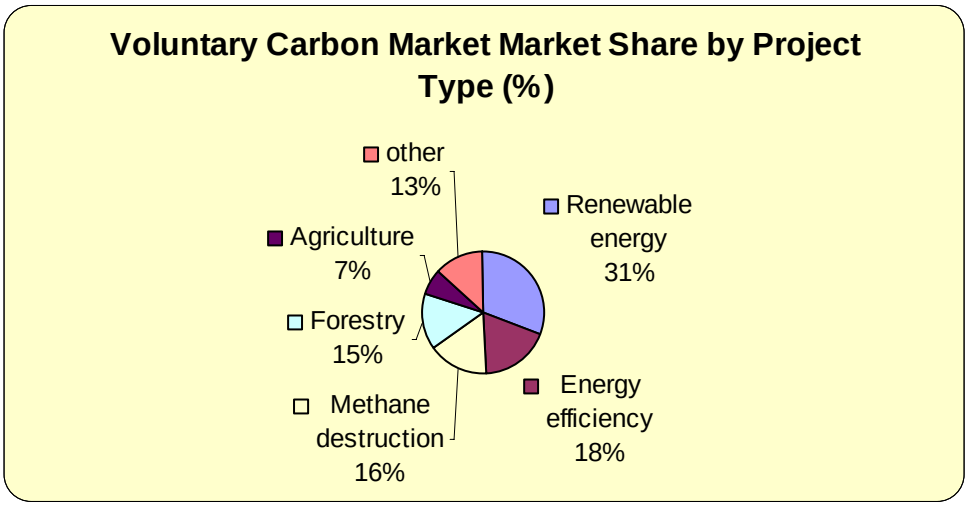
- **Technical issues.** These include: (1) difficulties in estimating carbon emissions from deforestation and especially degradation (which can be hard to monitor using remote sensing techniques); (2) difficulties in understanding the drivers of DD which can be due to diverse, layered and linked factors, such as timber extraction, agricultural expansion, urban sprawl and the opening of new roads (Geist and Lambin, 2001); and (3) difficulties in establishing 'additionality' – what would have happened in the absence of the project or programme.
- **Moral Hazard.** A concern that forests in the developing world are used as a convenient way of tackling climate change, instead of countries in the developed world taking on deeper cuts in their own emissions and making genuine changes in energy consumption within their own societies. This is a general concern that has contributed to limited investment in A/R projects and is contributing to some of the concerns surrounding REDD.
- **Political differences**. Especially between developed (Annex 1) and developing (Non-Annex 1) countries. Developing countries have been reluctant to take on emissions reductions targets because of their smaller per capita contribution to emissions to date and the 'right to develop'; whereas some developed countries seeing the potential for future emissions from developing countries would like them to accept caps too (e.g. US stance)
- **High risks.** Particularly related to: (1) potential non-permanence of emissions reductions which is likely to be linked to human causes (e.g. conflict; fire etc.); (2) large volumes of credits destabilising carbon markets and reducing prices; (3) leakage of emissions by displacement of DD activities to other areas; (4) potentially negative social implications of forestry projects including those observed in some early pilot 'Activities Implemented Jointly' under the Kyoto Process and voluntary carbon offset schemes (e.g. May et al. 2004; Lohmann, 2006); (5) forest conservation is an emotive issue (and an international public good) that attracts high levels of international attention and public scrutiny.

Box 3: Forests in existing carbon markets

Approximately one third of all greenhouse gases (GHG) are estimated to be caused from Land Use, Land Use Change and Forestry (LULUCF) activities (Stern, 2006). These notably include methane emissions from agriculture, but also deforestation and ecosystem degradation. Deforestation represents the largest source of LULUCF emissions (approximately 18% of total GHG emissions, as opposed to 13% for agriculture). Yet, the only types of projects that are delivering carbon credits in regulated markets are afforestation and reforestation (A/R) projects in the Clean Development Mechanism (CDM). Afforestation refers to tree planting projects in areas where there has not been forest cover in the past 50 years, and reforestation to those projects occurring in areas that were more recently deforested (Pearson et al., 2006). Projects that mitigate GHG emissions by avoiding deforestation and/or ecosystem degradation are currently not eligible for generating carbon credits through the CDM. There are currently 4 afforestation and 14 reforestation projects in the CDM project pipeline and one registered CDM forestry project.

In the voluntary markets for carbon offsets, forestry mitigation projects are more popular investments (Hamilton et al., 2008). Avoided deforestation projects are also allowed as a project option and they account for about 5% [of overall value] and could be significant contributors to the growth of the market (see pie chart below).

However, in terms of overall size the voluntary markets are dwarfed by the CDM. CDM projects hold the lion's share (approximately 95%) of the global market value of mitigation projects – which is estimated at over $13 billion (Capoor and Ambrosi, 2008). The voluntary market, by comparison is worth approximately $265 million. Forestry investments are estimated to represent about 15% of the voluntary carbon market (see below).



Advances in technical capabilities (for example related to monitoring emissions) and an increased global concern about climate change, combined with increased interest from developing countries (see PNG submission to COP11) have put REDD onto the international agenda in the context of international discussions about a possible post-2012 climate regime. REDD is now a formal part of the 'Bali Action Plan' on defining a future international climate regime, with details about how it might be incorporated to be decided over the next two years to COP15 in December 2009.

Until recently the debate has had a largely technical focus relating to issues such as leakage, additionality and permanence, noted above, without much attention being paid to institutional and governance issues or social concerns in developing countries. This is reflected in official statements on REDD. The Bali decision on REDD makes only side references to synergies with other Multilateral Environmental Agreements and to indigenous communities (who may not necessarily be poor) (FCCC/CP/2007/6/Add.1). It is unclear how these overlaps will work or whether parallel treaties and other international initiatives have robust enough systems for safeguarding the interests of the poor in REDD. For example, as Hobley (2007) argues, in the Convention on Biological Diversity (CBD) – an MEA probably most closely aligned with REDD – the challenge remains with the implementation of the

agreed Programme of Work which provides opportunities at the national level to support innovation, building dialogue based on evidence and experimentation from the local level and an understanding of poverty. It does appear, however, to have raised the profile of relationships between poverty and forest conservation and principles contained within the Programme of Work on 'Governance, Equity, Participation and Benefit Sharing' could provide useful inputs into the UNFCCC process.

National sovereignty concerns are a major issue in terms of the poverty dimensions of international treaties and initiatives. They raise the question of how much we should expect the international process to deliver REDD systems which work for the poor. Such concerns have been a major aspect of the development of the CDM where the treatment of sustainability criteria (including social aspects) is the decision of the host country (see for example Peskett and Brown, 2005), although in practice the choice of criteria appears often to be based on suggestions in documentation provided by external actors. The sovereignty debate is also prevalent in REDD with some countries wary that forest carbon markets could threaten sovereignty over their forest resources (Worldwatch Institute, 2008).

Outside of official circles there is growing concern about the social implications of REDD, as evidenced by recent protests in Bali (Heffernan, Nature 2007), recent reports (Griffiths, 2007) and declarations. Annex 1 outlines concerns raised by some NGOs in relation to the social implications of REDD. The concerns of indigenous peoples are becoming particularly prominent, with a number of recent declarations and statements being made by indigenous groups worldwide (Box 4). These centre around four main issues:

- Disappointment that member states of the UNFCCC are still ignoring their demands and contributions;
- Lack of recognition of the role of Indigenous People in the protection of hundreds of millions of hectares of forest, contributing to the reduction of GHG emissions from tropical deforestation, without recognition of, or compensation for this environmental service;
- Lack of information about climate change policies and interventions or provision of technology nor financial resources to adequately respond to climate change;
- Concern that REDD will not benefit Indigenous Peoples, but in fact, it will result in violations of Indigenous Peoples' Rights.

Related to these concerns is a growing interest in developing social standards for REDD to ensure that REDD strategies do not have negative implications for the poor. The 'Climate, Community and Biodiversity Alliance' (CCBA) is currently reviewing its potential application to REDD (pers. comm. CCBA March 2008). Other standards such as the Gold Standard for offset projects are considering including forestry because of the growing number of forestry offset projects and links to conservation of tropical forests (WWF pers. comm. Feb 2008).

Box 4: Indigenous Peoples and REDD

Indigenous Peoples have become increasingly concerned about REDD given the often poor track record of governments and the private sector in recognising their rights and interests in forest policies. Positions are not uniform, with some groups vehemently opposed to any form of forest carbon trading and others accepting that there could be benefits but only with a major drive to include them within international and national processes. Indigenous Peoples are calling for:

- Inclusion of 'Indigenous Peoples and Climate Change' as a permanent item on the agenda of the UNFCCC COPA Meeting of the Parties (MOP), and of the Subsidiary Bodies' meetings;
- Promote the establishment of in-session workshops, including Indigenous expert meetings within the program of work of the Subsidiary Body for Scientific and Technical Advice (SBSTA) to facilitate discussions on the effects of climate change on Indigenous Peoples;
- Gender mainstreaming in all policies and interventions under UNFCCC; the CBD and its relevant working groups, inter alia, on Article 8(j), Protected Areas;
- Indigenous peoples' right to participate has been confirmed by Agenda 21 and in article 18 of the UN Declaration on the Rights of Indigenous Peoples. Governments and inter-governmental institutions must ensure full and effective participation of indigenous peoples in the conception, design and implementation of sustainable solutions to combat climate change whilst ensuring the principles of Free, Prior and Informed Consent.

Sources: (IFIPCC, 2007; CORE, ICITP-NEZ & GENCC, 2008; North American Region Preparatory Meeting, 2008; Manaus Declaration, 2008; IWGIA, 2008; CSAG, 2008)

In the research literature, the implications of REDD for the poor have so far received little attention. Some examples of the way the question of REDD and poverty is being treated include: Ebeling and Yasue (2008) look at global equity issues that REDD presents; Griffiths (2007) focuses on the implications of REDD for indigenous groups; Boyd (2002) looks at the gender, power and decision making dimensions of the Noel Kempff project in Bolivia, an early REDD-like initiative; Peskett and Harkin (2007) review some of the implications of the design of REDD schemes for the poor; and Kanninen et al (2007) cover some of the social implications in a more wide-ranging report on the governance of REDD. At country and project scales REDD-poverty linkages are beginning to receive more attention, but this has not been translated into more general lessons, in part because many of these only exist on paper at present. It is also questionable the extent to which lessons can be drawn from project-based mechanisms and translated into an understanding of the effects of broader national systems. However, despite this lack of existing research or the applicability of specific cases to understanding more general lessons about REDD, there is a wealth of literature on forest-poverty linkages and on market-based and fund-based financial support mechanisms (e.g. Pfaff et al. 2007; Grieg-Gran et al. 2005; Wunder, 2006) for developing countries and the poor, which can be used to draw insights into the implications of REDD. Relevant material is referred to in the analysis contained in section 4.

2.2 How REDD works

REDD (using the Compensated Reduction approach, which is probably the most developed and politically supported mechanism) is based on the simple theory that financial incentives are offered to developing countries to put in place new policies and measures to reduce emissions from deforestation or forest degradation. The size of emissions reductions is determined by comparing achieved DD rates against a reference scenario (commonly called a 'baseline') (Figure 1). The reference scenario is a scenario of what would have happened in the absence of the policy or measure. This can be established by looking at historical trends in DD and extrapolating these into the future; by modelling future trends using knowledge of drivers of DD; or by a combination of these methods. As time progresses, payments (likely to be made per tonne of emissions reduced) are made, usually once emissions reductions have been verified.

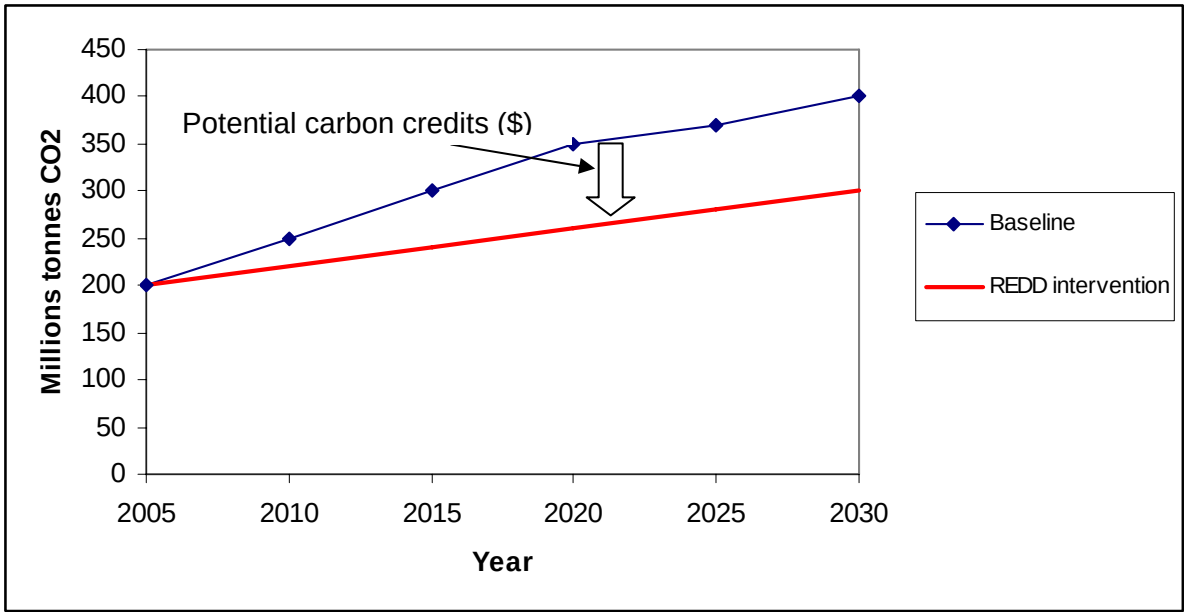


Figure 1: REDD baseline and credit theory.

In theory, in order to reduce DD the payments have to cover the enforcement and/or opportunity costs associated with the change in behaviour away from DD related activities. These drivers of DD may include activities such as logging, agricultural expansion etc. Rules for the types of potential emission reduction **Policies and Measures (PAMs)** have not yet been defined either internationally or in national schemes and could include any activity that reduces DD in both pristine and managed forests. They could also include a complete halt to DD in a given area (e.g. through fully enforced protected areas) or a reduced rate (e.g. through more sustainable logging practices). In practice, it may not be the case that all opportunity costs are covered. Strengthened policing, for example, may well reduce DD but this does not mean that those losing out have to be compensated. In such cases, REDD might result in welfare losses for certain stakeholders, and possibly the poor, or alternatively stakeholders will choose to ignore PAMs. It is also important to note that the evaluation of opportunity costs has tended to dominate debates about REDD mechanisms. They may be an important tool for analysis of different REDD options, but they may be more applicable for certain stakeholders (e.g. logging companies) than to the poor where issues such as the timing and distribution of benefits may have more important implications. These issues are explored in later sections.

PAMs can also have either a reward or compensation function. A reward incentivises a positive change in behaviour (e.g. through changed land management practices such as implementation of Sustainable Forest Management (SFM)) and compensation would cover foregone opportunity costs (e.g. loss of access to forest products). It is likely that in any REDD scheme, a combination of positive incentives, compensation and stronger enforcement will be required. For example, if REDD is achieved through strengthened policing of forest areas the incentive would be going towards those implementing the policing and the compensation going towards those that have to change their behaviour as a result of policing. In some PAMs, incentives and compensation will align. For example, if policies on agricultural intensification are used to 'draw people away from forest margins' REDD would both be incentivising this change and providing an alternative income source. As mentioned above, in theory for REDD to work, all opportunity costs would need to be covered through compensation, to ensure that behaviour change occurs.

The important point is that the choice of PAMs will effect the whole structure of the REDD mechanism by determining who is being incentivised to do what and who needs to be compensated Crucially, REDD PAMs will also determine the success or failure of REDD to result in DD in many instances. For example, improved law enforcement or a local Payments

for Environmental Service (PES) schemes in a given area may have similar effects on DD in that area but the REDD mechanism and the stakeholders involved will be very different. It follows that the implications for the poor will also vary.

2.3 A framework for analysing REDD-poverty linkages

Understanding the linkages between REDD and poverty requires a nuanced approach that disaggregates between different groups and individuals and considers a range of different geographical scales and timescales. In existing debates about REDD and about carbon markets in general, terms such as social 'co-benefits' are often used without a description of what this means (Peskett and Iwata, 2007) and on some carbon retail websites 'community benefits' may be interpreted as synonymous with poverty reduction (e.g. Climate Care, 2008).

In reality these terms are oversimplifications which are prone to neglect the heterogeneity between individuals and households. In many communities such heterogeneity exists in diverse terms such as wealth, political influence and resilience to shocks. Assuming that communities have a single set of interests runs the danger of encouraging capture of development initiatives by single interest groups in the name of the community as a whole, and the wealthier groups are generally best placed to achieve this. A more nuanced approach is also needed to understand poverty in terms that comprehend poverty and poverty reduction not just at the individual and local scale but also at national and international levels. For example, in REDD, poverty alleviation may come about through contributions to economic growth or the distribution of benefits globally. Evidence from the forestry literature indicates that these indirect effects could sometimes be large but may not necessarily be for the benefit/risks of the poor living in or near forests (Angelsen and Wunder, 2003). Focusing only on the short-term and local scale can lead to poverty being understood as a static condition; instead of one that is highly dynamic which depends on the vulnerability of different groups – a function of risks such as ill health, environmental change and breakdown of law and order (Bird, 2006).

Numerous studies offer frameworks to understand these differences. Hobley (2007) distinguishes between 'declining, coping and improving poor', whilst McKay and Lawson (2002) distinguish between the 'chronic poor' who are always poor and the 'transient poor' who are sometime poor.

This paper uses a framework to understand the linkages between REDD and poverty, which comprises three different concepts through which poverty can be understood (Table 1). Poverty is considered at four different spatial scales, from individual, community and national, to international scales. It also offers potential for moving the REDD debate away from thinking around projects to national schemes where REDD may be conceptualised as a 'sector' with associated 'value chains'. This will be important as carbon markets grow in scale over the coming years and if REDD is to result in benefits at a significant scale. The framework encompasses three main areas:

1. **Income and growth factors** relate to both monetary and non-monetary benefits of REDD. Monetary benefits include direct cash income from REDD payments (e.g. a PES-type scheme), labour or other non-labour income, such as from leases, equity or royalties. They also include indirect income from REDD, for example through local spending of earning accrued through REDD projects and programmes. At a macro-level, growth effects may include tax takings of governments, changes in prices and wages and economic diversification. Non-monetary benefits include access to subsistence forest products, which can help reduce vulnerability to shocks; benefits accruing through infrastructure improvements and other developments related to REDD; enhanced natural assets and environmental capital; and skills and knowledge development. These factors are relevant at both micro and macro scales.
2. **Equity:** Equity refers to the distribution of risks and benefits within a population and is relevant at both micro and macro scales. At micro scales equity might relate to the

distribution of REDD payments within a household or community and changes in access to forest resources due to REDD schemes. At national and international scales, equity in REDD might relate to the distribution of funds between different regions of a country or between countries. Equity is strongly related to the different dimensions of vulnerability. Spatial vulnerability (for example linked to difficulties in accessing markets because of factors such as distance from roads) in REDD might lead to inequitable distribution between areas depending on existing rates of forest loss; temporal vulnerability might lead to inequity where REDD prevents access to subsistence forest products that are used to cope with temporal shocks; and structural vulnerability might lead to inequity where 'elite capture' occurs due to power differences between groups and individuals.

3. **Voice and Choice:** Rights based approaches emphasise a shift from the poor as 'passive receivers' of aid to 'active participants' who participate in decision making and asserting rights in order to address the root causes of poverty (Luttrell et al. 2005). In REDD this relates to questions about the governance of REDD projects and policies. At individual and community scales this might include the presence of effective participatory processes in the design of a REDD project; at national scales it might include effective oversight mechanisms for verifying REDD 'supply chains'; and at international levels it might relate to involvement of national governments and southern NGOs in the UNFCCC negotiations. These scalar differences are interlinked. It is, for example, not enough to define rights to REDD related benefits if the institutions are not in place for the poor to be able to assert these rights.

There may be significant overlaps between these different categories. Guaranteeing that REDD delivers equitable income benefits between individuals in a community, is likely to require that effective institutions exist to allow those who are most vulnerable to exercise their voice and overcome power imbalances. Another example at the national level is the 'evenness' of growth. There is growing evidence that growth can result in a 'trickle down' effect over long timescales (Ravallion, 2001) and it is hard to identify cases where poverty reduction has occurred without growth (Angelsen and Wunder, 2003). But growth is often uneven, and it is likely that some groups (especially the chronic poor) will not benefit, particularly in the short term (Wiggins, 2008). In a market economy, for example, growth does not always transmit benefits because of a lack of physical access; market failures; a lack of human capital; and exclusion.

	Individual	Community	National	International
Income and growth	• Labour income • Non-labour income • Enhanced rights to land • Rights to carbon • Access to subsistence products • Small Enterprise development	• Infrastructure improvements • Local spending • Improved public services • Improved environmental quality	• Infrastructure improvements • Skills and knowledge • SME development • Attaining the MDGs	• Simultaneous attainment of development, CC and biodiversity conservation targets
Equity	• Level of income from REDD compared to others in household • Continued or increased ability to access forest resources under REDD	• Level and distribution of income in community	• Regional distribution of REDD investment	• International distribution of REDD investment
Voice and Choice	• Effective participation in community discussions of REDD project design and implementation	• Effective participation in decision making surrounding REDD (with companies; govt etc.) • More viable and representative local government	• Effective participation in national REDD processes	• Effective participation in global REDD negotiations

Table 1: Simplified poverty framework giving examples of indicators that can be used to assess the poverty implications of REDD at different scales. Note that this focuses on potential benefits, but most indicators could also be developed for risks (e.g. 'loss of income').

In assessing different forms of REDD against these categories and scales, it is also necessary to be aware of the different measures and indicators that can be used. These are summarised in Annex 3. Different indicators may be required for different types of poverty (e.g. chronic vs. transitory), different measures (e.g. absolute vs. relative) and different scales (e.g. individual vs. national). These will be particularly important in the design of any future toolkits for assessing the poverty dimensions of REDD.

Using this framework, 'pro-poor' REDD mechanisms can be defined as those that aim to increase the assets and capabilities of the poor (Curran and DeRenzio, 2006, cited in Bird, 2006) in the three dimensions discussed above. They could be targeted at specific individuals and groups (e.g. socio-economic groups or geographic) or be broader (e.g. changing policy frameworks or aiming to contribute to economic growth). As part of this, they should focus on outcomes rather than just intent, use measures and indicators that are not just money-metric and assess the robustness of the gains in the long term (Conway et al.,2004).

It is important as part of the poverty analysis of REDD to recognise that even if pro-poor REDD policies can be developed, it is not necessarily the case that they will be implemented. Wiggins (2008) outlines three main barriers to pro-poor policy. These include:

- **Agenda setting,** which involves getting issues that affect the poor on to the policy agenda. This can be problematic if the poor are unable to make their voices heard.
- **Policy formulation.** Once on the agenda it can be difficult to get take up because of: (1) the belief the existing policy takes care of the problem; (2) the poor being perceived as

undeserving; and (3) resistance to policies targeted at the poor rather than universal policies.

- **Policy implementation** of pro-poor policies can be problematic because policies are politically contested; institutional weaknesses exist, such as lack of resources, political capture by elites and/or poor coordination between different Ministries; and lack of budget in national budgeting systems.

3 Designing REDD at international and national levels

Despite its simple theoretical foundations, REDD is not that simple to put into practice. Many different proposals have emerged due to various technical and political barriers in their design elements. These mainly focus on the international architecture, rather than national implementation systems. Understanding these different issues is essential in order to understand the potential implications for the poor.

3.1 Design issues in international REDD proposals

Numerous proposals for how REDD should function have been suggested by governments, NGOs and research institutes. There are many similarities between them but a few key variables have tended to dominate the debate. They stem from the basic technical requirements of what REDD sets out to achieve (permanent emissions reductions, which means ensuring additionality, minimising leakage, and avoiding all other risks by effectively addressing the root drivers of DD) combined with different options of how best to achieve this (mainly political decisions). They include:

1. **Reference scenario/level:** Reference scenarios or levels are methods used to judge performance in reducing emissions related to DD or in preserving standing carbon stocks. **Baseline and credit or cap and trade?** Baseline-and-credit approaches (outlined above in section 2.2), similar to the existing CDM, are most widely proposed for REDD. The baseline (or reference scenario) would define a scenario of projected emissions from DD in the future (probably based on historical DD rates and/or modelling future rates). In a market-based REDD mechanism credits would then be awarded to countries for decreasing DD below this scenario as outlined in the previous section. A major problem in the negotiations over REDD relates to the fact that tropical countries with low historical deforestation rates are unlikely to be rewarded for maintaining low rates, whilst those with high rates (and poor performance in terms of preserving forests) are likely to gain most from REDD. These issues are discussed further in later sections.

   An alternative approach would be to use a cap and trade system in which countries take on an emissions target or level. This could, for example, be based on emissions in a particular year in the past. Country commitments in the Kyoto Protocol use this approach, with targets based on emissions levels in 1990. Once a target is agreed, country emissions can then be 'capped' at a certain level. Emissions allowances could then be allocated to different entities (such as companies) that would either have to change their practices and reduce emissions or purchase allowances from entities with spare allowances. However, 'cap and trade' approaches, which would essentially involve developing countries taking on an emissions target, are much less politically feasible because of the huge differences in historic emissions between developed and developing countries.

   The cap and trade approach has been closely associated with an approach to reducing DD based on making payments for the preservation of existing **carbon stocks** rather than **emissions reductions**. The advantage of a stock-based approach is that it avoids the problem of calculating complicated reference scenarios which could be difficult to establish because baseline deforestation differs within a particular country and over time, for example due to unplanned and illegal logging (Prior et al. 2006). It would also enable countries with low emissions rates to benefit from REDD. But it could also prove less efficient as payments may be made for forest areas that are not under threat.

2. **Scope: Deforestation *and* degradation?** Forest degradation was left out of many early proposals for REDD mainly because of technological difficulties in monitoring and political opposition by some countries. Forest degradation has been estimated to threaten about 60% of the productive lands in the Congo Basin (UNFCCC/FCCC/SBSTA/2007/MISC.14, 2007) and is significant in both South/Latin American and Asian forests. The African COMIFAC proposal introduced the idea of integrating emission reductions and acknowledgement of the role of degradation in

emissions was made at the Bali COP (FCCC/CP/2007/6/Add.2), although exact definitions have not been decided. Considerable progress has been made in measuring and monitoring degradation through field studies and remote sensing, especially in Brazil and Indonesia (DeFries et al. 2007, Kintisch, 2007, Chomitz et al. 2006, cited in Alvarado and Wertz-Kanounnikoff, 2007).

Another aspect of the scope of REDD mechanisms is whether **full or partial carbon accounting** is used for quantifying emissions. Accounting mechanisms in national systems for reducing DD could either include emissions from all land-use activities including forests, agro-forests, grasslands etc. (full) or from a sub-set of activities (partial). This will depend in part on the definition of 'forest' which is likely to be set by Non-Annex 1 countries themselves, and on the accounting rules and modalities in the UNFCCC. Some proposals focus on accounting for emissions in forest areas, which could be problematic in some areas, depending on definitions. For example, in Indonesia peat land emissions are significant (Page et al. 2002), but only peat land under forest is likely to be included in a crediting mechanism that uses partial accounting. Full carbon accounting would create a comprehensive incentive to manage all sinks and sources of carbon (Graßl *et al*., 2003). However, its inclusion is also politically problematic because countries could be held accountable for large interannual emissions variations and indirect impacts (e.g. from El Nino) that may be the result of actions by other countries (Persson and Azar, undated). Inclusion of forest degradation may be a reasonable trade-off.

3. **Framework:** If REDD is outside the UNFCCC framework it is likely to continue operating in the voluntary carbon markets (currently these markets contain the only existing REDD projects (see below)). If REDD is included within the multilateral process it could come under the UNFCCC, be included within future commitment periods of the Kyoto Protocol or come under a separate Protocol. Inclusion under the Kyoto Protocol is preferred by some because there is already an existing trading system that can be adapted and the creation of a separate protocol may face the risk of insufficient demand and a lengthy process (e.g. Dutschke and Wolfe, 2007, cited in Alvarado and Wertz-Kanounnikoff, 2007). However, others argue that inclusion of REDD credits in existing carbon markets (**fungible** credits) could flood existing carbon markets. This could reduce prices and weaken the whole system, without stronger targets being agreed for Annex 1 countries. 'Dual market' approaches with partial fungibility have been proposed (Ogonowski et al. 2007) to address this problem.
4. **Finance: Fund-based or market-based international financial mechanisms**. Fund-based mechanisms would use an international (probably multilateral) fund to deliver incentives to developing countries to reduce DD. Brazil has been a supporter of this approach due to the fact that a fund would be de-linked from carbon markets and Annex 1 countries would be going above and beyond their commitments to reduce emissions (Peskett, 2006). The amount of funding delivered to a country could be based on the level of emissions reductions in relation to a reference scenario but it could be based on other measures that may not even be linked to emissions reductions (e.g. the fact that a country has implemented certain policy changes). In short, funds may be less likely to have such strict performance criteria related to emissions. **Market-based** mechanisms would be likely to use the trading of carbon credits to bring about DD reductions. These would likely be linked to emissions reductions targets in Annex 1 countries – i.e. Annex 1 countries could 'purchase' emissions reductions units from non-Annex 1 avoided DD schemes to meet targets. The main difference between these two approaches is the likely scale of finance, with market-based systems expected to generate much larger financial flows – and therefore generate greater potential for pro-poor REDD.

   Market-based mechanisms can be further subdivided into **voluntary or regulated market systems.** The voluntary market uses different rules and procedures for monitoring and verification of carbon projects compared to the Kyoto mechanisms and

there is no internationally agreed institutional structure as exists for the Kyoto Protocol's flexible mechanisms. The voluntary market would probably continue alongside the regulatory regime. This assumption is made on the basis that the voluntary market is driven by multiple motivations (i.e. that future regulation is not the only driver for investment) and it would probably implement different types and scales of projects, as the rules would probably be less restrictive. REDD-like projects are already present in the existing voluntary carbon market, and can be expected to grow in popularity as standards for ascertaining their value are further refined and developed (e.g. through CCBA and VCS certification).

5. **Liability:** There is a wide range of risks which could feature in REDD mechanisms, but the primary concerns of investors or funders relate to whether emissions reductions are permanent and whether they have avoided 'leakage' (the possibility that DD could have been displaced elsewhere). Different proposals suggest different mechanisms to deal with risks relating to REDD. These are described in Table 2.

Liability mechanism	Description
Risk buffers	Percentage (often~30%) of credits withheld from sale as insurance in the event of project or programme failure, whereupon (for instance) they used to counterbalance the annual emissions reduction target that hasn't been achieved.
Replacement of issued credits by sellers	By bringing new areas under REDD schemes if areas from which credits have been sold [in anticipation of reduced DD] fail to deliver emissions reductions – [potentially linked to Portfolio approaches].
Repayment of revenues/fines	Governments or project implementers have to repay any income that has failed to deliver emissions reductions via REDD programmes or projects.
Temporary credits	Expire after a certain time period and need to be replaced. Used in CDM afforestation and reforestation projects, and can still be relatively long-term e.g. 30 or 40 years depending on the degree of seller certainty over permanence.
Payment after verification (i.e. 'on delivery')	Ex-post payments can significantly reduce risks for buyers.
Portfolio approaches	A range of project areas and types are developed. Sourcing credits from such a 'portfolio' reduces risks arising, for example, from forest fires that will only affect certain geographic regions.
Insurance	Insurance could be used in some REDD programmes or projects to ensure against their failure

Table 2: Different liability management mechanisms in REDD proposals

6. **Spatial scale: National versus project-based approaches**. A big theme in the REDD debate that moves it beyond existing 'project based' mechanisms is the possibility of establishing 'national' REDD systems. Such approaches are still quite poorly defined in the literature but the main difference lies in the way that emissions reductions are accounted for and how crediting for emissions reductions occurs. In project approaches using an emissions-based approach, specific REDD projects would establish a *project* baseline and accounting of emissions reductions taking place for the project area (e.g. for a specific forest area). Credits would be awarded to the project implementer (who could be a private company, local government or community) based on the emissions reductions achieved in that area.

   In national approaches, a *national* baseline would be established with accounting of emissions reductions taking place at the national level. Credits would be awarded for emissions reductions below the national baseline. There is an implication that finance received in relation to these credits would go to national governments who would be responsible for implementing broad policies at national level (e.g. tenure reform processes; strengthened enforcement measures) and/or responsibility could devolve finances to lower authorities to implement policies specific to local areas. They may also directly fund REDD projects with their own project baselines, though the relationships between national and project baselines would have to be clarified. Some approaches

propose that national accounting and crediting occurs alongside project accounting and crediting (e.g. the nested approach – Estrada et al. 2007).

National approaches are favoured by many because they help to deal with problems of 'leakage' at the national level – i.e. that emissions avoided in one area will result in transfer of emissions to other areas because DD activities shift. They may also raise more funds because of their larger scale and the possibility of increased efficiencies through economies of scale. They do not however deal with market leakage (e.g. price effects of REDD on timber markets causing changes in global investment patterns) or international leakage between countries.

Table 3 summarises some of these similarities and differences in six of the dominant proposals for REDD.

	Emissions based mechanisms				**Stock based mechanisms**	**Mixed mechanisms**
	Papua New Guinea (and Coalition of Rainforest Nations)	**Brazil**	**Central Africa (COMIFAC)**	**Latin American countries**	**CISDL**	**Nested approach**
Reference scenario/level	Historic with development adjustment factor	Strictly historical	Historical with development adjustment factor	Historical with development adjustment factor and taking past efforts into account	Negotiated target (stock based)	Negotiated target (stock based) at national level and project reference scenario (baseline)
Scope of accounting	Deforestation and degradation	Deforestation	Deforestation and degradation	Deforestation and degradation	Deforestation and degradation	Deforestation and degradation
Framework	Open, preferably within Kyoto	Separate Protocol but within UNFCCC	Open	Kyoto Protocol		
Finance	Market-based	Voluntary Fund	Mixed financing, market and fund based	Mixed financing market and fund based	Market-based	Mixed financing market and fund based
Fungibility	Tradable credits for Annex 1 Countries' reductions	No, credits are non-substitutable for Annex 1 countries' reductions	Tradable credits for Annex 1 Countries' reductions	Tradable credits for Annex 1 Countries' reductions	Tradable credits for Annex 1 Countries' reductions	Tradable credits for Annex 1 Countries' reductions
Liability	Banking and borrowing	Commitments transferred to subsequent commitment periods			Banking and borrowing; Temporary credits	National buffer; Commitments transferred to subsequent commitment periods; adjust target for force majeure
Spatial scale	National	National	Open: national or local depending on country circumstances	Open: national or local or sector specific, depending on country circumstances	National	National and project

Table 3: Comparison of six different proposals for financial mechanisms to reduce deforestation and degradation. Note that the six proposals are described in Annex 4. *Source: adapted from Alvarado and Wertz-Kanounnikoff (2007)*

3.2 Design issues in national and sub-national REDD systems

There are more variables in the design of REDD systems at the national level. Some of these will depend on how international systems are established. For example, internationally mandated monitoring and verification criteria which are standardised across countries would require national monitoring and verification systems that can achieve these criteria, and hence institutions and legal provisions that are able to implement these. However, there will also be a set of decisions to be made by national governments on the systems for implementing REDD, which could vary significantly between countries, depending on existing national systems (e.g. financial systems) and the DD context (e.g. the drivers of DD).

Two of the main variables in REDD systems at national and sub-national levels (whether they are 'national' or 'project based' systems) are the types of institutions that will need to be put in place to manage REDD, and the types of policies and measures that may be implemented to reduce DD. These two variables are obviously highly interlinked. Table 4 lists potential institutions and their functions in national REDD systems.

Institutional function	**Main responsibilities**
National Fund Manager	• Receiving finance from international markets or funds • Redistributing finance to actors that will reduce emissions from deforestation and degradation (possibly via intermediaries) • Providing upfront financing to fund activities • Marketing credits to international buyers
National monitoring, reporting and verification system	• Assuring international buyers that emissions reductions have occurred through 'credible' processes • Ensuring that payments made by the national fund manager go to units that have *really* reduced emissions, through rigorous monitoring, periodic review and evaluating institutional performance • Overseeing complete REDD system, perhaps through an independent 'REDD Governing Board'
National registry and transaction log	• To record emissions reductions and their sources • To track movements of credits between different units
Legal institution(s)	• Developing laws to facilitate REDD mechanism • Adjusting existing forestry laws, property laws if necessary • Enforcing laws relating to REDD system • Resolving disputes such as claims to credits • Ensuring equal access to the fund (e.g. size restrictions in Costa Rica PES)
Scientific institution(s)	• Establishing national baseline to measure performance • Defining minimum eligibility requirements for participation • Building technical capacity to implement REDD system
Implementing institution	• Evaluates and approves REDD activities based on set criteria • Issues contracts to units implementing REDD activities
Sellers themselves?	• E.g. if community, then existing community organisations to redistribute revenue from payments

Table 4: Institutions required in national REDD systems. Note that this focuses on national, rather than project-based systems (Peskett, 2007, prepared for IFCA study 3)

Box 5 lists 21 policies and measures that have been suggested in recent literature as possible options for addressing the drivers of DD through REDD systems.

Box 5: Examples of potential Emissions Reductions Policies and Measures (PAMs) after: Chomitz, 2006; Bosquet, 2007, from Brown and Peskett, forthcoming)

1. Removal subsidies for deforestation and forest degradation
2. Tax land clearance
3. Strategic road planning
4. Improve forest law enforcement
5. Improve tenure security
6. Devolve forest management to local communities
7. Forest certification
8. Conservation concessions
9. Strengthen the protected area network
10. Payments for environmental services
11. Funding fire prevention programmes
12. Sustainable forest management/ improved forest planning
13. Support for reduced impact logging (RIL)
14. Reforest degraded land
15. Alternative livelihood programmes
16. Agricultural intensification
17. Support community forestry
18. Improve off-farm employment

Clearly both the way that institutions are established to deal with REDD systems and the types of policies and measures will have a significant bearing on the poverty implications of REDD. These are explored in later sections of this report.

4 The poverty implications of REDD

This section explores the design issues relating to international REDD debates and the options for implementing national or sub-national REDD systems. They are considered in relation to the poverty framework defined in section 2.3 in order to analyse the potential implications of REDD for the poor.

4.1 Poverty implications of alternative international REDD design options

4.1.1 Poverty implications of reference scenarios or levels

Baseline and credit approaches, and especially those based on historic rates of DD, are likely to raise equity issues at all levels of the REDD debate. This is because finance will be directed to areas with high historic DD rates or high projected future rates. Countries with lower historic rates of DD, such as India or DRC, could potentially lose out even though their low rates may be due to good performance in maintaining low rates of DD (Box 6). The same issue would occur at sub-national levels between regions with high and low historic and projected rates of DD such as the Brazilian states of Mato Grosso and Amazonas (Börner & Wunder, 2007).

Without adequate safeguards, perverse incentives in baseline-based approaches could also raise the risk of forest legislation being altered in ways that increase deforestation threats. An example of how this could disadvantage the poor would be a case where more concession licences are granted for large-scale logging operations with the potential benefits from REDD eclipsing consultation of the poor on such changes. Of course the opposite could be true (i.e. with legislation altered in ways that offer greater benefits to the poor), so the outcome will largely rely on a pro-poor political commitment.

Cap and trade systems based on carbon stocks, where allocations are made to individual entities, may not be well suited to small-scale producers due to high administrative burdens and technical complexities.

Stock-based accounting (where payments are effectively made for the preservation of standing carbon stocks) may suffer less from the equity issues inherent in baseline and credit approaches. However, they could also be less cost-effective, as payments may end up being made for stocks that are not under threat. This would likely lower the overall income and growth potential from REDD.

Box 6: International and local equity in DRC and Brazil

Democratic Republic of Congo (DRC) contains the second largest area of rainforest after the Amazon, almost half of all the tropical forest in Africa. Swidden agricultural practiced by widely-disbursed communities throughout DRC's forests is the principle source of its current GHG emissions, which are low compared to other countries. These systems have been practiced since Bantu peoples colonized the area (when it was still a savanna/ forest remnant mosaic) some 2-5,000 years ago although their sustainability is questionable given population growth and development aspirations (Kaimowitz and Angelsen 1999). DRC's lack of historical emissions make it a 'High Forest Low Deforestation' country where a 'preventative crediting' (Fonseca et. al. 2007) or 'stock-based' style REDD mechanism will enable the country a fair share of international avoided deforestation financing. The distribution of this money to rural communities - keeping them in-situ - would seem the best way to meet both poverty and climate imperatives as well as being the most equitable and moral option.

However, almost all of the humid forests of DRC, which contain some 17 billion tonnes of carbon, are suitable for palm oil production, which now constitutes the key future threat to DRC's forests (Laporte 2007). An estimated 62% of the country is already divided into potential concessions and DRC risks joining Brazil and Indonesia in the top echelons of global GHG emitters. This is a very real possibility now that the country is attaining relative stability and Chinese companies are paying over $300 per hectare to convert forested land into palm plantations. Past experience indicates that such land conversion is unlikely to be pro-poor and is more likely to benefit elites.

Allowing the inclusion of selective community-managed forestry (CMF) within REDD, represents a potentially more equitable scenario at individual and community levels than what is offered by conventional logging. This is could be even more favorable if timber income was supplemented by carbon payments. This type of REDD design is particularly pertinent somewhere like DRC where people are spread across large areas of potentially important carbon forest. It also fits with DRC's apparent move towards community management in some areas. Such 'usage friendly' REDD options would also be more likely to have positive poverty implications than the adoption of mechanisms that could exclude local communities e.g. usage of strict protected area models.

An additional equity issue is how to ensure benefits to historically disenfranchised, forest dwelling, indigenous pygmy communities in DRC. Similarly, in Brazil, REDD finance needs not only to act as 'compensation', or alternative income payments, to colonist communities but also to finance consolidation of indigenous territories. The legitimacy of indigenous reserves are reportedly often contested by settlers on 'economic' grounds i.e. that indigenous groups don't use land sufficiently productively. There are therefore potential endemic political barriers to equity, particularly under nationally run regulated market scenarios where payments would probably be based on delivery of GHG reduction targets, not methods of delivery or benefit sharing.

4.1.2 Poverty implications relating to the scope of REDD systems

REDD accounting systems and definitions could result in poverty implications mainly relating to the scale and scope of investments. There are two main areas of contention:

1. Full or partial accounting, including forest definitions
2. Deforestation only, or deforestation and degradation?

Full or partial accounting, including forest definitions

Forest definitions in particular are likely to affect the activities that can be funded under REDD. Basic definitions may be suggested internationally, for example based on tree heights and crown cover percentages, but they would probably also be related to national definitions which vary between countries and international agencies (e.g., FAO etc.). The concern for the poor would be that certain 'non-forest' categories, such as agroforestry, that have been shown to offer potential benefits such as increased food security, may not be included in REDD systems (Pro-Natura 2008). Also agroforestry systems (or others) may have equal or greater carbon per hectare than some types of 'forests'. Other carbon benefits in other types of ecosystems, such as drylands or mangroves, could also potentially be missed if a strict definition of forests is used. These concerns may be more likely in project-

based REDD systems rather than national systems. In national systems, governments would probably be able to distribute benefits to any land use type of their choice as long as they could demonstrate emissions reductions against the national reference scenario.

Another issue relates to how these definitions may affect the overall scale of investment in REDD. This could have both growth and income, as well as equity implications. Countries with large emissions associated with peatlands may not benefit from REDD if these areas are not on land classified as forest.

Deforestation, or deforestation and degradation?

A related issue is whether just deforestation, or deforestation *and* degradation are included in REDD systems. Some concerns have been raised that emissions from degradation[1] can be difficult to measure and monitor using remote sensing, resulting in high costs and expertise that is not widely available (Skutsch 2008). But its inclusion could significantly expand the coverage of REDD and increase international equity. Much of the Brazilian deforestation results from clear felling followed by pastures (cattle ranching) agriculture, compared to Indonesia, where in general trees are harvested before conversion. Inclusion of degradation would therefore be much more beneficial to Indonesia as a whole (IFCA study 3 2007) in baseline and credit systems as figure 2 describes. However, it should also be noted that there will be large regional variations in the actual and comparative benefits because of larges differences in carbon stocks in forests.

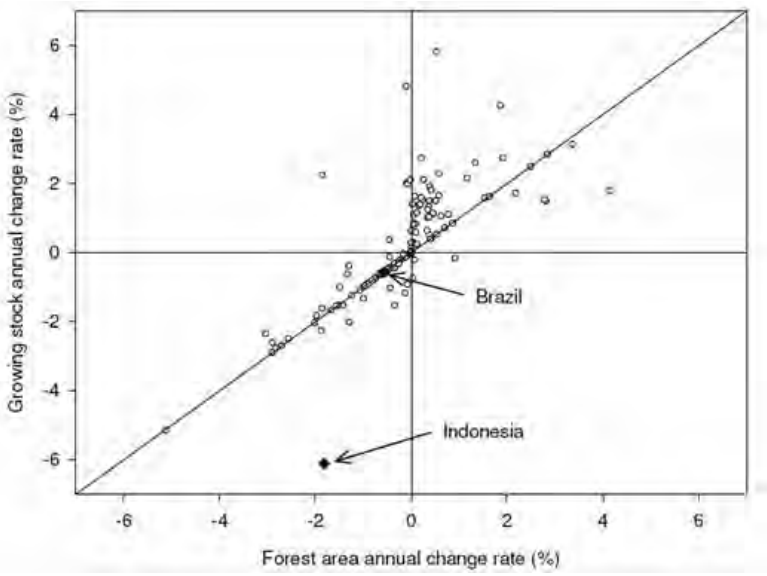


Figure 2: According to a global compilation of growing stock, biomass and carbon stock of forest resources (Marklund and Schoene, 2006), Indonesia experiences much stronger 'forest degradation' than 'area-based deforestation', while globally the two indicators are more strongly correlated. Source IFCA Study 3 2007

However, whilst inclusion of degradation might result in benefits for countries with high degradation rates, these benefits may not necessarily be transferred to the poor at sub-national scales. If practices such as selective harvesting or shifting cultivation (which degrade forests but might be followed by regeneration, (potentially sequestering carbon thereafter) are wrongly included in definitions of degradation, they could result in suppression of activities that have been shown in many cases to be pro-poor (Brown and

[1] A definition has not yet been officially agreed upon under the UNFCCC for degradation in REDD, though a definition by the Intergovernmental Panel on Climate Change (IPCC) exists (Penman et al. 2003)

Peskett 2008, forthcoming). As political elites manoeuvre themselves into a position to maximise benefits, this situation is likely to be exacerbated where there is an imbalance of power between those with responsibility to deliver emissions reductions in REDD and those on the receiving end of policies and measures.

Finally, there is no inclusion of 'regeneration' as yet, which is a natural process in forests, and as noted above, is carbon sequestration. Regeneration occurs on previously degraded land and its links to sequestration could yield positive benefits, but as it is difficult to measure it has been disregarded in some REDD mechanisms.

4.1.3 Poverty implications relating to international REDD frameworks

Poverty implications relating to the form of future international frameworks for REDD (i.e. inside Kyoto, under a separate protocol or outside the UN system) may be contingent on two main areas:

1. The volume of finance available.
2. The rules under which international REDD systems may operate.

There is a general consensus that if REDD is included as a market mechanism within a future Protocol then volumes of finance will be much higher than if it is not (as long as emissions targets are made stricter for developed countries and flooding of the markets with REDD credits can be avoided). However, whilst it may be possible to draw insights into funds versus markets, and voluntary versus regulated markets in terms of volumes of finance, it is not yet possible to make useful estimates comparing parallel protocols.

Based on the existing Kyoto Protocol the type of rules for REDD may include factors such as the types of activities that can receive incentives or compensation for REDD and verification procedures for REDD projects or programmes. These will obviously have strong relationships to poverty but it is too early to tell what these might be or how much will be left to decisions of recipient countries, communities or individuals. Section 4.2 describes some of these implications in more detail.

4.1.4 Poverty implications of market or fund based systems

Closely related to the type of framework in which REDD is structured is the question of whether REDD operates via market or fund-based systems. This raises four main issues:

1. Volume of finance
2. Management of delivery risks
3. Efficiency-equity trade-offs
4. Diversion of Overseas Development Assistance (ODA)

Volume of finance

Overall, the volume of finance needed to achieve DD reductions at the scales which would make a significant impact on climate change is likely to be higher in market-based systems. Conservative estimates of the scale of REDD financing vary from around US$2 billion to $30 billion annually (Ebeling and Yasue 2008; Stern, 2008), with the variation due to significant uncertainties in the future architecture. Estimates of financial flows within market-based approaches should be interpreted with care as there are huge differences depending on variables such as the stringency of Annex 1 emissions caps in the next commitment period of the Kyoto Protocol, which would increase demand. Voluntary funds are expected to generate far less revenue than market based approaches. This prediction is based on the low estimates of existing ODA flows to forests and climate change, compared to estimates of deforestation avoided and projections of carbon market prices (see section below on opportunity costs).

The large volumes of finance that might flow towards developing countries could contribute significant income and growth potential for recipient countries, and for communities and individuals within these countries. These benefits must not be underestimated, but large financial flows can also have some negative consequences. A 'resource curse' is thought to occur in some countries (Murshed 2004; Collier 2007 etc.) with a large natural resource base (e.g. oil, gas and forests). These resource 'rich' countries exhibit poor developmental performance in economic growth, equity and poverty. Views differ on why this occurs: some studies link poor economic performance to rational rent-seeking by elites, whilst others stress that natural resource abundance leads to the formation or maintenance of particular regime types (Rosser 2006). Many studies find that institutions and institutional functioning are the critical link among resource endowments, geography and policies which, in turn, shape their resulting economic outcomes (Murshed 2004; Peraelae 2003). Given these examples, without such effective institutions in place, large-scale REDD financing could result in negative economic outcomes, particularly for the poor.

Management of delivery risks

Delivering emissions reductions from DD carries with it significant risks for investors. These relate to issues such as non-permanence of emissions reductions, which could result from fire or conflict, amongst others. Investors classify risks into different types (Table 5) and use classifications to determine investment decisions, potential returns and the structuring of projects.

Actual	•Reference scenario	•Verifiable
Lasting	•Non-permanence	•Leakage
Achievable	•Deforestation Drivers •Opportunity Costs •Socio-economic equity	•Policy Effectiveness •Institutional/regulatory change •Corruption
Reliable	•Willing buyers •Market fungibility	•Compatibility with UNFCCC negotiations
Measurable	•Data uncertainty •Land cover classification	•Land cover change •Carbon stock/flux monitoring

Table 5: Delivery risks in forest emissions reductions. Source: UNDP-UNEP-FAO 2008

One way to reduce these risks is to only make payments after performance has been verified. In theory, this would incentivise countries or project implementers within countries to successfully implement REDD projects or programmes. But it could have a number of perverse effects in terms of poverty:

- Making REDD countries or projects bear all the delivery risk could reduce incentives to invest in time consuming participatory and community based measures that may be more pro-poor. (UNDP-UNEP-FAO 2008)
- If governments have to pre-fund the implementation of REDD programmes this may reduce the incentive to equitably distribute proceeds from REDD transactions to the poor. (UNDP-UNEP-FAO 2008)
- A lack of upfront capital may make it difficult for some countries or smaller producers within those countries to pre-fund REDD programmes or projects. Depending on who bears the costs for meeting standards and covering upfront costs (e.g. if it is a local government or individuals competing for market access), these factors could significantly reduce the potential of REDD to benefit the poor. In a direct payment system (such as PES), this lack

of upfront capital would be likely to penalise those unable, such as the chronic poor, to access REDD supply chains in the first place.

- Upfront finance delivered through loans would have to be repaid at some point, so may constrain future aid decisions (EAC, 2008).
- Delivery risks will also have significant equity implications. At the international scale, investors are more likely to invest in countries where the governance indicators are highest (Ebeling and Yasue 2008).

To overcome these issues, alternative financing sources to cover upfront costs will need to be explored at different levels. At community and individual levels these may include options such as improved self-financing through agricultural production, non-farm employment or other enterprise, and revolving credit programmes. At national levels improved bank credit and micro-credit could be provided through local development and commercial banks. International financial institutions and donors could play a large role, for example through carbon funds and innovative financial instruments such as forest backed bonds (Cosbey 2006; Enviromarket 2008; Scherr et al 2003). Reducing costs, for example through bundling carbon with other ecosystem services could also be an option that improves investment (e.g. this has been an important factor in Meryl Lynch investment in FFI's Aceh project – Pearse pers. comm. 2008). There is a range of experience in using such approaches, which would warrant further research in the REDD context.

Efficiency-equity trade-offs

Cost-effectiveness of REDD projects or programmes might also have implications for overall investments in REDD and their distribution. This has been a concern in the CDM where there has been a high volume of investment in 'low hanging fruit' projects (i.e. low cost per unit of emissions reduction), especially in China and India. These projects, which include adapting various industrial processes with cleaner technologies, are generally considered to have fewer benefits for local people (e.g. Muller 2007).

Given possible high transaction costs of REDD, investors (whether they are private sector investors investing directly in projects, or host country governments implementing national REDD systems) may also seek to exploit economies of scale. In the CDM this issue has given rise to concerns about the development of large-scale forestry projects with potential negative impacts on the environment and the poor (FERN 2007), though this obviously depends on how they are structured, as in some cases outgrower scehemes or employment may deliver benefits.

These concerns may be lower in publicly funded REDD programmes or projects as donor aid may have a more 'pro-poor' mandate than 'efficiency maximising' private funding sources. Some private investors may also be interested in projects with high social benefits (that may be less cost effective), as these can attract higher prices. Several standards schemes now promote 'premium' credits generated from projects with high sustainability benefits (e.g. the CCBA; Gold Standard).

Diversion of Overseas Development Assistance (ODA)

In REDD approaches that involve significant public funds, the diversion of ODA away from other areas, such as healthcare and education may have major implications for those who had or would receive such resources. This has been a concern in the CDM (Dutschke and Michaelowa, 2006) and could be a bigger problem in REDD given the larger scale of funding. It is also likely that donors will have more involvement in REDD implementation than the CDM, for example in the 'Reddiness' phase proposed as part of the FCPF that helps build country systems for monitoring and accounting for carbon. Both market and fund-based approaches to REDD could involve significant public finance, so it is not possible to compare their poverty implications at this stage.

4.1.5 Poverty implications of voluntary or regulated market approaches

Regulated markets are currently much larger and the prices of carbon are higher than in voluntary markets. This would imply that regulated REDD markets are likely to have much more income and growth potential if there is significant interest in investing in REDD. However, they may also entail more risks related to the volume of finance, as noted in the previous section.

Beyond these factors, the main differences relate to the motivations of investors and flexibility in the rules under which the different approaches operate. Box 7 illustrates how buyers' motivations in various markets can shape investment decisions in projects. Buyers in voluntary markets may be more interested in the sustainable development benefits of projects (including poverty reduction). They may also have less stringent rules for monitoring and verification of carbon and more flexibility in the types of projects allowed in REDD schemes. This could have significant equity implications as it could increase market access for smaller producers.

Conversely, there has been much concern that standards in the voluntary carbon markets are less uniform and in some cases much lower than the CDM. This may include standards governing how consultation processes are carried out in project design stages or the benefit sharing arrangements specified in contracts. In general standards in voluntary carbon markets are highly variable and in many cases it is very difficult to understand exactly how social implications are being considered.

Some options exist for dealing with the trade-offs occurring within standards, which could be explored in REDD. For example, 'one size fits all' approaches can be avoided and flexibility increased by developing regional and national systems as has been done for the Forest Stewardship Council (FSC) timber standards (Cashore 2005). Both the CDM and FSC have also developed alternative protocols for small-scale projects to improve uptake in this category, and in the case of the CDM, have been shown to bring greater development benefits in terms of increased employment and investment in rural areas (Cosbey et al. 2006). Another option which is applicable both to developing country governments implementing national systems, or the developers of REDD projects, is to use a 'step-wise' approach, phasing in standards with increasing rigour over time. This type of approach has been used in the timber sector – for example, in the Protocol for the Validation of Legal Claims developed for the timber sector by the Dutch standards institute, Kerhout (Wells, 2006). It has also been suggested in some REDD proposals. For example, the 'nested approach' suggests different tiers of accuracy for reporting emissions reductions (the Good Practice Guidance for LULUCF define three different tiers (IPCC 2006)). These specify higher levels of accuracy for projects and lower levels for national systems in the first instance. This would allow for developing countries with lower technical capacity to access revenues related to REDD mechanisms.

Box 7: Understanding buyer motivations in existing carbon markets (source: Cosbey et al. 2006)

Understanding the Motivations of Compliance Buyers (i.e. in regulated carbon markets) - Project proponents may need to understand what motivates the various compliance buyers to purchase carbon credits from a project with high development dividends. Carbon credits may be viewed as a financing source by project proponents, but buyers who require compliance carbon credits to offset a Kyoto or regulatory requirement are motivated to purchase a sufficient volume at an acceptable value for risks incurred. In existing carbon markets value, or the price to be paid for a carbon credit, is usually based on buying the maximum amount of carbon credits with the minimum cost, and discounted further by such factors as carbon credit delivery risk determined by the project and host country risks.

IFI (International Finance Institutions) carbon fund entities may be motivated to purchase carbon credits in large volumes on behalf of their investors (who may be member countries and large international corporations) - i.e. such pressures of volume and prices may override sustainable development objectives. Similarly private carbon funds are motivated by volume, purchasing price, spot price at delivery, liquidity and return. Project lenders, who are considering carbon credits as security, are also motivated to ensure carbon credit buyers are creditworthy and paying a fair price in sufficient volume to cover shortfalls and projected future prices. Equity providers are motivated by the potential enhancement to project return on investment that accrues from carbon credits. In short, small scale projects with potential benefits for the poor may not generate enough carbon credit volume to attract the interest of high volume compliance carbon credit buyers.

Understanding the Motivations of Buyers of Non-compliance Credits (i.e. in voluntary carbon markets) - Suppliers of financing for projects with development dividends would likely view an enforceable, well structured Emissions Reduction Purchase Agreements (ERPAs) for the purchase of non-compliance carbon credits (that is, either voluntary or offset credits) from a creditworthy counterparty as an acceptable project risk mitigant. Buyer conditions for purchase could change this view unless such non-compliance carbon credit payments are received before the actual financing is used in the project. Project risks and carbon credit delivery risks are less relevant to non-compliance buyers operating in a voluntary market than compliance buyers. Non-compliance carbon credit purchasers may be more focused on project risks which might affect a project's ability to achieve its sustainable development objectives. Furthermore, verification and monitoring of the carbon credits generated by the project may be less rigorous for non-compliance purchasers than required for compliance purchasers. However, registration, to avoid double counting, may be of concern to both non-compliance carbon credit purchasers and any compliance carbon credit purchasers also involved in the project.

4.1.6 Poverty implications of liability arrangements

International proposals for REDD suggest a range of alternative approaches for dealing with risks as noted in section 3.1. These risk reduction mechanisms are listed in Table 6 along with their potential poverty implications at local (individual and community) and national scales. As discussed above, one of the main approaches is to only pay after emissions reductions have been verified (i.e. on delivery) which could have significant poverty implications. Approaches that make the poor liable to repay any benefits or that result in them not receiving any benefits even after they have changed their practices, may also have negative implications that will need to be carefully considered.

	Description	**Local**	**National**
Risk buffers	Percentage (often~30%) of credits withheld from sale as insurance in the event of project or programme failure.	Equity issue if other projects in national REDD systems fail and national account is corrected	Lower overall income because credits withheld in buffer
Replacement of issued credits by sellers	By bringing new areas under REDD schemes if areas from which credits have been forward sold	High risk if cannot replace credits Prevents access if cannot	

	fail to deliver credits	guarantee replacement	
Repayment of revenues/fines		Risk of not being able to repay Risk of poor legal representation in cases of default	Could result in large national debt and reduce spending in other areas
Temporary credits	Expire after a certain time period and need to be replaced. Used in CDM afforestation and reforestation projects.	Lower overall investment but potentially less risky for sellers	Low income because of low interest by investors (evidence from CDM)
Payment after verification	Ex-post payments can significantly reduce risks for buyers.	Poor market access if no upfront capital access Could result in transfer of liabilities from governments taking on upfront costs	LDCs may lose out if low levels of upfront capital available
Portfolio approaches	A range of project areas and types are developed. Sourcing credits from such a 'portfolio' reduces risks arising, for example, from forest fires that will only affect certain geographic regions.	Lower income and poorer equity of benefits for 'high risk' activities Conversely could increase risk taking e.g. by governments	Increased overall investment Promotes wider range of geographic areas to be included within country Administratively complex?

Table 6: Potential poverty implications of different risk management approaches to REDD at national and local scales

4.1.7 Poverty implications relating to the spatial scale of REDD systems

The question of 'spatial scale' of REDD, frequently discussed in the international debate, usually refers to whether baselines, monitoring and accounting systems cover the whole nation or smaller areas, sectors or projects (i.e. national versus project/sectoral based approaches). It also implies a relationship to the level at which finances are received for reducing DD (i.e. whether it is the national government or some sub-national entity). This raises two main issues that may be of concern for the poor:

1. How finances and authority are distributed between central governments, sub-national authorities and non-governmental actors
2. The degree to which devolution mechanisms are aligned with national systems such as budgetary processes

Distribution of finances and authority away from central governments

In national REDD systems a crucial issue is how finances are devolved from national governments to lower administrative levels and the distribution of authority to regulate REDD between national and lower administrative levels. If fiscal decentralisation is effectively implemented in REDD (or if REDD is implemented in countries where decentralisation has been relatively successful), then greater financial benefits might be expected to accrue at local levels. Poorer individuals and groups may also have more effective 'voice and choice' in decision making processes surrounding REDD PAMs, if elite capture can be avoided. Further, for the 'top down' provision of finances to be effectively and equitably distributed at the local level, it needs to be complemented with 'bottom-up' in policy design and implementation (Montagnini and Jordan, 2005). It is therefore critical that access to REDD finance is coupled with access to information on how the REDD scheme is being implemented.

Evidence from the decentralisation literature supports these conclusions on the basis that people at the local level have information and incentives to design and implement policies that respond to local needs and preferences, and that local governments have higher

accountability and better targeting of the poor compared to more centralised approaches (Faguet 2001, cited in Steiner 2005). But there is also evidence to show that in many cases decentralisation processes such as tenure reform are often highly restricted, with the state retaining most of the power and that democratic processes do not necessarily lead to pro-poor outcomes (Hobley, 2007). Competition between local governments can also lead to inefficient outcomes that could affect the overall benefit potential of REDD, as local governments compete for mobile capital by offering fiscal incentives (e.g. lower taxes or lower standards). Even if more benefits do stay at local levels there are still likely to be distributional issues. For example, in an analysis of conditional cash transfers, Mansuri and Rao (2004) found no clear evidence between community participation in targeting leading to better outcomes due to problems of elite capture.

It is clear that the way national REDD systems are decentralised (or the degree of authority that different levels of government have over project investments) will have distinct poverty implications. The appropriate form of such systems will depend on factors such as the drivers of DD and the strategies employed for tackling these, and capacities for monitoring and enforcement at different levels (Alm et al. 2007).

Degree of alignment of REDD financial system with national financial systems

Another crucial aspect of national REDD systems is the degree to which REDD financial and management systems are aligned with national systems. Alignment could vary in three main ways in REDD:

1. Financing that completely aligns with national and local budgeting systems (for example, similar to general budget support);
2. Independent national financial systems, formed through the creation of separate national funds and accounting systems (for example, similar to World Bank supported Kecematan Development Programme (KDP) in Indonesia); or
3. Independent financial systems with investors bypassing national governments (as may be the case in project-based REDD). In this case, some form of redistributive mechanism may be necessary which functions through local or national governments (e.g. through taxing projects).

All of these options have advantages and disadvantages from the perspective of the poor. Existing experience in carbon markets only stems from project-based schemes but some lessons can be drawn from debates about general budget support, project aid (crudely with sector budget support and programme support as intermediaries between these extremes), and other forms of intergovernmental transfers.

Over the past decade, a growing trend in aid delivery reflects shifts from ‘conditionality’ towards ‘partnership’ and from ‘project support’ towards ‘donor budget support’ because of concerns about ownership of processes, the ineffectiveness of aid and their obligations under the Paris Declaration on Aid Effectiveness (Bird, 2007). Projects still dominate external interventions in support of environmental objectives (Bird 2008, pers comm.) despite evidence that ‘projectised’ aid can undermine domestic systems and democratic accountability. General Budget Support can strengthen budgetary processes, offer prospects for broad system changes within ministries of forestry and central government and offer opportunities for transparent decision making on environmental matters (Lawson, 2005).

For projects, chains of accountability may impart much lower risk for investors than payments into national budgets where control over outcomes is highly limited.[2] Following a

[2] Independent national systems that aim to avoid this problem in other sectors have been successful in some cases. The KDP incorporates a number of provisions for increasing accountability and participation. But such development models are not immune to elite capture of benefits, particularly at the village level, in the establishment of village committees, facilitators and representatives. For example, the election process used in the KDP programme has in some instances conflicted with local customary law, with elected members

general budget support model (at least in part) may enhance the long-term sustainability of national REDD systems. For example, inclusion of Natural Resource accounting in national wealth estimates (i.e. accounting for changes in wealth after accounting for the depreciation of produced assets, depletion of natural resources, costs of pollution etc.) can help to inform how sustainable current policies, if such data is taken on board by Finance Ministries (Yaron, 2003). However, in the short term, diversion of finances from NGOs and civil society would require careful assessment of trade-offs (flexibility, responsiveness and innovation) and may justify a mixture of financing systems.

Box 8: Alignment with existing legislative mechanisms: the case of Brazil

Brazil has a number of legislative mechanisms that could be supported through flexible REDD mechanisms, and these are probably required given that protected areas alone are unlikely to be sufficient to prevent ecosystem collapse in the Amazon (Soares-Filho, et. al. 2006). They include Private Natural Heritage Reserve (RPPNs), which enable landowners to gazette their own reserves into perpetuity. In some states the landowner can then receive tax breaks to pay for their upkeep. However, RPPNs are restrictive in only allowing ecotourism or research within them once established, and only richer landowners are normally inclined to set them up. Thus, in terms of pro-poor REDD, Extractive Reserves (RESEX) provide a potentially more interesting framework in terms of the flexibility in use that they allow. RESEX reserves are only applicable to communally owned areas, but they permit harvesting of Non-Timber Forest Products (NTFPs) such as rubber or Brazil nuts. REDD could potentially make such areas more 'profitable', and their establishment more attractive to poorer communities, by adding carbon payments on top of (often quite marginal) income generated from NTFPs. In addition, current discussions about a 'RESEX equivalent' reserve for private landowners, are taking place.

A separate piece of legislation that is worth considering in the context of pro-poor REDD is that all privately owned land in the Brazilian Amazon is meant to include a 'legal' reserve – which means that only 20% of it can be cleared, and 80% must be maintained as forest. The problems are in applying this law when land tenure is often unclear, and capacity for enforcement so stretched. However, REDD could potentially subsidise both the application of this law, the building of greater enforcement capacity, and even enable payments for the maintenance of legal reserves to incentivise compliance.

Thus, a politically-acceptable 'REDD' mechanism in the Brazilian context could, in theory, play a key part in supporting existing, under-utilized forest conservation legislation if sufficient scale of financing were bought to bear. Many of these instruments could be adapted to be pro-poor, particularly if linked to land tenure reforms.

Exact linkages between the degree of alignment between REDD systems and existing national systems and poverty reduction at community and individual levels are hard to establish. Many countries have potentially appropriate legislation (Box 8) but outcomes would depend to a large extent on how growth and poverty reduction goals are enacted through policy implementation. REDD funds delivered through national budgets may align better with existing poverty reduction strategies. For example, national poverty strategies (e.g. Poverty Reduction Strategy Papers PRSPs) establish an analysis of poverty reduction and define national strategies for reducing poverty, aiming at structural reforms and growth. This approach could increase the efficiency of fund management and overall spending on poverty reduction. However, coverage of forestry in such national planning documents is currently limited (a review in 2005 found that forestry issues were mentioned in 23 out of the 27 documents reviewed, although almost all these references were very brief, general statements, Bird, 2005), so the benefits of such 'alignment' may be limited. These national planning processes will need to be strengthened to enhance the potential benefits of REDD for the poor.

A related issue is that international vertical funding systems which operate more independently from national systems may result in less equitable benefit sharing. For

surrendering authority to more powerful community members and resistance by the male leadership of many villages to the involvement of women in the village committees. See Annex 4.

example, some concerns have been raised by the Least Developed Countries that funds such as the Global Environment Facility can be hard to access because they are administratively complex and have long lead times between application for funds and the delivery of finance.

4.1.8 Conclusions

It is difficult at this stage to say which international design options for REDD are more likely to be 'pro-poor'. Some of the poverty implications of different alternatives discussed in the previous sections are summarised in Table 7 below.

<table>
<tr><td></td><td colspan="3">Poverty implications: opportunities / risks at different levels</td></tr>
<tr><td>Design issue</td><td>Individual/Community</td><td>National</td><td>International</td></tr>
<tr><td>Baseline/ reference level</td><td colspan="3">• Historic baselines result in more finance to actors that have high historic deforestation rates (i.e. have performed poorly in terms of forest protection)</td></tr>
<tr><td>Deforestation or deforestation and degradation?</td><td>• Problem of how cyclical cultivation systems and temporary degradation are treated</td><td colspan="2">• Forest definitions could limit types of activities that benefit (e.g. agroforestry)
• Equity implications related to capacity to implement degradation monitoring
• More finance to countries with high degradation rates</td></tr>
<tr><td>Framework</td><td colspan="3">• Overall volume of finance available from REDD
• Complexity and stringency of rules</td></tr>
<tr><td rowspan="2">Market or fund</td><td>• Cost effectiveness concerns driving the design of projects</td><td>• Could divert ODA if not managed properly</td><td></td></tr>
<tr><td colspan="3">• Volume of finance has income and growth implications
• Reducing delivery risks has equity implications in terms of availability of upfront finance and possible perverse incentives
• 'Pro-poor' mandate of donor funds</td></tr>
<tr><td rowspan="2">Voluntary or regulated market</td><td>• Standards may be lower in voluntary markets</td><td></td><td></td></tr>
<tr><td colspan="3">• Voluntary market likely to have lower overall volume of finance
• Greater flexibility and interest in sustainable development issues in voluntary markets may improve equity of investments</td></tr>
<tr><td>Liability arrangements</td><td colspan="3">• Reducing delivery risks has equity implications in terms of availability of upfront finance, possible perverse incentives and investment going towards countries with low risks (e.g. governance risks)
• Some liability instruments (e.g. temporary credits) may reduce overall investment in market systems as less attractive to buyers
• Risk that the poor could find it hard to meet fines and penalties or other enforcement measures</td></tr>
<tr><td>Spatial scale</td><td>• Project approaches may make it easier to monitor social risks and benefits
• Risk/benefits in national systems depend on effectiveness of decentralisation processes</td><td>• Alignment with national systems may improve sustainability in REDD and beyond</td><td></td></tr>
</table>

Table 7: Summary of potential poverty implications of international design options

Some general conclusions include:

- The volume of finance is likely to vary significantly between different options. Market-based schemes are likely to raise more funds but they will probably suffer from greater efficiency-equity trade-offs. Large volumes of finance could have the largest income and growth

potential at all levels, but could also entail negative effects similar to the 'resource curse' outlined in 4.1.4.

- The desire of funders or investors to minimise risks relating to the delivery of emissions reductions could have large poverty implications. Payment on delivery could have equity effects by affecting access to REDD revenues for smaller producers due to a lack of upfront funding, or perverse effects by limiting incentives for governments to implement more pro-poor REDD measures.
- The motivations of funders or investors and their degree of interest in 'pro-poor' forms of REDD will influence the way REDD mechanisms are implemented. Likewise, public commitment to poverty reduction in recipient country policy making and implementation will have a large bearing on whether REDD works for the poor.
- Decisions over the rules of operation of international REDD mechanisms could have significant implications, especially in terms of equity. These include factors such as different capacities to deal with complex systems; the way that baselines are established; how or whether degradation is included; and how definitions such as 'forest' are set. Differences may be obvious between countries, but these are also likely to play out at national and sub-national scales.

4.2 Cross-cutting concerns relating to all REDD design options

4.2.1 Effects on food and commodity prices

Food and commodity price effects could potentially arise from large-scale implementation of REDD (e.g. Jindal and Kerr, 2007). The effects would depend heavily on the REDD strategy used and the context. Implementing large land-use policies that remove productive land from agricultural use or prevent agricultural expansion, despite increased demand, could lead to price increases of some crops. Under specific circumstances this may even be the case at the regional and/or local level, for example, where markets are remote and isolated and, thus, consumers are limited in substituting locally produced food products through purchases. In contrast, strategies for REDD, such as agricultural intensification (e.g. suggested for example by Chomitz et al. 2006) could achieve forest preservation and increases in production to occur concurrently.

Food price increases would affect the poor directly as consumers and producers of food, and indirectly through impacts on economies. Increased food prices could benefit the rural poor where they are directly linked to local, national and international markets. Areas distant from ports and where infrastructure is poorly developed (as is the case in much of inland Africa) would gain very little from price rises related to REDD. Even in cases where these connections exist, poor people with less access to credit and inputs would benefit less. Poor people would also be affected by price increases as consumers. Whilst retail prices are not necessarily transmitted directly from international wholesale prices, poor people often spend a high percentage of household incomes on food (Wiggins and Levy, 2008). At national levels, food price increases would affect all countries through inflationary pressure, and disproportionately affect food importing countries (and countries receiving food aid), which could have impacts on economic growth and development. One positive effect of rising food prices would be to increase incentives to produce food locally, which could contribute to income generation through labour-intensive agriculture that exists in many developing countries (Wiggins and Levy, 2008; Peskett et al. 2007).

REDD schemes could have more direct impacts through commodity price changes at community and individual levels. For example, in countries where local food markets are isolated, households have only limited opportunities to choose where they exchange products. If in addition the population is increasing with no concurrent increases in agricultural productivity, the impacts of price increases and food availability that result from REDD policies could potentially be large. These assumptions are realistic for many rural and forest frontier areas in many developing countries, especially in Africa. In such a situation

market supply of food on these markets would decline and could not be compensated through intensified production. At the same time, demand would increase because households would have to purchase food products and could not compensate through other markets. In addition, factors such as population growth would further contribute to these dynamics.

This would equally apply for other commodities, such as woodfuels, where, due to an inelastic demand, reduced supply could lead to significant price increases. Similar effects have been observed, for example, in Nepal where participatory forest management policies (PFM) restricted land use and resulted in a rise in fuel wood prices that affected those outside forest user groups in the PFM scheme (Schreckenberg et al. 2007). Increasing energy prices for fossil fuels and population growth (both of which are currently occurring in many countries) would further contribute to price increases. The effects of such price changes on poor could include:

- Reductions in food consumption
- Substitution of higher quality foods (e.g. vegetables) for basic staples
- Reduction in other expenses like schooling, clothing, health, housing, etc.

4.2.2 Knowledge and interpretation of opportunity costs

Opportunity cost estimates of REDD are becoming more precise as the focus shifts towards implementation of national systems and projects (e.g. Woods Hole Research Center are conducting more detailed studies in Central Africa and Brazil). More accurate estimates are required at these scales in order to ensure that REDD strategies adequately compensate people who lose out in REDD and/or provide adequate incentives for changing behaviour. Nevertheless, opportunity cost estimates can result in the following risks for the poor:

- The valuation of environmental assets is constrained by limited analytical capacity at all levels (by government, donors, and civil society). New approaches that include accounting for natural resources in national wealth estimates are only just beginning to be used (World Bank, 2006b, cited in ODI, 2006). A lack of data on small-scale activities and non-monetary markets is also likely to limit attention to these areas, which are often essential for the poor (Kaimowitz, 2003). Another issue is a possible lack of transparency in revealing the true costs of land for industrial activities where the potential gains are high, such as mining and oil palm plantations.
- Biases in attention towards more visible activities. For example, financial benefits of timber production dominate national planning, partly because these activities have higher visibility, have greater relationships to taxes revenues and tend to benefit local, regional and national elites. Most other resources, such as NTFPs, have less visible characteristics (Bird and Dickson, 2005).
- Estimates based on current practices, not future development potential, could risk not recognising the ‘right to develop’ either amongst individuals and communities or nationally. This could affect agreements between individuals or communities and REDD funders or investors. For example, compensation estimates based purely on the current ‘safety net’ value of forests or NTFP values rather than their potential for sustainable production systems (e.g. small-scale timber operations). Related to this, many existing opportunity cost studies assume constant prices, but this is unlikely to be a correct assumption, as opportunity costs are likely to rise over time due to real price increase (not inflation) that are caused by dynamics as described in the preceding section.
- Estimates of opportunity costs based on ‘farm gate’ prices will be lower than those based on market prices. If compensation payments in REDD are based on farm gate prices in cases where poor people have to buy commodities, then there is a risk that compensation levels will not match those required to purchase these commodities.

Improved data on the land use activities of the poor will clearly be important in establishing opportunity costs. Participatory processes such as 'willingness to accept' methodologies sometimes used in PES schemes (Pagiola, 2004) to elucidate the value that sellers attach to certain land uses will also be required. However, care must be taken in applying such methods as factors such as experience in participating in household surveys and households with more experience with markets could distort estimates and exacerbate inequalities (Sander 2004). On the other hand, WTA surveys may be better placed to elicit real compensation demands compared to opportunity cost estimates based on valuing production yields of alternative land-use options. It will also be important to ensure flexibility in REDD schemes and particularly provisions for revisiting opportunity cost estimates and related agreements, in order to correct these to respond to unpredictable development trajectories.

4.2.3 Stability and form of benefit flows

REDD benefits could either be delivered upfront or dispensed over time. For most sellers, upfront benefits would likely be preferred because these will give the highest short-term gains. But if these sellers are redistributing benefits (i.e. they are also acting as a form of intermediary) dispersed redistribution may be preferable. This may the case for example, if a national government receives an upfront payment for REDD from an international buyer and redistributes these sub-nationally.

Whilst upfront benefits may be preferred by sellers, regular and predictable benefits (e.g. delivered annually) could have important welfare benefits especially at local levels. For example, in many PES schemes (including carbon markets) payments are made annually and do not vary from year to year (although they are typically subject to periodic review). Income streams are therefore more stable than, for example, crop prices, providing essential savings or enabling investment in additional assets (Pagiola et al. 2004). Similar stability of benefit flows could be achieved in REDD schemes, though this will depend on the stability of future carbon markets or the predictability of funding schemes. It will also be important that the scheduling of benefit delivery fits with the time horizons of the poor, which can often be short (e.g. less than six months, especially in food insecure areas). If there is a long time lag before benefits are delivered (for example through direct payments after carbon has been verified) for rewarding changes in practices, this could disadvantage poor people or jeopardise the sustainability of REDD schemes.

The stability of benefit flows from REDD do not just involve financial benefits. Given the degree of dependence amongst some marginal communities on biodiversity and ecosystem services (food, fuel, water, etc.), the stability of environmental benefits is equally important. Both the protection of these environmental assets, which may be preserved by REDD, and the financial flows from REDD mechanisms could make an important contribution to resilience of the poor under changing environmental conditions including climate change (i.e. projected increased frequency of droughts, floods and storms in many areas).

Another issue surrounds the potential welfare benefits associated with different forms of benefit delivered by REDD. For example, in situations where poor people use forests for subsistence production and have limited access to local markets, the potential welfare benefits derived from financial payments from REDD (with payment size based on the estimated value of subsistence production) may well be much less than those derived from subsistence production itself. This is because in such situations they cannot easily substitute payments for subsistence products. Such issues will clearly need to be carefully considered within REDD schemes.

4.2.4 Equity of benefit sharing arrangements

Achieving an equitable distribution of benefits is likely to be an issue for REDD systems and at all scales. There are three main questions:

1. How to build systems that effectively meet the opportunity costs of all stakeholders involved
2. How to 'iron out' local, regional or international variations in the distribution of benefits related to REDD
3. How to avoid perverse effects relating to the targeting of REDD incentives

For REDD to be successful, benefits need to reach all stakeholders who are affected by REDD-related policies and measures. In theory, it may be most appropriate for each individual stakeholder to directly receive benefits that exactly meet or slightly exceed their opportunity costs. In practice, however, this will be difficult to achieve because dealing with large numbers of individual contracts would entail high transaction costs. In addition, even identifying all stakeholders will be a major challenge, especially where land and carbon ownership is unclear. At national scales, the high transaction costs involved in individual payment systems could be a burden for overstretched ministries, which could reduce time dedicated to other issues and overall expenditure available for REDD related activities. Evidence from studies on conditional cash transfer schemes in other sectors indicates that this is a real concern (Schubert and Slater, 2006).

To avoid these problems, a mixture of direct and indirect benefit distribution mechanisms in PES-type REDD schemes, seems preferable. For example, direct payments could be made to individuals where rights are clearly established, with indirect benefits being delivered to establish broader development projects such as improving schools and social services. Existing local institutions, such as village committees, banks, credit unions or partnership schemes (Box 9) could be used for channelling and redistributing finances and have been proposed in some existing schemes (e.g. FFI's Aceh REDD project). In all of these options, elite capture is the main risk for legitimate beneficiaries. For example, evidence from community forest funds indicates that they do not always reach the poorest because of existing power structures within community groups (Luttrell, Peskett and Schreckenberg, 2007).

Box 9: A role for community-company partnerships in achieving pro-poor REDD?

There are examples of cases where local communities and private companies collaborate jointly in forestry projects. With the availability of land for plantations becoming increasingly scarce, timber companies are increasingly turning towards poor landowners as sources of timber (Molnar et al., 2007). Such schemes could become significant sources of income for many rural communities. Mayers (2006) describes a South African outgrower scheme which has succeeded in reaching many poor households and providing them with significant sources of income (~$130 per hectare per year), and to non-landowners through greater employment. An assessment of 57 such partnerships found that they mostly involved contracts with individual landowners, as opposed to cooperatives or community forestry enterprises (Mayers and Vermeulen, 2002). This could be explained by the fact that companies find it easier to negotiate with individuals as opposed to wider social groups (Molnar et al., 2007). However, it is hoped that the growing popularity of community forestry enterprises could lead to an increase in effective company-community partnerships (Molnar et al., 2007). For this growth to be sustainable, however, government authorities need to be able to ensure and enforce the legality of the arrangements – a condition which is not always met in many tropical countries. Smallholders also have weak bargaining power compared to companies and face problems with opaque government policy and uncoordinated service provision from agencies of national and local government, that will need to be addressed in order to ensure benefits for the poor (Mayers, 2006).

To iron out inevitable variations in REDD benefit flows (for example, between poorly performing areas with high deforestation rates and high performing areas with low rates noted in section 4.1.1) redistribution mechanisms may be required. At international and national scales one option would be to place levies or taxes on REDD mechanisms to raise funds that can be reinvested in other regions or sectors. This could be similar to China's incremental tax on CDM projects to stock a fund for reinvestment in sustainable development activities (Cosbey et al. 2006; Muller, 2007). Evidence from Brazil indicates

that the service taxes that are collected by local governments particularly during the project implementing phase of carbon forestry projects can generate significant additional revenues for the municipality. This has helped increase capacity to invest in social services that particularly benefit poorer segments of the population (May et al. 2005). Such systems obviously rely on political will to reinvest revenues in ways that benefit the poor.

As noted in section 4.1.4 a big risk associated with incentive schemes is that benefits concentrated in particular areas may result in land speculation and in-migration, causing loss of assets and increased conflicts within and between communities. This can be a particular problem with 'point source' resources such as oil, gas and plantations/agribusiness in general (EBI, 2003). In countries such as Indonesia, which have large and geographically concentrated forest areas that are targets for REDD funding, such resource shifts and windfalls could occur. Possibilities for overcoming these issues include spreading benefits across wider areas and groups (as discussed above); placing conditions on accessing benefits from REDD (e.g. that land has been held for a certain period of time); and strengthening the role of local governments and NGOs in REDD mechanisms. Forest authorities, for example, are often one of the few government departments with a physical presence in rural areas which can get information to, and receive information from, communities (Bird, 2005).

It is still difficult to find information on carbon market 'value chains' which allow conclusions to be drawn about the relative benefits accrued by different actors in the supply chain. Anecdotal evidence suggests that a significant proportion of finances are used on external consultancy services, presumably little of which goes to in-country consultancies (UNDP 2006). In one carbon forestry project it has been reported that communities have received half of what they were originally offered once the project was under way, though it is not clear whether this is common (Granda 2005). Clearly greater transparency surrounding the value chain of REDD projects and programmes will be an important factor in allowing more informed decision making, helping inform potential ways to improve the efficiency of REDD systems and increasing the chances of more equitable agreements, the terms of which communities will be more able to uphold.

4.2.5 Information availability and understanding

Another risk for poor individuals and communities relates to asymmetric information between 'buyers' or funders of REDD and 'sellers' (Bracer et al. 2007). For example, poor people may not have accurate information about the market value of the carbon services they provide or technical skills necessary to scrutinise the terms of contracts in PES-type transactions (Peskett and Harkin, 2007). This asymmetry could also exacerbate elite capture as they require more powerful or more educated members to negotiate on their behalf. Conversely, benefits such as increased community organisation and voice may accrue through the process of contract negotiation (Leimona et al. 2008), if elite capture can be avoided.

Information provision (e.g. through toolkits and training sessions) for local NGOs, legal assistance centres and local governments about how to negotiate contracts would help to reduce problems relating to asymmetric information between buyers and sellers in REDD (Bracer, 2007). It could also help with determining the overall value of a package and inclusion of provisions for compensation of any losses. This would be relevant for both national REDD systems run by governments and project-based schemes with external private sector investors.

4.2.6 The role of carbon rights

REDD mechanisms effectively create forest carbon as a new tradable commodity, which exists separately from the forest, though may have relationships to land ownership, use and access. 'Carbon rights' of some form will be an essential component of any REDD scheme. They will be more important in market-based schemes where carbon is a tradable commodity that has specific attributes, but they would also be necessary in a fund-based scheme in order to identify beneficiaries for funding. In existing markets carbon rights

delineate ongoing management responsibilities associated with specific areas of forest land (such as a requirement to 'maintain carbon stocks' for long periods, perhaps in excess of 100 years) (e.g. GWA, 2005).

The main issues that carbon rights raise for sellers of carbon in developing countries include:

- How these rights are initially defined
- Whether they can work in cases where land ownership is unclear
- Whether legal institutions are strong enough to defend these rights and
- The liability arrangements if emissions reductions occur on their land in the future.

Conflict may arise in claims over carbon rights at local and national scales. Once carbon rights are sold, this is likely to restrict long-term land use options for the specified forest area. Careful consideration is needed to determine the impact of restricted land uses on the poor, stemming from carbon rights legislation. For example, if sale of carbon rights prevents forest-dependent communities from utilising forest products or harvesting timber, this could have significant impacts on livelihoods and erode permanence in the long-run.

Conflicts do occur even in cases where carbon rights can be clearly established. In New Zealand, for example, the national government decided to nationalise carbon rights which resulted in a perverse incentive for landowners who no longer saw the direct benefits of selling carbon (Peskett and Harkin 2007). This conflict indicates that carbon rights need to be carefully defined in national regulations and need to be held by land owners or stewards.

The issue of carbon rights also underlines a need to strengthen existing legal systems and improve access to dispute resolution mechanisms by individuals and communities in relation to REDD. This could occur through the provision of legal aid or by developing regional, local and itinerant administrative units to bring services directly to communities, as has been the case in countries such as Ecuador (Schreckenberg and Bird, 2006).

4.2.7 Verification and compliance systems

Monitoring, reporting, verification and compliance systems for REDD would likely include the following components:

Monitoring system: institutions for monitoring changes in land-use activities and a carbon monitoring system containing both ground-truthing and remote sensing elements, such as satellite imagery and GIS

Reporting system: a national registry registering credits generated from reduced emissions; tracking credit transactions (potentially linked to the existing International Transaction Log under the Kyoto Protocol); technical criteria, legal, geographic and financial aspects

Verification system: institutions for independent review of registry activities; potentially international processes for expert review (similar to expert review teams under the existing Kyoto Protocol);

Compliance system: legal framework and provisions for dealing with cases of non-compliance

Some insights into the poverty implications of these systems may be drawn at national scales from the timber verification literature and at project scales from the CDM and PES literatures. Many of the effects witnessed in these examples would be expected to be similar across different REDD systems.

In the timber industry, verification systems to track illegal logging can increase government revenue through fining non-compliant actors and increasing tax revenues (Bird and Schreckenberg, 2006). They may also encourage overall external investment due to improved transparency and accountability processes, and enable improved land-use planning. In an ideal world, at national scales these outcomes may contribute to economic

growth and increase potential spending on poverty reduction related strategies. Similar benefits would be expected from the REDD supply chain, as both logging revenues and carbon revenues would increase. Monitoring, verification and compliance systems could also contribute to job creation and skills development at national and local scales. Whilst this may be unlikely to directly benefit the poor, it could offer growth potential. However, evidence from existing carbon markets indicates that out of 19 verifiers accredited globally, only two are based in a developing country (UNFCCC, 2008). At community scales, there are some indications that voluntary carbon offset projects provide opportunities for local verification services and skills development within communities and in local government, although the extent to which this occurs is still unclear (e.g. Envirotrade, 2008). Pilot carbon projects, such as the KTGAL project in Tanzania, and participatory monitoring projects for biodiversity, indicate that involving local communities in monitoring and verification processes can be both effective and efficient. They can also deliver wider benefits in terms of supporting other forestry programmes and initiatives and more secure user rights (Skutsch 2008; Danielsen et al. 2007).

However, verification systems can also have negative implications for the poor (Box 10), which will need to be avoided in REDD. At international scales, costs of compliance may result in some countries being unable to access REDD markets, whilst at national scales, smaller producers may face greater barriers in entering REDD supply chains due to the complexity of standards. Diverting financial resources for monitoring to many small actors dilutes resources (Molnar, 2003). Similar effects have been seen in the CDM, voluntary carbon markets and timber certification reflecting high costs of verification services (e.g. in the CDM ongoing verification costs are between USD15,000 and USD25,000 per audit – Neeff and Henders, 2007) and the complexity of procedures (e.g. Peskett and Iwata, 2007).

The effects of verification systems under REDD may be expected to be even larger, because of the costs and complexities of carbon verification will be added to ‘standard’ verification costs such as those related to tracking timber supply chains. Smaller producers may also face more severe or more frequent sanctions because they are easier to apprehend by under-resourced governments, and independent observer projects often focus on implementation of laws rather than the livelihood impacts of laws (Colchester, 2006). In relation to equity effects within communities, evidence from the conditional cash transfer literature indicates that it is typically the poorest and most vulnerable who find it hardest to comply with conditions and are therefore most likely to be deprived of benefits if they fail to meet conditions (Freeland, 2007).

Verification systems for REDD may also result in perverse incentives, which jeopardise long-term sustainability. Effects may include marginalisation of smaller producers into illegality, reduced incentives to plant trees and displacement of illegal activities to other areas. This latter issue would constitute ‘leakage’ in REDD systems, so would be better dealt with under national systems using full carbon accounting (which covers both forest and non-forest lands). In addition, equity effects may arise because ‘planned’ deforestation (e.g. where concession licences have been granted) may be easier to target than ‘unplanned’ deforestation (e.g. illegal logging).

Possible options for the reducing the negative implications of REDD verification mechanisms include (Bird and Schreckenberg, 2006):

- Inclusion of provisions such as routine implementation of ex-ante poverty and social impact assessments (PSIAs), which can help to identify impacts in advance and help to define decisions on how to proceed; mitigation and compensation measures; and raise awareness of differential distribution of impacts among different groups. However, these can also be restrictive due to resource constraints, weak commitment among national and local policy elites; and the limited role of evidence in policy making in many areas. Participatory Poverty Appraisals (PPAs) are another method that could be used in REDD, though these can return poor results in cases where people do not want to expose illegal behaviour.

- Parallel processes of legal reform of legislation relating to REDD to ensure that laws being verified ensure the rights and livelihoods of forest-dependent communities and are not further compromised by increased enforcement.
- Recognition of legality of poor people's modes of using timber and Non-Timber Forest Products.

Box 10: Developmental impacts of verification systems in the forest sector (Bird and Schreckenberg, 2006)

- **Increased operating costs for industry:** compliance is likely to be more costly than operating illegally. Although the difference may only be marginal in financial terms (as appears to be the case in Ecuador), in other countries compliance entails considerable costs in meeting bureaucratic procedures.
- **Concentration of industry.** Often smaller companies are unable to meet standards and small producers often bear a relatively higher sanction burden because they are easier to apprehend by under-resourced governments
- **Smaller operators marginalised into illegality:** Small operators marginalised into illegality: as the legal industry becomes more concentrated, small producers may be pushed into illegality. In Papua, Indonesia, police sweeps were very effective in stopping illegal movements of timber. However, these also had a severe impact on the poor, as all community forestry licenses were withdrawn. The cancellation of these licences was apparently because they were being abused by syndicates to secure access to the resource.
- **Disincentive to plant trees:** depending on the cost structure, verification may act as an unwitting disincentive to plant trees. This is the case in Ecuador, where planted trees now have higher transaction costs to bring them to market than agricultural produce.
- **Displacement of illegal timber harvesting to non– forest lands:** the limited focus of verification systems on forest land and timber production – at the expense of clandestine harvesting and land use change – has pushed illegal activities into other (agricultural) lands as noted in Ecuador, Cambodia and Costa Rica.

4.2.8 Corruption, accountability and transparency

High levels of accountability and transparency in the design and implementation of REDD will be required in all design options in order to increase 'voice and choice', encourage investment and prevent perverse effects related to corruption.

Corruption has important relationships to poverty, although the effects can vary depending on whether it is kleptocratic (which can devastate economies) or systematic (i.e. built into systems and occurring alongside economic growth) (Bird, 2008). At national scales, corruption can decrease economic efficiency (thereby reducing overall spending on potentially pro-poor policy implementation) and increase inequality (Box 11). Also at a macro level, corruption can affect private investment and public spending, which impacts on growth. At local levels it can directly affect poor people, for example, through the need to pay corrupt officials, which decreases their ability to spend in other areas.

Based on an analysis of REDD investment in countries with different governance indicators, Ebeling and Yasue (2008) predicted impacts of poor governance (including corruption) on investment decisions and therefore international equity in the distribution of financial benefits. As with other markets, countries with poor governance would receive fewer benefits from REDD. It is possible that REDD could act as an incentive to reduce corruption and improve governance given that financing is likely to only be delivered on the basis of good performance.

Box 11: Governance and transparency issues in Indonesia and Brazil

Indonesia still has one of the highest deforestation rates in the world, and this is probably still accelerating with an estimated 2 million ha per year being lost since 1996. Predictions under a 'Business As Usual' scenario indicate the loss of all non-swamp forest in Sumatra and Kalimatan by 2010. Deforestation in Indonesia has historically been associated with corruption and poor governance, and illegal logging has often been carried out and/or backed by the military (EIA, Telapak, 2007). Under Suharto's rule an estimated 16 million ha of natural forest were approved for conversion to agricultural or timber plantations, many in contravention of rules to only use degraded land for such purposes. A major driver of this was the demand from pulp and paper, 65% of whose supply came from illegal logging in 2000. Subsistence agriculture was not, in comparison, a major cause of deforestation.

Since Suharto's fall in 1998, Indonesia's principal donors have formed the Consultative Group on Indonesia, chaired by the World Bank, with improved forest management a priority. Now there is mounting international pressure, and Indonesian enthusiasm, for REDD. However, without significant benefits at regional and national levels, as well as highly transparent governance systems, REDD in Indonesia is unlikely to achieve political support. It therefore runs the risk of being as ineffective as past logging moratoriums, and therefore delivering as few benefits to the poor than logging has done in the past.

In Brazil, IBAMA (the Brazilian Institute of Environment and Renewable Natural Resources) estimates that 80% of logging in the Brazilian Amazon is illegal (Mongabay 2008a) much is carried out by land-grabbers (who are said to be sponsored by powerful individuals, Mongabay 2008b). This derives little benefit to the rural poor or indigenous communities. Yet given Brazil's size as the 5th biggest country on earth and the remoteness of much of the Brazilian Amazon, it is very difficult to police without considerable resources, particularly when powerful elites are able to capitalize on this lack of enforcement.

4.2.9 REDD policies and measures

As illustrated in Box 5, there is a wide variety of possible policies and measures that could be implemented in support of REDD. It can be anticipated that a combination of incentive-based and regulatory instruments will be used, depending on the context in which the REDD activities are set. Table 8 gives a simplified summary of the potential benefits and risks to the poor focussing mainly on the individual and community levels.

Policy or measure	***Potential Benefits***	***Potential Risks***
Removal subsidies for DD	• Creates a level playing field for large and small operators	• May reduce work opportunities for the landless
Tax land clearance	• Theoretically ensures that wealthier farmers with extensive land holdings bear most of the tax burden, poor less affected	• Needs to be applied equitably • Costly to administer • Political support by farmers may be necessary, and difficult to obtain
Strategic road plans	• Reduces pressure on forest lands and resources	• Needs to be seen as part of a broader development strategy, if poor isolated groups are not to be marginalised from development processes
Improve forest law enforcement	• Can enhance forest governance • Increase revenues to government • Less damage to resources on which locals depend for livelihoods	• Can lead to 'victim blaming' and rent seeking by officials • Existing legislation often prohibits forestry activities such as small-scale timber production, fuelwood collection, and hunting that millions of poor rural households depend on.
Improve tenure security	• Important if poor people are to see the benefits of their own investments in the land (infrastructure, fertility,	• Can be applied in 'anti-poor' ways – diminishing what limited tenure security the poor have, and encouraging land grabbing by the capital-rich.

	irrigation, tree-planting)	
Devolve forest management to local communities	• Likely to improve management and increase local development	• Needs strong government support if not to lead to elite capture • Employment typically sporadic • Use restrictions can disproportionately affect poorer households
Forest timber certification	• A market-based instrument for improved forest management • Not dependent on political will of government	• Favours plantations over old-growth forests; expensive and price mark-ups have been disappointing, and tends to favour temperate producers
Conservation concessions	• Avoids forest destruction by industrial logging • Make alternative to agricultural expansion more lucrative	• May limit access of the poor who depend on forest resources • High implementation costs and institutional complexity result in lack of benefits for communities paid to forego logging permits
Forest Carbon Markets	• Hectare price can be 50x value poor landowners perceive for other uses • Employment creation	• Temporary credits can result in lack of investment • Exclusion of some stakeholders in design and implementation reported in some cases • Poor quality of employment • Potential loss of access to forest resources
Strengthen the protected area network	• Income from tourism • Employment creation • Improved local services and support • Future income from bundled ecosystem services • Maintenance of local environmental services and therefore local agricultural production	• Major tourist income benefits likely to go to intermediaries, not the poor; • Employment schemes may fail to compensate for loss of access rights. • Erosion of culture. • Dependency is a problem • Limit access especially for vulnerable groups • Sporadic and concentrated income with inequitable distribution of benefits
Payments for environmental services	• Income generation for the poor • May increase demand for labour • Can strengthen local institutions	• If not carefully handled, can penalise the poor, particularly in the early stages; may marginalise small producers due to high transaction costs, and those with insecure tenure and limited spare labour. • Increased land values can encourage elite capture.
Funding fire prevention programmes	• Can reduce fire damage to the property of vulnerable people	• Can lead to heavy policing of poor people for whom fire is an integral part of the agricultural economy. • May increase demand for unpaid labour in support of government programmes • Communities often use fire for livelihood needs (fishing, agriculture, etc). Fire prevention needs to be implemented alongside promotion of alternative livelihood or improvements towards more sustainable livelihood practices.
Sustainable forest management/ improved forest planning	• Improved forest governance • Protection of the interests of the poor.	• Potential reduced income for timber sector • May reduce access for the poor

Support for reduced impact logging (RIL)	• Less environmental damage • Case studies in Brazil find estimates of net revenue from RIL ranged from 18 to 35% higher than from conventional logging • Potentially increases employment opportunities through law enforcement	• In many cases, RIL reduces income for timber sector • Tends to be applied in an anti-poor way (e.g. heavily bureaucratic, demands up-front capital, etc.)
Reforest degraded land	• Improves long-term prospects of the sector • Climatic and environmental benefits	• Takes land out of economy for long periods • If uses exotic species, then can have negative environmental effects
Alternative livelihood programmes	• Relieve pressure on the forest	• Rarely viable economically • Can impoverish the poor and increase their levels of debt
Agricultural intensification	• Can lead to large increases in income	• Tends to be anti-poor (requires capital and access to spare labour) • If enforced, then may deny the poor viable income opportunities in return for high-risk intensification strategies. • May be environmentally unsound (e.g. increases risk of nematode infections of tuber crops, etc.)
Support community forestry	• May provide high income in a sustainable stream • Helps fix problematic category of youth in rural economy • May improve forest governance	• Can lead to industry capture, in name of 'communities' • May restrict established and viable income earning opportunities • Tends to favour the less poor • May restrict access to fuel wood for the poor
Improve off-farm employment	• Relieves pressure on forest • Provides important income for those with low purchasing power • Potential for increased labour demand • Income generation • Potential for equitable distribution of profits from agriculture through wage increases	• Can draw labour away from the rural economy and undermine agricultural sector

Table 8: Potential benefits and risks of different REDD policies and measures (adapted from Brown and Peskett, forthcoming)

The various approaches to reducing deforestation examined here point to the large variation that one can expect between the different PAMs in terms of risks and benefits. Moreover, the political, cultural, and social context within which these PAMs are employed will alter how specific risks and benefits are experienced and understood. Thus there are various trade-offs that need to be considered when choosing one measure over another.

There are also some overlapping issues, detailed below, that are important to draw out as they have implications for the risks and benefits of REDD to the poor.

- **Distribution of benefits – favouring the 'less poor':** The major overlapping issue is the risk that poor people may be excluded from the potential benefits of the proposed policy. Given the institutional constraints, lack of capital, insecure land tenure, information asymmetries and high transaction and administration costs, and the market's preference for

large-scale ownership of land, the poor are at a disadvantage in their ability to access the benefits from PAMs. This has implications for REDD; because of the structural disadvantages of the poor, it is likely that the poorest will be left out from REDD's potential benefits.

- **Reliance on formal market mechanisms – disadvantage to the poor:** Many of the PAMs involve formal market transactions, such as forest timber certification schemes, forest carbon markets, and payments for environmental services. These activities are likely to leave out the poor who do not have the tools to compete with those more equipped at dealing in the formal market place. Market mechanisms may need to be cushioned with policies that aim to promote the poor's access to these activities.

- **Lack of integrative policies and measures may lead to policy failure:** Distinct and isolated measures may lead to unintended consequences and perverse incentives. Many of the suggested PAMs above need to be considered within a larger policy framework that can account for some of the potential perverse incentives. For example, fire prevention programmes can put a strain on local communities livelihood needs and therefore should be integrated within a larger policy which, for example, might provide training for sustainable livelihood practices.

  Related to this is that the success of many PAMs is reliant upon factors that are not addressed by the specific PAM. For instance, PES won't work without proper land tenure; law enforcement won't work if there are weak institutions that yield rent-seeking, corrupt law enforcement agents.

5 Conclusions

There is still much uncertainty about the form of potential future international REDD mechanisms, which makes it hard to judge their implications for the poor. But it is clear that decisions made at the international level will have a large effect, particularly in terms of the volume of finance and the nature of its international distribution. In particular, market systems included within a future international framework would appear to have huge potential for income and growth benefits for developing countries. Under certain conditions these could be passed on to the poor.

Analysis of the design options currently on the negotiating table and experience from similar types of systems indicates that the implications of REDD for the poor fall into three main categories:

1. Offering new benefits such as increased income and employment opportunities, improved local environmental assets and long-term, stable benefit flows
2. Doing no harm to the poor, but offering no new benefits, for example in cases where rules over the establishment of baselines prevent investment in certain areas or through certain activities
3. Posing new threats or exacerbating existing threats to the poor, for example through elite capture of benefits, potential loss of access to assets and lack of voice in decision-making

Most of the issues raised by this categorization are not particular to REDD but all three could be increased by REDD systems. This is because of the potential scale of the systems envisaged, the complexities of monitoring and tracking carbon, and the strong environmental, private sector and developed country interests in establishing REDD mechanisms quickly.

The report has not been able to draw strong conclusions about the balance between the three areas listed above. There are clearly new risks, and as in many systems, the poor are likely to be most vulnerable, depending on how REDD is established. An interesting conclusion is that REDD may in many cases 'do no harm' to the poor for the simple reason that REDD-related benefits might not get anywhere near them. There appear to be huge potential barriers to the poor or even small producers in accessing REDD value chains, due to the motivations driving the development of systems and technicalities under which such systems would operate. This has indeed been the case in the CDM where, not neglecting some cases where projects have impacted the poor, the main problem has arguably been that the complexity of forestry projects, due in part to high risks relating to issues such as permanence, has meant that investors have by and large defaulted to simpler GHG reduction projects. In many cases these appear to have low potential to offer benefits directly to the poor, as well as investing in emerging economies rather than the Least Developed Countries.

Contextual factors at national and sub-national levels will play an important role in the way REDD is designed and have profound implications for the poor. Important factors include governance and accountability systems, and their quality; the form of existing legal and financial structures that affect forest landscapes but that might be more related to wider development goals; and land tenure as well as forest type and perceived value of forest. These are likely to be much more difficult to change than technical design factors, but they are important to understand when thinking about how REDD might be best designed to actually deliver reduced deforestation, let alone to provide benefits to poorer people. A better understanding of these contextual factors will also help to determine where different forms of REDD investment are likely to occur, the potential barriers to investment and how REDD might affect the context itself, for example through distorting existing processes.

5.1 Making REDD work for the poor

The analysis in this report has highlighted a number of key issue areas that will be important in ensuring that REDD works for the poor. These are listed below in relation to their relevance at different levels of governance where possible.

Provision of information

Provision of information outlining details of how REDD mechanisms work, and providing realistic expectations of benefits, will be required at all levels in developing countries to ensure 'voice and choice' in the negotiation of equitable agreements between buyers or funders and providers of carbon (be they governments, local governments, communities or individuals).

At national levels this would include further support to governments to help them understand the REDD options currently on the negotiating table, the interests that are driving these and analysis of the potential implications of the different options. This will help to strengthen positions in the development of international frameworks and may increase the likelihood that developing country concerns (and concerns of individuals at key levels within REDD implementation sites) are taken on board.

At individual and community levels (including NGOs), this would need to include details of the basic operation of carbon markets or funds and how REDD fits into these mechanisms; what REDD might mean for local and community interests; the roles of different actors (e.g. national governments and the private sector); and information on realistic 'bargaining' positions to take with possible investors or funders.

Provision of upfront finance and use of mechanisms for reducing costs

Provision of upfront finance to both national governments and communities/individuals could help improve the equity of benefit distribution in REDD as it may help to bridge the gap between the initiation of projects and payments for the delivery of carbon that could act as a barrier in both market and fund based systems.

At international levels, donors and IFIs could play a crucial role in providing this upfront financing and/or promoting the use of innovative financial tools, such as forest backed bonds and carbon funds. These would be applicable for supporting developing country governments in national REDD schemes, as well as specific REDD projects.

At national levels, developing country governments could also help individuals and communities to access capital through, for example, bank credit schemes in local development and commercial banks or micro-credit schemes.

At community and individual levels, some options for self-financing could be explored such as through improved agricultural production, non-farm employment and revolving credit programmes. This is obviously dependent on REDD being integrated into wider economic thinking at the national level. A first step towards achieving this will be to mainstream such thinking within international debates about REDD, where there has so far been little analysis.

In the case of REDD projects implemented by external investors or developing country governments, minimising costs may help to increase overall investment and the equity of investment. For example, bundling of projects can reduce risks, simplify borrowing structures and increase efficiency. Additionally, future bundling of ecosystem services by ensuring that REDD mechanisms are potentially applicable and usable for future emerging water or biodiversity markets would be ideal. However, this requires rapid thinking and innovation at multiple levels.

Use of 'soft' enforcement and risk reduction measures

'Hard' enforcement measures such as financial penalties for ensuring compliance in REDD systems are likely to disproportionately affect the poor. This will be the case whether they are applied by developed countries to developing countries running national systems or

more directly to REDD projects, as the effects are likely to cascade down to those on the ground.

Project investors and/or developing country governments could apply 'soft' enforcement non-binding emissions commitments where no penalties are applied if commitments are not met. Payment on delivery of emissions reductions could also reduce risks, but has trade-offs by potentially reducing the provision of upfront finance, as noted above. Risk spreading instruments such as investments in portfolios of projects or withholding a reserve of credits in a reserve account may also reduce the burden of responsibility on particular individuals or communities.

Prioritise 'pro-poor' REDD policies and measures

Numerous policies and measures exist to reduce deforestation and degradation (e.g. fire prevention programmes; expanding protected areas; improved law enforcement etc.). Whilst different options may have similar impacts in terms of emissions reductions in any particular area, there could be significant variation in terms of their implications for the poor. The options chosen must first and foremost be based on accurate identification of the drivers of deforestation/degradation, but there must also be a strong political commitment to maximise the possible benefits for the poor. In other words, to increase the chances of REDD working for the poor, this must be explicitly recognised in the choice of policies and measures.

Provide technical assistance to national and local governments, NGOs and the private sector

Current discussion about technical assistance needs for developing countries in order to implement REDD systems tends to focus on technical considerations related to monitoring and accounting of emissions. Further support will be required in this area as outlined below, but significant technical assistance will also be required in other areas to ensure benefits for the poor.

- **Establishing reference scenarios or levels, monitoring and accounting:** Support to national governments, particularly in the Least Developed Countries will be required in order to increase their chance of being included equitably when financing is allocated globally from established REDD markets or funds, and to establish nationally appropriate reference scenarios in a manner that maximises the chances of benefiting the poorer sections of their societies.
- **Data collection:** Support to national and local governments in building data collection and analytical capacity to evaluate opportunity costs will be necessary. Such support could focus on collecting data on small-scale and informal forest enterprise, subsistence and even cultural values as these are areas which often have most relevance for the poor but where data is most lacking.
- **Financial systems:** Donors or project developers could invest in training schemes to improve the banking skills required to obtain financing, especially in national NGOs and local governments. Understanding carbon credit markets, how they work and who the players are will help proponents of projects with high development dividends incorporate the benefits of carbon credits into the project's cash flow, risk mitigation analysis and financing needs (Cosbey et al. 2006). Studies of the CDM have highlighted that, in particular, the role of rural and community development banks in leveraging financing needs to be stronger (Cosbey et al. 2006).
- **Verification and other technical services:** Support to national and local governments, as well as national small and medium enterprises, in developing verification and other technical services will help build technical capacity, lower transaction costs, and increase employment and skills. Whilst this may not have direct benefits for the poor it would help capture potential 'added value' in REDD systems and contribute to income and growth. It may also help develop into a system better able to capture the true costs and benefits to

marginal elements of the society involved, as well as increasing the chance of successful REDD delivery.

- **Landscape planning at the sub-national and national level:** Given the requirement for spatial and social planning around REDD (as well as the historic link between increasing agricultural commodity prices and increased deforestation which could affect permanence of carbon forests), there is a clear requirement for long-term land use planning that includes REDD/carbon forest. Tools such as High Conservation Value Forest[3] that include community values therefore need to be thoroughly investigated as to their potential to act as a basis for pro-poor REDD landscape planning in areas of carbon and biodiversity rich forest.

Support to strengthen local legal institutions and improve access to legality

To ensure 'voice and choice' in both the design and ongoing implementation of REDD systems, improved access to appropriate legal support will be crucial for poor people. This is especially the case in REDD where new and unfamiliar legal structures may exist, and where many programmes or projects will be experimental.

Support will be required particularly at local levels, for example through efforts to increase the number and staffing levels of local legal institutions to enable para-legal services to be provided directly to communities and individuals who might be spread out over large, remote and inaccessible areas. Training of legal staff on legal provisions relating to REDD projects, such as the form of contracts and transactions, carbon rights, and dispute resolution mechanisms will also be required.

Maintain flexibility in the design of REDD mechanisms

REDD mechanisms at international and national levels will need to be flexible to fit with different country circumstances and the needs and interests of communities or individuals. This will help to improve equity of access and minimise risks for the poor.

At national scales, flexibility may be increased by ensuring national ownership over decisions and definitions relating to REDD systems, and/or by developing regional or national standards.

At local and individual scales, it will be particularly important to ensure that REDD systems do not increase risks to temporal shocks and stresses by limiting usage options for local communities when they are at their most vulnerable. It will be important for REDD projects to establish contracts that are long enough to ensure sustainability, but not too long that they result in 'lock in' to unfavourable deals.

Clear definition and equitable allocation of carbon rights

Clear rights to own and transfer carbon will be essential in order to allow trading of emissions in most types of REDD mechanisms. They will also govern land management regimes over long timescales. As with land rights, there is a risk that the poor may be under-represented in decisions over the allocation of carbon rights, especially in cases where land ownership is unclear or disputed. The large financial potential of REDD could also act as an incentive for governments, or private companies, to withhold rights to carbon, reducing possible benefits for the poor.

At national levels, care and consultation will be needed in decisions over the allocation of carbon rights between different stakeholders, including between the national level and individuals, communities (including historically disenfranchised elements of society such as landless poor or indigenous groups – who could be key to REDD), or companies. Case-by-case analysis of how ownership and transfer rights to carbon are defined and how they relate to land rights will be required. In cases where national governments hold rights to

[3] http://www.hcvnetwork.org/

carbon, the nature of agreements with individuals, communities or companies will need to be clearly worked out.

Develop clear social standards for REDD and apply existing extra-sectoral standards to REDD systems

The development of standards for REDD or the application of existing standards to REDD-related investments could improve benefits for the poor.

At the international and national scales, REDD standards could be streamlined with other sectoral standards where there are already frameworks in place (e.g. Round Table on Sustainable Palm Oil, once this is fully operational and proven). Extra-sectoral standards (e.g. banking sector, Equator principles) could also be mandated for application to REDD systems. At the scale of individual REDD projects, existing standards such as the CCBA could also be officially adopted to improve the social sustainability of REDD.

Standards for REDD could include provisions such as routine implementation of ex-ante poverty and social impact assessments (PSIAs) or Participatory Poverty Appraisals (PPAs) although the shortcomings of these methodologies (such as the limited role that such evidence plays in many final policy decisions, or reluctance of the poor to expose illegal behaviour) must be borne in mind. In other words, mandating the use of standards and specific tools or methodologies should not be seen to automatically confer pro-poor REDD.

Standards should also include clear provisions for applying ongoing poverty impact monitoring to REDD programmes and projects. This will be particularly important given the experimental nature of REDD, and it could also help to build and record experience.

Balance rigour and simplicity

Mandating complex standards can have perverse effects in market systems. These may include reduced access to supply chains by small producers due to high costs and the need for specific technical expertise. This has been a problem in the CDM and could occur in some REDD systems. In addition if all such systems require external audit by third parties, then transaction costs may become so inflated that little money filters down to local levels.

Options may include streamlining carbon offset standards with each other, and with other relevant sectoral standards such as the Forest Stewardship Council (FSC); relaxing standards in certain technical areas such as the level of accuracy required for emissions measurements; and phasing in standards with increasing rigour over time when the financial flows from a market mechanism (for instance) are sufficient to withstand this. Building national capacity for simplified application of such standards could also help improve their application.

More generally, it is important to bear in mind that higher levels of complexity in the REDD supply chain could call for more intermediaries. Consequently, benefits at the local level could be ‘watered down’, as external consultants and brokers (who often come from developed countries) are called upon to facilitate the implementation of REDD activities,

Use of participatory processes in the design and implementation of REDD

A high degree of participation in the design and implementation of REDD will be essential for ensuring ‘voice and choice’.

At international levels it is particularly important to improve access to international debates by developing county governments and local NGOs, by supporting attendance at negotiations and in international, regional and local technical workshops. However, this will only be effective with a more concerted effort to provide information about REDD and its possible implications.

A key consideration will be the most appropriate level at which to mandate decision making power over REDD and to ensure most effective participation of communities and individuals.

Local governments may in some cases be best placed to increase accountability and ensure participation for example in budget formulation and implementation relating to REDD.

At community and individual scales extensive consultation will clearly be crucial, whilst bearing in mind existing power structures in communities, for example in terms of gender. Participatory approaches such as 'willingness to accept' methods could be applied to determine the opportunity costs of particular changes in activities for individuals, bearing in mind the potential limitations of these approaches (noted in Section 4.2); and criteria for understanding small-scale farmers' concerns in the choice of policies and measures for REDD could also be developed with communities and individuals.

Apply measures to improve the equity of benefit distribution

The distribution of benefits from REDD both internationally and within countries is likely to be highly variable due to the design of international systems and the interests of investors (market actors or funders) which will drive investment decisions. For example, finance is likely to go towards 'low risk' countries, areas or activities where implementation is most cost effective or that fit internationally established rules, such as those related to the developing baselines.

Benefit redistribution mechanisms may be required at international levels and within developing countries. These may include options such as stabilisation funds or preventative credits, provided by international donors to countries with low historic deforestation rates; or levies or taxes placed on market mechanisms within countries that are reinvested into pro-poor policies and measures.

Within the national context, strengthening the role of local governments in benefit distribution and regulation of REDD could also help deliver benefits to the poor. Forest authorities are often one of few government departments with a physical presence in rural areas which can get information to, and receive information from, communities. The private sector could also play a part for example through providing roles for local government staff in project monitoring and training on technical skills.

At local scales and in REDD projects, partnerships between investors and funders could be used to strengthen equitable benefit sharing in REDD schemes bearing in mind risks related to elite capture and asymmetries in information in their negotiation.

Reduce the risks of perverse effects of REDD due to limited direct benefits

To reduce the risk of perverse effects in incentive schemes, benefits will need to be distributed across wide areas and actors and, in the case of REDD projects, beyond the geographical boundaries of individual projects. For example, in PES-type REDD policies, using a mixture of direct payments and indirect benefits (e.g. investments in community infrastructure) to provide benefits to individuals in the wider community could improve equity and lessen risks of rent seeking.

Equally, landscape planning approaches at national or sub-national levels, that invest REDD payments in reasonably 'carbon friendly' commercial activities in productive lands around a given area of carbon forest, could also help deliver wider benefits.

At international scales, continued demand for high value resources such as timber could continue to drive conventional forest usage options which disadvantage the poor. Therefore, a combination of REDD mechanisms, applicable in various scenarios, complimented by demand-side measures such as promotion of alternative, more sustainable, products is also going to be key to preventing negative poverty impacts.

Ensure accountability and transparency in REDD processes

Processes to ensure high levels of accountability and transparency in REDD systems could help reduce perverse effects such as corruption, that can adversely affect the poor.

At all levels, third party verification will be crucial not just for emissions reductions, but for financial transfers, budget processes and monitoring of policy outcomes on poor individuals and communities.

At the international level, transparency may be increased through processes such as the publication of project design documents on the UNFCCC website, and extension of existing expert review processes to gauge country performance in REDD. Data, for example on remote sensing, could be made freely available by a range of different actors. Donors will need to develop tools for tracking financial additionality in REDD compared to ODA. Private sector actors could also be more open in publishing information about the sources of finance, investment decisions, social impact assessment and benefit sharing arrangements relating to projects – information which is currently difficult to access, making understanding of implications difficult.

At community and individual levels, supporting strengthened democratic processes, for example through the identification of locally-elected representatives for REDD, could further improve accountability.

Ensure alignment with international and national financial and regulatory systems

Whatever the form of international REDD mechanisms, it is clear that high levels of coordination and alignment with existing policies and processes will be required.

At international levels, coordination with other international processes, such as the Millennium Development Goals, Poverty Reduction Strategy Papers, International Labour Organisation, Convention on Biological Diversity, United Nations Forum on Forests, United Nations Permanent Forum on Indigenous Issues and other multilateral agreements, could help to increase attention towards the poverty implications of REDD, provide possible tools for enhancing its potential to benefit the poor and ensure long term sustainability and legitimacy.

At national levels, alignment with financial systems, for example through incorporating REDD into medium term expenditure frameworks (MTEF), as well as major infrastructure development schemes may also help increase long-term sustainability by enhancing national ownership and improving cross-sectoral collaboration on REDD policies and measures.

Ensure longevity in REDD mechanisms

All REDD mechanisms will require commitment to the transformation of policies and their implementation in the long term, along with the provision of adequate financial support over long timescales. Stable and predictable benefits (whether financial or non-financial) associated with REDD programmes and projects could provide significant security to the poor, especially in increasing resilience to shocks associated with unstable markets and prices, or environmental shocks, for example associated with climate change.

At community and individual levels, benefits will need to be distributed over the lifetime of REDD projects. Assumptions about the sustainability, or ease of implementing, alternative livelihood approaches should be critically evaluated.

Use of broad definitions

Another area where it will be important to avoid perverse effects related to REDD is in the establishment and interpretation of definitions relating to ‘forest’ and ‘degradation’. Some activities such as forms of shifting cultivation that can be essential for the poor could be interpreted as ‘degradation’ in REDD systems. This could create an incentive for developing country governments and the private sector to target prevention of such activities through REDD, especially if abatement costs appear low.

At international and national levels, the use of broad definitions ideally including all land uses (full carbon accounting) to maximise potential benefits could also increase overall income and growth potential and the equity of REDD. However, this could also slow the international

process by having to revisit internationally agreed definitions, so these potential trade-offs will need to be borne in mind.

5.2 Agenda for next steps

5.2.1 Policy agenda

REDD support platform

Immediately start to build a support platform for pro-poor REDD with the objective of increasing engagement of the poor in national and international debates surrounding REDD. This could be run internationally with regional or national hubs and targeted primarily at developing country NGOs and policy makers. The platform should include:

- Support in understanding REDD theory and practice
- Provision of tools to understand REDD systems and their poverty implications
- Legal advice and support in negotiating REDD deals
- Support in tracking and targeting key events in the REDD calendar (e.g. June Tokyo workshop; August Accra Ad-hoc Working Group workshop)

Development of tools and methodologies for pro-poor REDD

A first step would be to extend existing project standards to include REDD, based on some of the themes in this document. However, tools and methodologies are also required at national levels, which could be based on further research into national systems (proposed below).

Ongoing assessment of poverty impacts of 'demonstration activities'

The next two years offer an opportunity for early learning on the poverty implications of different REDD demonstration activities. Numerous pilot projects are being set up and national systems proposed that could be tracked using a common framework. Delaying such analysis may make the integration of poverty considerations into REDD systems more difficult.

5.2.2 Research agenda

Review of existing tools and methodologies for assessing the social impacts of forestry carbon projects

A number of tools and methodologies already exist for assessing the social implications of forestry carbon projects. These need to be assessed in detail in relation to their applicability for REDD (e.g. how they may cope with national systems, potential inclusion of different land-use categories etc.). Their ease of use and evidence of impact to date could also be usefully assessed.

Analysis of REDD policies and measures

A more detailed and systematic analysis of the different REDD policies and measures outlined in section 0. would provide a useful insight for different stakeholders regarding the implications of different decisions.

Further analysis of national REDD systems

More analysis of the poverty issues surrounding national REDD systems. Much more research has been conducted on project-based systems than on national systems. Such research would need to clearly lay out the components of national systems. It would also require moving towards a more dynamic and wide ranging assessment of REDD value chains. Approaches such as value chain analysis, in which carbon markets (including

REDD) are treated like other tradable commodities may help to add a deeper layer of analysis to the understanding of REDD and its implications for the poor.

Analysis of REDD in different national contexts

Further analysis of the poverty implications of REDD in different national contexts is required. This may have to be carried out through the development of different scenarios for such systems.

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7 Annexes

7.1 Annex 1: Glossary of REDD related terms

Arc of Deforestation: a broad band along the eastern and southern edges of the Amazon rainforest in which the large majority of both the cumulative and current clearing activity is concentrated. Deforestation advances from this band towards the centre of the rainforest.

Additionality: Reduction in emissions (by sources) or enhancement of removals (by sinks) that is additional to any that would occur in the absence of project activities (often referred to as 'business as usual') under the Kyoto Protocol agreement (such as CDM or JI). This definition may be further broadened to include financial and technological additionally as well in the context of ensuring that that the international community is funding projects/providing technical assistance that go above and beyond what they would already be providing.

Afforestation: According to the UNFCCC CDM Executive Board, "afforestation is the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human-induced promotion of natural seed sources."

Agriculture, Forestry, and other Land Uses (AFOLU): Following the 2006 IPCC Guidelines for national greenhouse gas inventories, the AFOLU consolidates the previous sectors LULUCF (Land Use, Land Use Change and Forestry) and agriculture. Note that while this consolidation has been adopted by IPCC, and the Guidelines have been published as a scientific publication, the decision of the use of the Guidelines for UNFCCC and Kyoto Protocol reporting has not been taken yet.

Annex I and Non-Annex I: Under the Kyoto Protocol, national governments are separated into two general categories: developed countries, referred to as Annex I countries (who have accepted greenhouse gas emission reduction obligations), and developing countries, referred to as Non-Annex I countries (who have no greenhouse gas emission reduction obligations but may participate in the Clean Development Mechanism).

Carbon Offset Project: an emissions reduction project that generates carbon offset credits; one carbon offset unit represents the reduction of one metric ton of carbon dioxide, or its equivalent in other greenhouse gases.

Climate, Community and Biodiversity Alliance (CCBA): a partnership of institutions that has developed CCB project design standards, which are used to evaluate land-based carbon mitigation projects. The CCB Standards promote the integration of best-practice and multiple-benefit approaches into project design.

Carbon rights: According the Government of Western Australia, a carbon right is a right to the benefits and risks arising from carbon sequestration and release on a specified parcel of land. Carbon rights may have a financial value where a market exists for GHG emissions offsets. Carbon rights can also define the management responsibilities associated with a specific forest area. Issues around carbon rights include how the rights are defined, how they work in places where land ownership is unclear and whether legal institutions are strong enough to protect the rights.

Clean Development Mechanism (CDM): a mechanism under the Kyoto Protocol designed to assist developed (Annex I) countries in meeting their emissions reduction targets. The mechanism reduces emissions through implementing projects in developing (Annex II) countries which are credited to the Annex I countries who finance and implement the project. The CDM aims to not only reduce emissions or increase sinks but also contribute to the sustainable development of the host country.

Compensated Reduction (CR): a proposal initially set forth in the 2005 Santilli et al paper (*Climate Change* 71: 267-276) recommending the creation of positive incentives for developing countries to reduce emissions from deforestation. The voluntary agreement

would compensate countries that demonstrate quantifiable decreases in deforestation (below a set baseline based on average historical deforestation rates). Many of the current proposals for REDD are based on a similar methodology.

Conditional cash transfer: A transference of money to those that meet certain 'conditions' or criteria. Conditional cash transfer schemes are normally used to reduce poverty by making welfare programs conditional upon the receivers' actions.

Deforestation: Most definitions characterize deforestation as the long-term or permanent conversion of land from forested to non-forested (Noble et al. 2000). In an annex to a decision made by the UNFCCC Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP), deforestation is defined as "the direct human-induced conversion of forested land to non-forested land." The FAO defines deforestation as "the conversion of forest to another land use *or* the long-term reduction of the tree canopy cover below the minimum 10 percent threshold" (FAO. 2001. *Global Forest Resources Assessment* FRA *2000 – Main report*. Rome). Massive deforestation is ongoing and contributes to rising GHG emissions due to burning and loss of forests as carbon sinks. It is generally estimated that deforestation contributes to 1/5th of all global GHG emissions.

Degradation: According to the FAO, forest degradation refers to "changes within the forest which negatively affect the structure or function of the stand or site, and thereby lower the capacity to supply products and/or services" (FAO. 2001. *Global Forest Resources Assessment* FRA *2000 – Main report*. Rome).

Emissions Reduction Purchase Agreements (ERPAs): under the Kyoto Protocol, a contract that transfers carbon credits between two parties (usually two countries but may also occur between a country and a large corporation). This agreement allows the purchaser to emit more carbon dioxide (above the level allocated to them in the Kyoto Protocol) while the seller is now bound to emit less. The standards for this type of agreement are outlined by the International Emissions Trading Association.

Full vs. Partial carbon accounting: When using this term in the context of the Kyoto Protocol, full carbon accounting (FCA) refers to the accounting of all relevant carbon flows related to the terrestrial part of the global system. FCA, in addition to the fossil fuel system, encompasses and integrates all (carbon-related) components of all terrestrial ecosystems and is applied continuously over time (past, present, future). It is assumed that the components can be described by adopting the concept of stocks (also termed reservoirs or pools) and flows (also termed fluxes) to capture their functioning (Nilsson 2000). The current approach under the UNFCCC and Kyoto Protocol provides for only partial carbon accounting (PCA). It is virtually impossible to estimate the reliability of any system output if only part of the system is considered. Full Carbon Accounting is expected to facilitate the reconciliation of two broad accounting approaches: top-down and bottom-up accounting.

Gold Standard: a set of standards used to identify premium projects in the carbon market. To achieve Gold Standard, a project must use renewable energy and energy efficiency technologies that promise sustainable development for the local community. The Gold Standard carbon credit label is awarded after third party validation and verification of the offset project.

High Forest Low Deforestation countries (HFLD): countries that have high forest cover with low amounts of deforestation. Fonseca[4] et. al. identified Panama, Colombia, Democratic Republic of Congo, Peru, Belize, Gabon, Guyana, Suriname, Bhutan and Zambia, along with French Guiana as containing 20 percent of Earth's remaining tropical forest and 18 percent of tropical forest carbon.

Joint Implementation: a mechanism under the Kyoto Protocol (alongside CDM) designed to assist Annex I countries in meeting their emission reduction targets through investing in

[4] Gustavo A. B. da Fonseca, Carlos Manuel Rodriguez, Guy Midgley, Jonah Busch, Lee Hannah, Russell A. Mittermeier (2007). No Forest Left Behind. PLoS Biol 5(8): e216 doi:10.1371/journal.pbio.0050216

emissions reduction projects in any other Annex I country as an alternative to reducing emissions domestically. Annex I countries may be interested in investing in JI projects if reductions are cheaper in other Annex I countries. Unlike the CDM, JI emissions reductions take place in countries that have an emissions reduction requirement.

Kyoto Protocol: an agreement made under the United Nations Framework Convention on Climate Change (UNFCCC). Countries that ratify this protocol commit to reducing their emissions of carbon dioxide and five other greenhouse gases (GHG), or engaging in emissions trading if they maintain or increase emissions of these gases. The Kyoto Protocol now covers more than 170 countries globally but only 60% of countries in terms of global greenhouse gas emissions. As of December 2007, the US and Kazakhstan are the only signatory nations not to have ratified the act. The first commitment period of the Kyoto Protocol ends in 2012, and international talks began in May 2007 on a subsequent commitment period.

Land Use, Land Use Change and Forestry (LULUCF): Refers to a sector within climate change mitigation activities. LULUCF was included under the Kyoto Protocol to take into consideration certain human-induced activities that remove greenhouse gases from the atmosphere, also known as carbon "sinks". The following activities referred to in Article 3, paragraphs 3 and 4 of the Kyoto Protocol, as defined in paragraph 1 of the annex to decision 16/CMP.1: afforestation, reforestation, deforestation, revegetation, forest management, cropland management, grazing land management.

Leakage: in the context of climate change, carbon leakage refers to an increase in GHG emissions in one project (or country) as a result of emissions reduction by a second project (or country). For example, if agricultural production is curbed in order to reduce emissions from deforestation in one region, carbon leakage may occur as another region increases its agricultural activity to replace the loss of production from the first region.

Market-based carbon offsets: a financial instrument representing a reduction in GHG emissions that can be bought and sold in either the larger compliance market (where governments, companies and other entities buy offsets in order to comply with their emissions reduction goals) or the smaller voluntary market (where offsets can be purchased to voluntarily mitigate GHG emissions).

Millennium Development Goals (MDGs): Eight goals to be achieved by 2015 that respond to the world's main development challenges. The MDGs are drawn from the actions and targets contained in the Millennium Declaration that was adopted by 189 nations during the UN Millennium Summit in September 200. Goals include:

1. eradicate extreme poverty and hunger
2. achieve universal primary education
3. promote gender equality and empower women
4. reduce child mortality
5. improve maternal health
6. combat HIV/AIDS, malaria and other diseases
7. Ensure environmental sustainability
8. Develop a Global Partnership for Development

National vs. project-based approaches: refers to the spatial boundaries of a carbon mitigation project (though is generally poorly defined). A national approach accounts for emissions reductions taking place at the national level against a national reference scenario and delivery of finance (possibly credits in a market system) is usually assumed to go to the national government. A project-based approach accounts for emissions reductions in a clearly specified area within a country and delivery of finance (possibly credits in a market system) is usually assumed to go to the project implementer who may be a private company, local government or a community. Both approaches could be used simultaneously.

No-harm principal: the general notion that GHG mitigation activities such as reducing emissions from deforestation do not indirectly cause harm to the livelihoods of the poor living in or near the forest areas.

Payments for Environmental Services (PES): A voluntary, negotiated transaction (distinguished from a command-and-control measure) where an environmental service (e.g. carbon sequestration, watershed protection, biodiversity conservation) is being 'bought' by an ES buyer. Payment schemes may be a market arrangement between willing buyers and sellers, or may be government driven, where public revenues are used to pay for ecosystem services.

Permanence: refers to the issue of duration and reversibility of a reduction in GHG emissions. There are risks that the net carbon uptake from a JI/CDM forestry project may be reduced at some point by re-release into the atmosphere. This reduction in carbon stocks is referred to here as the "permanence" issue. Because aforestation and reforestation create *carbon sinks* (removal of CO_2 from the atmosphere), carbon will be re-released into the atmosphere if the projects are not permanent. Because a reduction in emissions from deforestation and degradation preserves *carbon stocks* (carbon that is accumulated and contained in a 'pool' or reservoir), a temporary REDD program will release carbon that was being stored the forest, though it will have delayed some emissions into the atmosphere from occurring. To avoid the issue of reversibility on both accounts, the multiple drivers of deforestation must be addressed. The mechanisms to do this therefore must be resistant to changes in government policy and global fashion, as well as the human and biological impacts of climate change.

Pro-poor growth: There are many debates around the exact definition of this term. In broad terms, pro-poor growth can refer to either a relative or absolute concept of poverty reduction. The debate on defining pro-poor growth has very similar characteristics to the debate on how to measure poverty, where relative vs. absolute measures have been debated. The relative concept categorizes growth as pro-poor when it implies that the poor gain more proportionally to the non-poor. However, concentrating on the inequality aspect disregards absolute levels of growth. The absolute definition concentrates on the unqualified level of growth for the poor. Growth is considered pro-poor if the poor population benefits from it in absolute terms, irrespective of how the total gains are distributed within population in question. Both absolute and relative perspectives on pro-poor growth are relevant.

Reference scenario vs. stock: With regards to emissions from deforestation, a *reference scenario* is based on historical emissions rates (or modelling of future rates) from deforestation and degradation. A system based on the *stock* of emissions refers to the existing amount of carbon stored in a country's forest area.

Reforestation: UNFCCC CDM defines reforestation as "the direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources, on land that was forested but that has been converted to non-forested land." For the Kyoto Protocol's first commitment period, reforestation activities will be limited to reforestation occurring on those lands that did not contain forest on 31 December 1989.

Regeneration: the re-establishment of a forest area by natural or artificial means.

Reserve Account: a percentage of carbon credits withheld from sale as insurance when there is uncertainty and risk involved in project outcomes.

Sustainable extraction reserves: a community-based model for the sustainable use and preservation of natural areas, aimed at guaranteeing means of subsistence for communities.

Sustainable Forest Management: management of forests which incorporates not only economic but also social and environmental goals which helps ensure the long-term sustainability of the forest for future use.

World Bank's FCPF readiness mechanism: Under the World Bank's Forest Carbon Partnership Facility (FCPF), the readiness mechanism refers to assistance to 20 forest-rich developing countries to prepare for implementation of a pilot carbon finance mechanism for REDD. Readiness activities include establishing a credible estimate of national forest carbon stocks, sources of forest emissions, and defining reference scenarios based on past emissions rates.

World Bank Safeguard Policies: The World Bank's environmental and social policies that protect development projects against undue harm to people and the environment. The policies provide guidelines for the Bank in identification, preparation and implementation of development projects.

7.2 Annex 2: Mentions of poverty reduction and rural development in selected submissions to the UNFCCC SBSTA on REDD:

Selected government submissions – (FCCC/SBSTA/2007/MISC.14)

- **Brazil**:
  - The position does not make any explicit mention of poverty or rural livelihoods as they relate to REDD.
  - A noteworthy element of Brazil's position is their reluctance to "envisage the creation of a new bureaucratic structure", and their preference for having a UNFCCC focal area manage the information relevant to REDD. In terms of financing, the Brazilians are not in favor of integrating the carbon market as a potential funding mechanism for REDD, and state the emissions reductions through REDD should be considered to be additional to the reductions by Annex I countries.
- **24 tropical countries (Coalition of Rainforest Nations)**:
  - Related to social concerns, this positions states thatat "*a system of policy approaches and positive incentives to reduce emissions from deforestation should concurrently raise living standards within rural populations and be designed to support significant social, environmental and economic objectives associated with development*". They make an explicit reference to Sustainable Forestry Management (SFM), which they consider to be "*an effective approach to reducing emissions from deforestation in developing countries*".
  - This position expresses concern with the draft Decision resulting from SBSTA-26 for consideration at COP-13, and state that "*Voluntary initiatives to support such [funding] efforts, like the World Bank's Forest Carbon Partnership Facility, should be commended and supported*". They are in favor of using the carbon market as a means of incentivizing REDD.

- **DRC, on behalf of Cameroon, CAF, Congo, DRC, Equatorial Guinea, and Gabon (COMIFAC):**
  - Related to poverty concerns, this position states that "*In the context of the countries of Central Africa, the reduction/disappearance of forest cover resulting in land-use change is due to extreme poverty and the development needs of the populations*." They list 7 key principles for implementation, with a mention for equity, but nothing for 'pro-poor'.
  - This position argues in favor of a broad understanding of deforestation that also allows for the consideration of degradation.

- **Indonesia**:
  - Related to poverty, the Indonesia position makes a very indirect link by stating that a country "*may consider various initiatives and schemes for example: promotion of PES, Sustainable Forest Management, Protected Area management, community based forest management, combating illegal*

logging, forest fire management, and rehabilitation of degraded lands, as part of the whole efforts that contribute to reducing emissions from LULUCF sector".

- The position sees a REDD mechanism as a complement to the CDM. The Indonesia position mentions the relevance of peatlands in their intro (10% of country area). The highlight the need to distinguish between undisturbed and disturbed forests in establishing baselines, and stress the need to understand the drivers of deforestation.

- **Japan**:
  - The Japanese does not make explicit mention of poverty or livelihood concerns, but does favor "*sustainable forest management*" as "*the basis for sustainable reduction of emissions from deforestation and forest degradation*". They state further that "*it is also necessary to consider if multiple functions of the forest other than carbon fixing are properly maintained and demonstrated as well*".

- **European Commission**:
  - Related to poverty concerns, the EC position makes an indirect link by stating that: *"[REDD] has the potential to provide multiple benefits towards sustainable development*".

- **USA**:
  - As with the European and Japanese postions, the United States make a scant reference to livelihoods by stating that "*efforts to mitigate deforestation should occur in the broader context of sustainable forest management and sustainable development.*"
- **Chile**:
  - The Chilean position makes no explicit mention of poverty concerns.
  - The position is favorable to the use of market mechanisms and favors the "Nested Approach" (Lucio Pedroni – CATIE, and Charlotte Streck, Climate Focus). Related to this, they state that "*market mechanisms that allow full private sector participation are the most promising tools to create sufficient financial transfers to reduce emissions from deforestation in developing countries*". They also express doubt that "*private investors would be willing to share the risk of potential policy failure by directly supporting government programs.*"

- **Tuvalu**:
  - The Tuvalu position clearly mentions the issue of indigenous rights and traditions which need to be protected through REDD.

- **Colombia**:
  - In this position, it is specified that international payments could be made towards local communities in addition to public or private entities.
  - The position reiterates the Chile views on getting the private sector on board.

Selected submissions from inter-governmental organizations (IGOs) –

(FCCC/SBSTA/2007/MISC.3)

- **Convention on Biological Diversity (CBD)**: has a large section on incentive measures. They then mention their 2010 goals and targets, including goal 9: "*maintain socio-cultural diversity of indigenous and local communities*". The

relevance of this goal to REDD is cited as being "*socially sustainable protection of forests*"; and for goal 8: "*maintain capacity of ecosystems to deliver goods and services and support livelihoods*", the relevance to REDD is: "*enhanced capacity of forest ecosystems to sequester carbon*".

- **United Nations Food and Agriculture Organization (FAO)**: This submission clearly devotes substantial amount of text to poverty concerns: "*Although it is widely accepted that sustainable forest management can contribute to sustainable development, the links between deforestation and poverty reduction are not clearcut. In some cases, poverty motivates people to clear forests, in other cases poverty constrains people from clearing them. Incentives provided to reduce emissions from deforestation, therefore, may help alleviate poverty (e.g. provide additional income to people either directly or indirectly) or may exacerbate it (e.g., by reducing their access to forest lands or forest products). It is essential that countries analyze and understand the effect that incentives to reduce deforestation in order to reduce greenhouse gas emissions may have on meeting national needs and achieving their international commitments related to forests and their goods and environmental services, as well as to poverty alleviation. Strong national policy processes will be central to this.*"
- **The World Agroforestry Center (ICRAF)**: mention RUPES and the need for realism, conditionality, voluntarism, and pro-poor. They also mention that Mexico and Costa Rica provide solid experience upon which to base future efforts.
- **United National Environment Programme (UNEP)**: state that REDD is "*a key opportunity for attaining multiple benefits*" – biodiversity conservation, livelihoods, watershed protection and other ecosystem goods and services. The positions stresses that livelihood concerns are especially relevant to the rural poor.

Selected NGO submissions –

(submissions available at: http://unfccc.int/parties_and_observers/ngo/items/3689.php)

- **CAN international**: offer a very comprehensive overview of the main issues of REDD. Propose 5 principles: environmental effectiveness, deeper industrial emission reductions, *environmental and social integrity*, full international participation, and long term action. They address social impacts by stating that "*some social and environmental criteria will be needed to avoid negative impacts and should be optimally addressed in the rules and modalities of a deforestation scheme. In addition, national standards should be in place to ensure that negative impacts such as economic and physical displacement; increased insecurity of tenure; limited access and benefit sharing; elimination of traditional management practices; and reduction of environmental services are abated*."
- **Conservation International (CI)**: Place livelihood concerns at the forefront of their document and offer the example a cases study in Madagascar to show how projects can provide benefits for local livelihoods.
- **Friends of the Earth International**: state that "*about 350 million of the world's rural poor and forest dwelling people indigenous peoples depend on forests for their home, livelihoods and energy supply*".
- **Sierra Club of Canada on behalf or Canadian ENGOs**: make a clear mention of poverty concerns: "*Any future national initiative intended to reduce deforestation will need to demonstrate how it would promote sustainable development and the protection of human rights at the local operation level, including the equitable distribution of benefits to local communities*."
- **The Nature Conservancy (TNC)**: state that "*Nearly 90% of the 1.2 billion people living in extreme poverty worldwide depend on forests for their livelihoods. Unsustainable deforestation deprives the poor of their 'natural capital'. It degrades not only forest ecosystems but also the services they provide to people*."

- **Vitae Civilis (Brazil)**: State that "*the needs and concerns of traditional populations of forest areas must be taken into account*."

Other:

- **The World Conservation Union (IUCN)**: offer an ecosystem approach to REDD and state at the opening of their position that "scientific evidence clearly highlights the current and potential impacts of climate change on the environment and, consequently, on human well-being, especially poor and vulnerable communities." The highlight the need to "include all stakeholders, in particular forest-dependent communities". They also mention the need to "mainstream gender in the work of the UNFCCC and in all mitigation and adaptation activities".

7.3 Annex 3: Poverty measures

Poverty measures

Understanding how poverty can be measured is important in helping to identify how different options for REDD might impact on the poor. There are two mains considerations:

1. **Absolute vs. relative poverty measures:** Absolute poverty is usually based on measures of subsistence below a minimum threshold, such as income, consumption or nutrition. For example, the World Bank uses a figure of $US 1 per day (in 1985 purchasing power dollars) for the absolute poverty line. Relative poverty compares different segments of the population in relation to certain indicators such as income or consumption. This means that whilst economic growth can result in decreases in absolute poverty if the poor receive at least some benefits, relative poverty could increase if the relative gains are not proportional (Angelsen and Wunder 2003).

2. **Objective vs. subjective poverty measures:** Objective approaches to poverty assume that it is possible to define objective indices for what constitutes poverty and poverty reduction, whilst subjective measures are based on people's own perceptions of their lives. Objective approaches suffer from the problem that it is impossible to develop truly independent indicators, whilst subjective approaches suffer from the problem that people may not disclose their true opinions and poverty perceptions may differ significantly across localities and over time.

Poverty indicators

There are two main categories:

- **Means vs. ends indicators:** Means indicators measure the inputs required to achieve an end result such as the level of income required to achieve a result such as provision of adequate housing, clothing and healthcare. Ends indicators measure the ultimate outcomes such as low levels of material assets or political marginality. Ideally a combination of both approaches should be used (CPRC 2005).

- **Quantitative vs qualitative indicators:** Quantitative indicators include measures such as income levels (money-metric). Income indicators can be easier to implement and measure but they risk losing important information relating to non-monetary aspects of livelihoods. Money-metric indicators have nevertheless tended to dominate in the assessment of poverty.

7.4 Annex 4: Kecematan Development Programme as an example of a funding system independent of national budgets

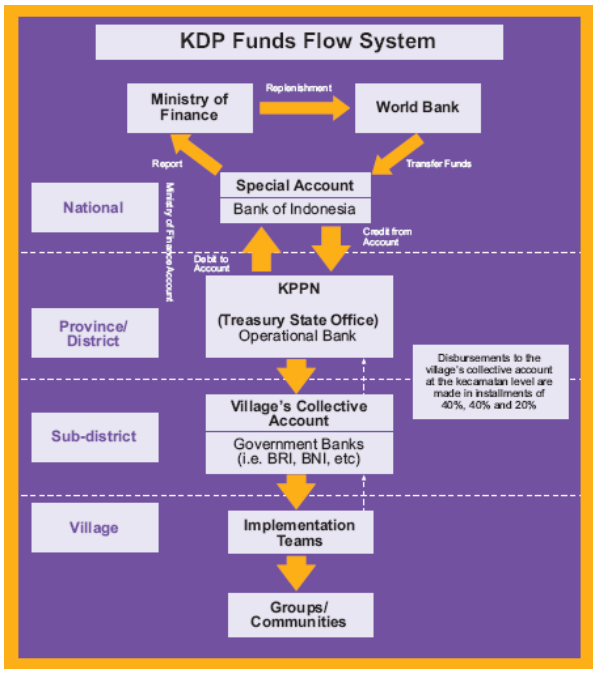

Figure 3: Fund management structure of the KDP. Source: Kecematan Development Programme, information package 2005 (see http://www.worldbank.org/id/kdp)

The Indonesia Kecamatan Development Program (KDP) is a country-wide program implemented by the Ministry of Home Affairs and supported by the World Bank that reaches more than 30,000 rural villages with facilitation services, village governance improvements, and grants for village-chosen investments expected to improve people's economy and social condition. KDP subdistrict-level grants support development plans prepared, approved and implemented by the communities themselves. KDP provides block grants of RP 500 million to 1.5 million to sub-districts (Kecamatan) depending on population size. The programme emphasises the following principles:

- Participation/inclusion
- Transparency
- Open menu
- Competition for funds
- Decentralised
- Simple

The implementation processes begins with information and socialisation through workshops at provincial, district and village level. Participatory planning processes at sub-village, village and sub-district level, are then conducted by elected village facilitators, who have support at district level from technical support staff. Projects are then selected at the village and sub-district levels to decide which projects should be funded. The selection committee comprises elected members from different villages who can select a wide range of projects, except for a few on a negatives list. KDP community forum select members to be part of an implementation team to manage the projects, with technical facilitators offering support. Accountability and reporting on progress occurs through progress reports during the implementation phase before any more funding is released to the project. At a final meeting the project is handed over to the village and a village operations and maintenance committee.

KDP provides funds from the national level to the village collective accounts at the kecematan level. These are used to fund infrastructure projects, loans or social investments. Accountability and transparency are increased by each financial transaction downwards being matched by a similar paper trail upwards.

7.5 Annex 5: REDD proposals

A brief explanation of the 6 proposals outlined in **Table 3** (from Alvarado, and Wertz-Kanounnikoff 2007, unless stated otherwise):

- ***Coalition of Rainforest Nations***: are in favor of financing REDD through carbon markets, although they do not specify whether or not it should be integrated into the existing structure or whether a parallel REDD market needs to be created. An interesting component of the proposal is the consideration of 'growth caps' within national baselines, which would allow some room for economic development opportunities in developing countries engaging in REDD activities. This proposal specifically refers to the potential for REDD to deliver important environmental and social benefits.
- ***Brazil***: as opposed to the CoRN, are not in favor of using carbon markets to finance REDD, but would prefer to have the funding come from ODA budgets. The Brazilian proposal strongly emphasizes the responsibility of Annex I countries in providing the necessary resources for addressing deforestation (the Brazilian position is not in favor of including degradation).
- ***COMIFAC***: In contrast to the Brazilian proposal, the COMIFAC one strongly emphasizes the importance to integrate degradation into the overall picture, which is believed to account for up to 60% of forest cover loss in the Congo Basin (Alvarado & Wertz-Kanounnikoff, 2007). In terms of finance, the proposal offers a combination of market and non-market based funding.
- ***Latin American Countries***: are also in favor of the inclusion of degradation into forest-based mitigation. Also in contrast to the Brazilian proposal, this one favors the financing of REDD through carbon markets and to the integration of the scheme into the existing Kyoto Protocol.
- ***CISDL***: The Center for International Sustainable Development Law offers a stock-based approach to REDD – meaning that incentives will go for the protection of existing stocks as opposed to the reduction of emission rates. The proposal also suggests that funding should come from the carbon market. (Prior et al. 2006)
- ***Nested Approach***: also recognizes the need to channel funding for REDD from the carbon market. The distinctive feature of this proposal is that it offers to incentivize REDD projects at both national and sub-national levels. (Pedroni 2007)

This document does not necessarily represent the views of all PEP member agencies.

For more information, visit:

www.povertyenvironment.net/pep/

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