

# Estimating the cost of building capacity in rainforest nations to allow them to participate in a global REDD mechanism

Report produced for the Eliasch Review by Chatham House and ProForest with input from the Overseas Development Institute and EcoSecurities

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## Executive summary

This report provides an estimation of the funds that will be needed to build capacity in 25 rainforest nations to enable them to participate in the proposed REDD mechanism (Reduced Emissions from Deforestation and Forest Degradation), an instrument proposed under the UN Convention on Climate Change that rewards countries for avoiding the removal or degradation of their forests. The REDD mechanism is still the subject of international negotiations and is still not clear what the final mechanism will look like or how it will be paid for. Therefore, for the purpose of this study, we considered a spectrum of policy options:

- A pure national approach where actual deforestation is measured and payments made for improvements relative to a baseline calculated at the national level;
- A pure project-based approach where payments are made to individual REDD projects in much the same way that payments are currently made within the Clean Development Mechanism or voluntary markets;
- A hybrid approach where projects are nested within a national baseline.

The 25 rainforest nations considered in this report account for some 7.7 million hectares of forest lost per year between 2000 and 2005, or approximately 60 percent of the area of all countries reporting net forest loss for that period.<sup>5</sup> It has been modelled that these 25 countries accounted for 6.5 GtCO<sub>2</sub> in 2002, or 78 percent of global emissions from land use, land-use change and forests.<sup>6</sup> The countries are:

- Africa: Cameroon, Congo Brazzaville, Democratic Republic of Congo, Equatorial Guinea, Gabon, Ghana, Liberia, Sierra Leone
- Asia: Cambodia, China, India, Indonesia, Malaysia, Myanmar, Papua New Guinea, Thailand, Vietnam
- Americas: Bolivia, Brazil, Colombia, Costa Rica, Guyana, Mexico, Peru, Venezuela

Deforestation and forest degradation are caused by a complex combination of factors including market drivers and policy and governance failures. This study has assumed that market drivers of deforestation would be addressed through REDD payments but that policy and governance factors will need to be addressed beforehand to enable a REDD mechanism to work. In other words, the study looks at the measures and activities that will need to be funded to provide a sufficient level of “readiness” to allow a country to participate in REDD. It does not consider the next phase of costs, those related to implementing the activities that prevent deforestation or forest degradation, as it assumes that they will be financed from the REDD mechanism itself.

Governance and policy measures associated with readiness for REDD can be divided into three categories:

- Establishment of a REDD infrastructure: activities specific to REDD such as developing baselines, undertaking inventories, monitoring and project approval processes.

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<sup>5</sup> FAO (2005), Global Forest Resources Assessment 2005. The 7.7 million hectares figure refers to the total forest change of the countries exhibiting net forest loss over the period. China, Vietnam, India and Costa Rica reported an increase in forest cover over the period that equalled 4.3 million ha (78 per cent of the area of all countries reporting net forest gain for that period).

<sup>6</sup> Climate Analysis Indicators Tool (CAIT), Version 5.0 (2008), World Resources Institute, Washington, DC

- Developing a strategy for REDD: activities analysing the various drivers of deforestation and identifying the approaches to be used to reduce deforestation and degradation.
- Implementation of the REDD strategy: activities related to the implementation of REDD that require policy or governance changes or improvements but may be difficult to fund out of carbon payments, and in some cases must be undertaken before any carbon payments are likely to be made.

For each of the models (national baseline, project, hybrid) we identified the range of activities associated with each of these three categories.

### **Governance interventions**

Based on an analysis of the generic drivers of deforestation, our assumptions of how REDD will work and our understanding of what private investors will demand, we identified a range of interventions that will be necessary for rainforest nations to participate in REDD. These interventions are summarised in Section 4.4. The national-baseline approach will require the most comprehensive policy approach, so governance interventions required under the project-based and hybrid approaches will be a subset of the interventions required under the national-baseline approach.

### **Costs of creating capacity for participation in REDD**

To provide a global cost estimate for the capacity building needs of rainforest nations, we considered the types of intervention required and then estimated the costs of each of these on the basis of previous programme activities, mainly paid for by development aid, as well as some estimates made by countries themselves. Based on this data, we estimated a range of costs for each intervention (calculated in US dollars, which is the currency most commonly used in project cost estimates), and then calculated a range of costs for a generic country by assuming that each of the interventions will be necessary for a national-baseline approach.

The potential cost of governance interventions to allow a single country to participate in REDD ranges from \$14 million to \$92 million, spent over five years (all amounts rounded up to two significant figures). Multiplying this by 25 to reflect the 25 potential REDD countries under review provides a cost estimate ranging from \$340 million to \$2.3 billion over five years. The global figure can be calculated according to how many countries are thought likely to participate in the REDD mechanism. For instance, a scenario encompassing 40 countries could see a range of costs from \$550 million to \$3.7 billion. For a project-based approach, costs for some countries will be considerably lower as projects can go ahead in the absence of any national-level inputs other than creation of the basic institutional infrastructure for recognising and controlling REDD projects. Costs for the hybrid approach will depend on the design of the approach and will fall between the costs of the project-based and national-baseline approaches.

It is notable that even the high end of the cost spectrum is a relatively low figure, given what may be achieved and the magnitude of donor commitments already made. This is encouraging in terms of moving forward with REDD. However, the figure was developed in the context of a number of assumptions that may be difficult to establish in reality. These assumptions are the following:

- *There will be sufficient political will to guarantee the success of the projects*: The figure assumes that REDD readiness activities will be successful in achieving their aims, but this figure is necessarily based on historical cost data for projects that have often failed to achieve

their aims. Project failure can be due to a wide range of factors, including inefficient and uncoordinated delivery, and more emphasis on donor modalities than country needs. However the greatest challenge for most projects is the absence of political will among those that need to make critical leadership decisions or change their behaviour in order for a project to succeed. In many cases the lack of political will can be put down to economic incentives, either personal or national/international, which encourage decisions and actions that undermine the project. Therefore spending the estimated amount of money will not provide any guarantee of achieving REDD readiness in the absence of effective project design, political will and an attempt to reverse the overwhelming current economic incentives for deforestation with an efficient mechanism and a stable and ambitious carbon price.

- Implementation costs will be paid for by carbon revenues: The figure assumes that while readiness may require public investment, all implementation costs, which are likely to be orders of magnitude higher than the figures quoted here, will be paid for by carbon revenues. Given that payments for avoided deforestation or degradation are highly likely to be ex-post, implementation funds will need to come either from individual governments that wish to pursue a national REDD strategy or (more likely given the magnitude of funds required) from investors or project developers from the private sector. In either case, an ex-post model of payment will favour countries that are already relatively developed and well governed, as those that are not will have fewer government revenues for up-front investment and a national risk profile that is likely to deter private sector investors in the absence of sizeable potential profits. This market “efficiency” may appeal to those wishing to establish a REDD market at relatively low cost but it implies that investors will not find it economically viable to invest in REDD in many poor countries until carbon prices are sufficiently high.
- There will be sufficient international demand for credits from forest carbon projects: The figure assumes that the political and policy framework for REDD, whether a national-baseline or project-based approach is adopted, will provide sufficient demand for carbon, adequate levels of certainty about the framework and an efficient mechanism for implementation, which together will be necessary to ensure that substantial money flows to those responsible for reducing deforestation and degradation. It remains unclear from the current debate whether all of these conditions will be met.

Therefore the relatively low estimate of readiness costs may underplay considerably the real cost of establishing a REDD market that is accessible to more than a handful of tropical forest countries. Given the political pressure for REDD not only to reduce GHG emissions, but also to achieve a range of other ambitions, this “efficiency” may not be in the best interests of establishing consensus on a REDD mechanism in the highly volatile political context of the UNFCCC.

#### ***Costs of readiness for achieving development and biodiversity “co-benefits”***

If governments wish to look beyond the climate mitigation imperatives discussed at the UNFCCC and attempt to tackle poverty-alleviation or biodiversity priorities using tropical forest carbon market payments, the challenges and potentially the costs, are likely to be higher. In some cases it may be reasonable to assume that avoiding deforestation is intrinsically in the interests of the poor and forest-dependent. However, it is clear that this is not always the case and that increasing the value of forests through carbon payments may undermine tenure and use rights of poor and indigenous groups. Similarly, while it is probably reasonable to assume that protecting forests contributes positively to maintaining biodiversity, areas which are best protected for carbon may not be priorities for biodiversity. Therefore, a focus on protection which conserves most carbon at the lowest cost will not

always protect important biodiversity.

There are several ways in which this might be addressed depending on the mechanism adopted for REDD and the type of country being considered.

- Development of the REDD strategy: Whether REDD is implemented at a national or project level, there is a need for a strategy setting out how reductions in deforestation and degradation will be achieved. In most countries and even in many individual projects there will be a range of ways in which deforestation can be tackled, some of which have less impact or provide greater co-benefits than others. The greater the involvement of a wide range of stakeholders, and particularly affected parties, in the development of the strategy (and in some of the follow-on activities), the greater the potential to come up with approaches that are appropriate for poor forest-dependent people, indigenous people and biodiversity. Therefore, investing as part of “readiness” in either a national strategy process or a project planning process that is as inclusive as possible is likely to have long-term benefits in reducing any negative impacts on the poor and biodiversity and, where possible, increasing co-benefits.
- Linking with other forms of funding: Many of the activities identified as important for readiness and for reducing deforestation have already been identified as priorities for funding from other sources such as international development aid, national development programmes or conservation projects. Therefore, there may be some scope for leveraging co-benefits by linking REDD to other projects which help finance the co-benefits.
- Investment in poorest countries: In the poorest countries investing only in “readiness” is not likely to generate adequate investment in avoided deforestation or degradation sector. Public money will need to be made available to establish institutions and implement a range of activities that, in theory, should be considered implementation or “project” costs, if there is to be any hope of attracting foreign direct investment (FDI) or accessing international carbon markets. This is particularly true of sub-Saharan Africa, where many countries currently have national/sovereign risk profiles that impede FDI in all sectors except for those with the most controllable production processes and highest potential profits (e.g. oil, extractive industries). Even if a REDD mechanism includes a less demanding project phase for countries that are not able to meet institutional requirements for a national-baseline approach, it may not be possible to stimulate investment in such countries without significant public subsidies or very big differences between the price paid for the carbon and the ultimate selling price.
- Creating market demand for co-benefits: It may also be necessary to look more closely at actors that are outside the REDD debate or the development/aid paradigm and recognise the importance of establishing carbon buyers that are willing to pay the additional cost of “producing” such co-benefits. Experience from the CDM suggests that there is little political appetite for establishing mandatory sustainability standards within UNFCCC mechanisms, but it is possible to establish voluntary higher standards. However, achieving demand for co-benefits in the potentially much larger compliance market will take a commitment on the part of purchasing countries to give preferential treatment to such credits and to pay a price that reflects the additional costs and risks attached to their generation.

## Introduction

Deforestation and forest degradation are major sources of emissions of carbon dioxide and reducing these emissions has been identified as a global priority in efforts to tackle climate change. It has been estimated that global deforestation accounts for up to 20 percent of global emissions of carbon dioxide, with forests being lost at a rate of around 5 percent per decade. If the growing pressure on natural resources from mankind continues, the rate of forest loss is likely to increase over the next 30 to 50 years.<sup>7</sup> Finding a way to pay for the conservation of forests is therefore an important component of tackling climate change.

In recognition of this, the ongoing international climate negotiations are currently defining a role for avoiding deforestation and forest degradation as a component of a global climate strategy. The UN Framework Convention on Climate Change (UNFCCC) conference in Bali in December 2007 concluded an agreement to explore options for a new mechanism, Reduced Emissions from Deforestation and Forest Degradation (REDD), which would provide a financial incentive to reduce deforestation and thereby provide a way of reducing global emissions at relatively low cost.<sup>8</sup>

Most studies<sup>9</sup> estimate a unit cost of REDD of \$2-\$10 per tonne of carbon dioxide equivalent (tCO<sub>2</sub>e), including administrative or transaction costs.<sup>10</sup> This can be compared to an average carbon value in the Kyoto Protocol's Clean Development Mechanism (CDM) in 2006 of \$11 per tCO<sub>2</sub>e; and a cost of cutting industrial emissions of over \$50 per tCO<sub>2</sub>e. These figures indicate that tackling deforestation provides a cost-effective means of reducing emissions of carbon dioxide.

However, deforestation and degradation are caused by a complex combination of factors including market drivers and policy and governance failures that combine to make it more attractive to fell trees than keep them.<sup>11</sup> Weak governance and poor policy have together prevented many rainforest nations from controlling deforestation, and these factors will also be a key determinant of countries' ability to participate in new financial mechanisms for forest protection, particularly REDD. While such a mechanism has the potential to generate significant payments to countries that reduce rates of deforestation, achieving this is likely to depend on a number of governance-related factors: a basic practical level of control over the forest resource, the means to address the causes of deforestation, and the institutional capacity both to manage the resulting funds and to provide the necessary certainty that any reduced emissions are real and quantifiable. Therefore, for REDD to succeed in many countries will require a genuine political commitment to reform at the national level in parallel with a substantial international effort to build capacity.

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<sup>7</sup> Chomitz, K.M. (2006) *At Loggerheads? Agricultural Expansion, Poverty Reduction, and Environment in the Tropical Forests*. A World Bank Policy Research Report

<sup>8</sup> Saunders, J, J Ebeling, R Nussbaum, "Reduced Emissions from Deforestation and Forest Degradation Lessons from a forest governance perspective", p. 4. Oxford: ProForest, March 2008

<sup>9</sup> E.g. Chomitz (2006) *op.cit.*

<sup>10</sup> Money denoted in US dollars unless specified otherwise

<sup>11</sup> For examples Trines, E. (2007) *Investment Flows and Finance Schemes in the Forestry Sector, with Particular Reference to Developing Countries' Needs*. A report for the Secretariat of the UNFCCC, citing Trines et al., 2006 identifies five broad categories of barrier: economic, risk related, political / bureaucratic, logistical and educational / societal barriers

## 1.1 The study

The Eliasch Review is examining the question of forest governance as part of its examination of the role of global forests in tackling climate change through existing and new financing mechanisms.<sup>12</sup> As part of its work, the Eliasch Review team commissioned this study to undertake an estimate of the cost of building capacity in rainforest nations to allow them to participate in REDD.<sup>13</sup>

This report is an attempt to provide an estimate of the funds that will be needed to build capacity in 25 rainforest nations to enable them to participate in a REDD mechanism. The 25 rainforest nations considered in this report account for some 7.7 million hectares of forest lost per year between 2000 and 2005, or approximately 60 percent of the area of all countries reporting net forest loss for that period.<sup>14</sup> It has been modelled that these 25 countries accounted for 6.5 GtCO<sub>2</sub> in 2002, or 78 percent of global emissions from land use, land-use change and forests.<sup>15</sup> The countries are:

- Africa: Cameroon, Congo Brazzaville, Democratic Republic of Congo, Equatorial Guinea, Gabon, Ghana, Liberia, Sierra Leone
- Asia: Cambodia, China, India, Indonesia, Malaysia, Myanmar, Papua New Guinea, Thailand, Vietnam
- Americas: Bolivia, Brazil, Colombia, Costa Rica, Guyana, Mexico, Peru, Venezuela.

Section 1 of this report presents the background to this research and the assumptions on which it has been based. Section 2 summarises the likely shape of the REDD mechanism and how it could work in practice. Section 3 outlines the drivers of deforestation and the policies and measures that can address those drivers. Based on these policies and measures, Section 4 considers the minimum criteria of governance that will be required to allow countries to participate in REDD. Section 5 presents the cost calculation. The report then offers some policy conclusions arising from its findings.

## 1.2 Methodology

We collected information by a combination of desk study and interviews with relevant stakeholders and experts, as well as by subcontracting components of work to EcoSecurities (looking at market requirements for the REDD mechanism) and LTS International (to provide additional information about forest-governance projects).<sup>16</sup> The first stage of this exercise was to define a methodology for estimating costs and to collect data on which to base the estimate. Defining the methodology proved a complex task due to the lack of clarity about the likely shape of any REDD mechanism and the minimum standards of governance required to access it; in addition, governance requirements themselves are difficult to categorise because there is a spectrum of functions that might be required,

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<sup>12</sup> The Eliasch Review team is based in the Office of Climate Change ([www.occ.gov.uk](http://www.occ.gov.uk))

<sup>13</sup> The OCC awarded a contract to conduct this work to a consortium comprising Chatham House and ProForest. ODI and EcoSecurities participated in several of the project discussions.

<sup>14</sup> FAO (2005), Global Forest Resources Assessment 2005. The 7.7 million hectares figure refers to the total forest change of the countries exhibiting net forest loss over the period. China, Vietnam, India and Costa Rica reported an increase in forest cover over the period that equalled 4.3 million ha (78 per cent of the area of all countries reporting net forest gain for that period).

<sup>15</sup> Climate Analysis Indicators Tool (CAIT), Version 5.0 (2008), World Resources Institute, Washington, DC

<sup>16</sup> The authors would like to extend their thanks to all those who contributed their time in providing data and suggestions for this project and in reviewing successive drafts. These included John Hudson and Hugh Speechly of DFID, staff of AusAID, ITTO and FAO, Tom Blomley, Mary Hobley, Jens Friis Lund, Dick Rice, Michael Richards, Adrian Whiteman, and others. Pat Hardcastle from LTS International and Jan Fehse and Till Neeff from EcoSecurities provided very useful written contributions to this report.

ranging from general practices of effective governmental institutions that are outside the forest sector but are nevertheless essential, to more specific practices that are relevant to the forest sector or to individual REDD projects. There is therefore a wide range of costs that could be required to build capacity for REDD. Much international discussion has been about whether these costs should be borne by governments (i.e. host-country governments or donor countries, e.g. through official development assistance) prior to the implementation of a REDD project, or whether they should form part of the project cost itself. The outcome of this highly political debate will have significant consequences for the future success or otherwise of the REDD concept. Without investment in effective institutional governance or using public money to guarantee private investments, the market is unlikely to involve itself in the development of such a high-risk new element of the carbon market. Furthermore, without the engagement of the private sector it is unlikely that large enough sums will be raised to significantly impact on deforestation or GHG emissions rates.<sup>17</sup>

### 1.3 Assumptions

We worked under the following broad assumptions:

1. *There will be adequate carbon money available.* This report assumes that countries will be able to receive an attractive income for reducing emissions. This is a huge assumption as it relates to the price paid for carbon, to the mechanism developed and to the extent to which it creates sufficient certainty and adequate demand to drive investment. Experience from the CDM to date indicates that policy uncertainty and red tape have both had a major impact on the availability of investment for project development. The report assumes that a REDD mechanism will be established in the context of sufficiently high demand (most likely from developed countries listed in Annex I of the UNFCCC with quantified emission reduction commitments) to ensure a purchase price which makes investments in forest protection more profitable than the profits foregone from other potential land uses. In reality different areas of land in different countries are suitable for a range of uses, and so subject to a range of opportunity costs.<sup>18</sup> We assume that the capacity-building costs are those that will allow a country to develop or implement a REDD strategy at the point at which the opportunity costs for other uses of forest are cancelled out by the likely REDD income – i.e. the point at which it makes rational economic sense to do so.
2. *There will be sufficient political will to build capacity.* The assumption that countries will not develop or implement REDD strategies where it does not make long-term economic sense to do so leads to another critical assumption: that capacity investment will be made in a context where all relevant actors are motivated to achieve the desired aim of the investment – otherwise known as political will. This assumption has significant impacts on the potential scale of capacity-building investment costs, as some interventions, such as tenure reform or the implementation of anti-corruption policies, may at first appear to be relatively low in cost but historically have been

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<sup>17</sup> Jan Fehse and Till Neeff, “REDDiness for the private sector”, unpublished report for the UK Office of Climate Change and Chatham House. Oxford: EcoSecurities, 21 May 2008

<sup>18</sup> Pre-Bali, the World Bank suggested a broad range of possible costs for different interventions, ranging from \$100/ha for enforcing law in protected areas to a conservative estimate of \$2,000/ha for offsetting the opportunity cost of conversion to soy plantations. In addition, different forest types vary in potential for carbon storage and thus income on a per-hectare basis. For example the carbon storage capacity of typical tropical forests ranges from 120 to 400 tonnes/ha, with extremes of up to 3,000-6,000 tonnes/ha for certain peat forests. Using these figures, and a March 2008 survey undertaken by Point Carbon, in which over 70 percent of carbon analysts expected a global reference carbon price by 2020, which they predict will be in the region of \$35/tonne, and assuming that any REDD mechanism will credit avoided deforestation in fungible tonnes, this results in potential total revenues ranging from \$4,200 to \$210,000/ha.

almost impossible to achieve despite decades of support from development agencies, due to opposition from individuals and organisations who do not see changes to be in their own interests.

3. *Implementation of REDD will be funded by carbon revenues.* Although readiness may require public investment, we assumed that all implementation costs, which are likely to be orders of magnitude higher than our estimation of readiness costs, will be paid for by carbon revenues. Given that payments are likely to be ex-post (i.e. deforestation will first need to be reduced and then verified before any credits can be awarded), implementation funds will need to come from either individual governments that wish to pursue a national REDD strategy or (more likely given the magnitude of funds required) investors or project developers from the private sector. In either case, this model will favour countries that are already relatively developed and well-governed, as those that are not will have less government revenue for up-front investment and a national risk profile that is likely to deter private sector investors in the absence of sizeable potential profits. This market “efficiency” may appeal to those wishing to establish a REDD market at relatively low cost but it implies that it will not be economically viable to invest in REDD in many poor countries until carbon prices are sufficiently high.

## 2 The likely shape of the REDD mechanism

It is still not clear what the final mechanism adopted for REDD will look like or how it will be paid for. Therefore, for the purpose of this study, we consider a spectrum of possible policy options – pure national, pure project and a hybrid option:

1. *National-baseline approach*: payments will be made to national governments for reductions in deforestation based on national performance against an internationally agreed national baseline.
2. *Project-based approach*: payments will be made to individual projects based on individual project performance against a project baseline.
3. *Hybrid approach*: there are various possibilities but two options appear to be:
  - a. a project-based system operating within a national framework where payments are made to projects nested within a national baseline with a requirement/guarantee that the country must reduce deforestation nationally versus a baseline by at least the amount credited to the projects, or
  - b. a project approach is adopted until a certain volume of credits is reached, at which stage a national approach is adopted.

The risks, issues and costs associated with achieving readiness for each of these approaches are very different. Given the level of uncertainty about the hybrid options we have not sought to estimate costs for it, but assume it will be somewhere on the spectrum between the two options.

The experiences of the CDM suggest that the private sector has the potential to make a large contribution to the functioning of a carbon-credit mechanism. Successful involvement of the private sector, both for investment and for market facilitation (e.g. know-how and mitigation of credit delivery risk) has the potential to implement REDD activities at a larger scale and more cost-efficiently than a strictly publicly-funded mechanism. Like the CDM and Joint Implementation (JI), REDD is likely to be an ex-post crediting system. The financial rewards for the carbon savings cannot therefore be directly used to fund the activities that reduce deforestation. Rather, funds for these must be raised beforehand. Based on analysis by EcoSecurities, we assume that this funding will be raised through private investment rather than through development assistance, for instance.<sup>19</sup> In addition, however, investment will be required to build the necessary capacity in countries to allow their participation in REDD, i.e. to ensure their readiness.

In a national-level crediting system an entire country would be awarded credits for its performance against a national deforestation baseline. In this case, it seems most likely that any trading of credits would tend to be government to government, perhaps with a few large trading entities involved, but with relatively little participation of the private sector other than as final purchasers of credits.

In the case of a project-based market mechanism individual projects would be credited for the avoidance of deforestation against a project-specific baseline scenario, in the same way as this is done now in the Kyoto Protocol's project-based markets (CDM and JI) and in the voluntary sector where this type of project already exists in a number of countries. In such a mechanism there would be open trading of carbon credits, in which the private sector can play an intermediary role, linking project

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<sup>19</sup> Jan Fehse and Till Neeff, "REDDiness for the private sector", unpublished report for the UK Office of Climate Change and Chatham House. Oxford: EcoSecurities, 21 May 2008

developers and credit end-buyers, facilitating market access, providing know-how and mitigating delivery risk through selling credits from project portfolios.

Both approaches have their advantages. A project-based approach provides a good platform for investment, since individual projects offer clearly defined and delineated activities whose risk an investor can assess in a standard due diligence framework, and that can be clearly captured in a contract. Moreover, an individual investor can often have a relatively high degree of control over the project activity and thereby reduce risk. In addition, an individual investor can also more readily insist on the inclusion of co-benefits, such as biodiversity conservation, if there is sufficient market demand for such additional measures.

However, a major problem with a project-based approach is the risk of leakage: the possibility that a project to avoid deforestation in one area will merely shift it elsewhere. The main appeal of a national-baseline approach is that it substantially reduces the risk of leakage, although leakage across borders remains an issue. However, a national approach also raises much more significant governance challenges to countries wishing to pursue it, set out in detail below.

A hybrid approach could allow the development of projects within a national-level crediting system. This could take the form of a national project registry system where the government issues credits to projects. This would still be a risky investment for private actors, however. An alternative to this might be to allow countries to operate on a project basis until a certain threshold is reached at which point a national baseline and accounting will be required.

### 3 Reducing deforestation and forest degradation

This section identifies the drivers of deforestation and the measures that governments can take to address those drivers.

#### 3.1 Drivers of deforestation

The drivers of deforestation are complex, interlinked and varied across countries. The main cause of deforestation that a REDD mechanism would seek to address is the market failure that currently causes forests to be valued below their worth in terms of acting as a sink or store of carbon; by putting a value on this function (as well as, possibly, additional attributes such as biodiversity and other ecosystem services), REDD could overcome the opportunity cost of leaving a forest standing instead of harvesting its wood or using the land for another purpose. As Saunders et al. point out, however, economic drivers are only one of a number of factors that cause deforestation, to be considered alongside institutional and political factors and the capacity of a country to control illegality, for instance.<sup>20</sup> Geist & Lambin divided the drivers into four broad categories: infrastructure development, agricultural conversion, forest-production extraction and accidents.<sup>21</sup> These categories include a range of activities, both legal and illegal, as outlined in Table 1.

**Table 1: Drivers of deforestation**

Infrastructure development	Road construction & improvement
	Urban / semi-urban settlement (legal & illegal)
	Extractive industries (mining, gas pipelines etc) (legal & illegal)
Agricultural conversion	Plantation agribusiness (legal & illegal)
	Subsistence agriculture (legal & illegal)
	Market-oriented agriculture including cattle ranching (legal & illegal)
Forest product extraction	Commercial logging (legal & illegal)
	Domestic fuel wood (legal & illegal)
Accident	Fire

In very simple terms, for REDD to succeed, it will be necessary to identify which of these drivers are relevant in a particular country and to address them. Depending on the extent of reduction that is the target, it may be necessary to address only some of the drivers. In this case it will also be important to identify which are the easiest and most cost-effective to address.

#### 3.2 Policies and measures to avoid deforestation

In order to address these drivers it is necessary to consider the underlying factors which cause them. As discussed above, deforestation and degradation are caused by a complex mixture of market, policy and governance failures and while REDD payments can directly influence market failures, the link to policy and governance is more complex. However, as noted earlier, achieving any revenue from a REDD mechanism is dependent on countries being able to control and manage their forest resources, to demonstrate any reductions in deforestation rates and guarantee their permanence, and to manage the resulting funds.

<sup>20</sup> Jade Saunders, Johannes Ebeling and Ruth Nussbaum, “Reduced Emissions from Deforestation and Forest Degradation (REDD): Lessons from a forest governance perspective”. Oxford: ProForest, March 2008

<sup>21</sup> Helmut J. Geist & Eric F. Lambin, “What drives tropical deforestation? A meta-analysis of proximate and underlying causes of deforestation based on subnational case study evidence”. Louvain-La-Neuve: University of Louvain, 2001

By considering the drivers of deforestation outlined in Table 1, a range of governance factors can be identified that will need to be addressed in order to manage each of the drivers. The key factors (which are further elaborated in Section 4.4) are:

- effective institutions, with clearly defined roles and responsibilities;
- clear and appropriate legislation;
- clear reliable land tenure;
- ability to enforce legislation;
- monitoring capabilities.

However, it is difficult to make any direct link between investment in this type of governance and capacity building and reductions in emissions. This makes it difficult to fund these activities out of REDD money. Furthermore, private sector money is much less likely to be invested in countries with poor governance and policy environments. Therefore, it may be necessary to consider addressing these underlying factors as part of the preparation for REDD.

## 4 Governance requirements for REDD

This section describes the elements of institutional capacity that we identified as potential prerequisites for a country's participation in a REDD mechanism. Depending on the scope of the REDD mechanism, the minimum capacity to allow a country to participate in REDD is likely to include relatively minor criteria like the ability to maintain a national registry to, more fundamentally, the ability of a country to control deforestation within its territory.

Governance measures associated with readiness for REDD can be divided into three categories:

- **REDD infrastructure:** this includes activities such as calculation of a baseline, monitoring, issuing credits and (for the project-based or hybrid approaches) approving and registering projects.
- **REDD strategy development:** for a national-baseline approach this would involve a national plan for reducing emissions from the forest sector that identifies the drivers of deforestation and which of these drivers can most effectively be addressed and considers what actions are necessary in order to do this (including nested projects if this approach is adopted). For a project-based approach a more simple strategy for each project would be needed.
- **REDD strategy implementation:** This should be considered in two parts: first, dealing with the governance and policy issues that allow or encourage deforestation, and second, addressing the market drivers of deforestation. Only the first part would need to be funded as part of the readiness activities; the second part should be funded directly through REDD payments.

The range of institutional governance requirements for an effective REDD strategy will ultimately depend on how the countries that are party to the UNFCCC design the mechanism, including requirements for measuring, verifying and paying for avoided deforestation. In reality this design is likely to incorporate a range of options for combining national and project approaches; in the interests of simplicity, however, we have outlined a set of broad governance requirements for a national-baseline approach and a sub-set that are likely to be necessary for establishing realistic investment risk levels for a workable project or hybrid approach.

This section identifies the need for building institutional governance capacity to facilitate national access to any mechanism and private-sector involvement in REDD activities. The final shape of the REDD mechanism will greatly determine the extent to which these measures will be necessary. If a purely project-based approach is favoured, only some of the measures will be essential. If, however, a national-baseline or hybrid approach is chosen then a broader suite of governance improvements will be required.

### 4.1 Governance requirements for a national-baseline approach

A pure national-baseline approach, in which deforestation and degradation are measured against a national baseline and the national government is solely responsible for reducing them in return for payment, would require a high level of governance including the establishment of a range of institutional functions. This could include:

- A national REDD strategy: Governments would need to develop a national strategy which established an action plan for addressing the many interrelated social, political and economic drivers of deforestation at the national level. To have the best chance of being implemented, planning would ideally be undertaken in consultation with a wide range of stakeholders

within the country. The strategy could go as far as piloting some of the activities that had been identified as necessary for reversing deforestation trends, for example alternative livelihoods programmes.

- The setting up of national REDD accounting and credit-handling infrastructure: Although details are not yet defined, discussions around methodological aspects of REDD indicate that a potentially complex infrastructure may be required to make the mechanism operational. They are likely to be based on the requirements for Annex I countries to enter the trading mechanism, set out in Article 17 of the Kyoto Proposal.
- Baseline, monitoring and inventory capacity: National governments would need to establish the necessary infrastructure and capacity to develop and agree on a national baseline as well as the capacity to measure and verify achievements against this baseline.

Once this basic infrastructure is in place, countries will need to have sufficient capacity to guarantee implementation of REDD. In other words, countries must be able to effect outcomes so that they are able to reduce deforestation or degradation. This is likely to require addressing governance and policy issues in order to create an environment where payments can be made to address drivers. Such issues may include:

- Land tenure reform: It will be crucial in many countries to clarify rights to land and carbon assets. Land tenure is unclear in many rainforest countries, with competing claims between different tiers of governments and between government, the private sector and local communities and indigenous people. The way in which such disputes are resolved will have a significant impact on the extent to which REDD benefits the poor.
- Land-use planning: A land use or rezoning programme may be required, for example to establish new areas of permanent forest reserve within areas currently identified for extraction and conversion uses. This could be undertaken in the context of the national REDD strategy.
- Perverse incentives: It will be necessary to identify and remove financial incentives for forest conversion or colonisation, where they exist, and similarly to reform tax/subsidy regimes to incentivise forest protection. This may include the revision of laws and regulations that were developed historically for specific purposes but are now less relevant. For example, in Ecuador the colonisation of the Amazon region was encouraged and subsidised from the 1950s onwards, and a law was put in place that required colonists to keep the land free of forest cover in order to maintain their ownership rights and receive government incentives. This law still exists and would clearly be in conflict with efforts to reduce deforestation. An analysis of such cases would need to be carried out to see where such conflicts may lie, and where there are opportunities for reducing deforestation.
- Forest law enforcement and reform: Effective implementation of forest law requires both that it be considered legitimate by those that must abide by it, which may entail reform, and a level of enforcement capacity that reflects the size of the resource and the existing baseline level of illegality.
- Broader institutional reform: Governments will need to ensure that different agencies have clear responsibilities and are working in concert to achieve reduced deforestation. This will be particularly relevant to agencies set up to distribute payments to those who must forgo income from activities previously linked to deforestation or degradation.

Even still, although addressing the issues identified above should improve the potential for REDD in many countries, in some others it may not be sufficient because of deeper underlying problems at the national level. These may include corruption, political instability and lack of a track record in managing resources.<sup>22</sup> However, these issues have not been included in a calculation of costs for readiness since addressing them relates more to the question of political will which is discussed elsewhere in the paper. Nevertheless, they are likely to have a major impact on success of any measures.

#### **4.2 Governance requirements for a project-based approach<sup>23</sup>**

In the case of a project-based approach, experience from both the Kyoto Protocol's project mechanisms (CDM and JI) and the voluntary market shows that the prerequisites for the development of a project are relatively few. The most important are:

- **National approval procedures:** An internationally credited REDD project mechanism would likely contain some system of national project approval system by which the host country would allow specific activities to earn carbon credits and to reflect in the national baseline and monitoring system. Under the CDM, the national approval procedures have a current backlog of up to six months and have resulted in transaction costs which rule out many projects with more marginal profit forecasts.
- **Capacity to assess projects:** Apart from setting up the criteria and procedures for an approval process it will be necessary to build capacity in the government in order for agents to understand and verify the design and impact of projects. This concerns technical capacity in the form of, among others, knowledge of REDD accounting methodologies, project eligibility criteria, and, importantly, an ability to assess the leakage risk of a project. The last is relevant for the negotiation or determination of a credit payment by a project to the government to compensate for leakage caused by a project. Differentiated compensations based on project leakage risk or risk classes will be more effective than a single flat percentage for every project, since this would have to be set relatively high to cover for the worst cases. In doing so, it could render many projects unfeasible. Capacity should be built both in technical expertise and in manpower: the CDM shows that the host-country approval process is often a bottleneck because not enough personnel are available to take projects through the approval procedures.
- **National project registry:** There may also be a need for a national registry of project activities that would enable the discounting of project credits from the national REDD achievements. On the other hand, this discounting may also be done at the international level.

Experience from the CDM also suggests that projects will tend to be developed in countries which have the best risk profile (currently 70 percent of CDM projects are in China), which may effectively exclude other countries from benefiting unless some readiness activities are implemented. The types of additional measures which are likely to be important are:

- **Clarification of resource ownership:** In many countries, land tenure is unclear and land-owners, or project developers, cannot be sure that their ownership or control over a project area will not be contested once it becomes potentially valuable. Uncertainty over whether the party selected for a carbon purchase and/or investment contract is in fact the inalienable

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<sup>22</sup> The governance capacity of individual countries is surveyed in an unpublished report, "A survey of capacity and conditions in 25 rainforest nations", prepared by this consortium for the Eliasch Review in April 2008.

<sup>23</sup> This section is based largely on Fehse & Neeff, op. cit.

owner of the land/asset renders investment in land-based activities expensive and high risk. It may not be necessary to entirely reform tenurial arrangements given the likely political resistance this would entail, but under a project-based approach it would be necessary for them to be clear and reliable in a given project area.

- Clarification of environmental service ownership/responsibilities: Even where land tenure is certain, in some cases there are no clear legal rules for ownership of non-traditional assets, such as environmental services. Emission reductions from reduced deforestation are environmental services and in some countries there may be a need for clarifications as to their legal nature and, ultimately, their ownership.
- Establishment of effective judiciary: related to clear land tenure, developers/investors will also need an assurance that the legal infrastructure in a country is able to uphold the rights set out in project contracts. The institutions do not necessarily need to be independent but a reasonable degree of transparency is probably needed. The capacity to provide this contractual certainty has been noted as one of the reasons for the overwhelming dominance of China in the CDM, compared with less functional states elsewhere in Asia and Africa.
- Removal of perverse incentives: as with a national approach, there may be legislation that would undermine or conflict with project activities aimed at encouraging people not to clear forest.

Even if efforts are made to put these things in place, countries with very high risk ratings may remain unattractive to investors. Apart from risk factors that are specific to the REDD mechanism, there are also barriers to investment that apply generically to the land-use sector and to sustainable resource management in many developing countries.

### **4.3 Governance requirements for a hybrid approach**

As noted above there is a wide spectrum of institutional possibilities for a hybrid approach that combines national-level crediting and a project-based approach. One example would be a system that permits international financing and trading of projects. Governments could still gain credits for their performance against a national baseline, which would be monitored on a national level, but any international credits awarded to projects would need to be discounted from the national credit potential to avoid double counting. The national monitoring system would register any leakage from projects within the country (although it would not be able to attribute leakage to a particular project). Governments could be incentivised to allow projects to take place in their territory by providing a share of revenues from trading to the government.<sup>24</sup> To facilitate such a hybrid mechanism governments would need to invest in capacity and other governance improvements. The specific governance requirements would depend on the approach adopted. They would include at least the measures outlined above as being necessary for the development of projects, including the establishment of a REDD accounting and credit-handling infrastructure and the ability to assess projects. The total governance requirements are likely to be less than those required for a purely national-baseline approach, however, since some of the burden of implementation will fall on the private-sector.

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<sup>24</sup> Fehse & Neeff, op. cit.

#### 4.4 Governance interventions

Table 2 presents a summary of governance interventions that will be necessary for both national-baseline and project-based approaches to REDD. The governance requirements for a project-based approach should be seen as a subset of the requirements under the national-baseline approach. Based on our analysis of the generic drivers of deforestation, our assumptions of how REDD will work and our understanding of the institutional requirements for facilitating private sector investment, we have identified a range of interventions that will be necessary for rainforest nations to participate in REDD.

It should be noted that there is a continuum between those interventions that can be regarded purely as part of “readiness” requirements and those that are part of implementing a REDD strategy. Similarly, there is a range covering those interventions that can be considered essential and those that may simply be desirable. This distinction depends in part on the level of risk that investors are willing to take, but also on political decisions about the level of risk that will be acceptable related to the wider impacts of REDD – in particular, its potential impact on poor and marginalised groups. The better the level of governance within a country – for example, if there is an effective judiciary, if the rights of indigenous peoples are recognised and if there is a high level of transparency within government – the greater the chance that a REDD mechanism will not be to the detriment of the poor and will not be subverted by those with power.

**Table 2: Summary of governance interventions**

<b>Intervention</b>	<b>National baseline approach (including hybrid approach)</b>	<b>Project-based approach only</b>
National REDD strategy	Develop a strategy Establish REDD infrastructure (for accounting & credit handling; implementation of strategy, etc.) Stakeholder consultation Pilot testing	Establish REDD infrastructure (project registry; assessment capacity)
Monitoring & establishing baseline	Establishing baseline level for emissions Monitoring deforestation and degradation	
Land use	Land reform Land-use planning & zoning Establish capacity to provide support services for SFM, RIL, forest certification, community forestry, PES, agricultural intensification, etc.	Clarification of tenure over land & resources
Legislation	Legal reform (e.g. to encourage sustainable forest management, allow for community forestry, PES, etc.) Removal of financial incentives for colonisation/ settlement schemes Tax reform (e.g. removal of subsidies/ tax incentives)	Clarification of relevant laws & policies
Institutional reform (within forestry, agricultural and other sectors)	Clarification of roles & responsibilities (including perhaps decentralisation) Capacity building Improved transparency	
Enforcement	Enforcement of planning & environmental requirements, & forest laws NGO capacity building Establishment of effective & independent judicial system	
Finance sector	Banking/ finance sector reform	

## **5 Costs of creating capacity for participation in REDD**

In this section we estimate costs for the governance interventions that will be necessary to address the drivers of deforestation and degradation and participate in a REDD mechanism. Depending on the details of the final agreement, the cost of setting up REDD infrastructure requirements may be substantial. It is questionable whether private investment will flow into REDD activities before the infrastructure is fully defined, or at least well underway. For example, private sector investment has been absent during the preparation of the JI mechanism due to the high delivery risks and uncertain profit potential. Following these experiences with JI, the private sector may perceive investing in REDD as equally risky before there are clear indications how and when the infrastructure will be operational and what are its rules.

### **5.1 Previous estimations of costs**

Tackling deforestation will require substantial investment in rainforest nations, both in the form of credits for avoided deforestation activities and in more general funding to help countries participate in such a mechanism. Calculating a total potential cost depends on many variables and assumptions, some of which are set out below. Previous attempts to estimate the volume of funding required to reduce deforestation have attempted to take into account many factors, including the causes of deforestation; the opportunity costs of forest conservation and the funding required to provide positive incentives for individual or institutional landowners to change land practices.

Agenda 21 of the UN Conference on Environment and Development in 1992 gave some indicative costs for combating deforestation, including the costs of capacity building. The average total annual cost for this at the time was estimated as \$31.25 billion, of which \$3.25 billion was for capacity building activities – enhancing institutional capabilities, strengthening extension and training facilities and improving assessment and planning activities.<sup>25</sup>

The Stern Review on the Economics of Climate Change (2006) calculated that the opportunity cost of forest protection in eight countries, accounting for 70 percent of emissions from deforestation, would be about \$5 billion per annum at present, with this amount increasing over time. This figure did not include the costs of establishing an institutional framework to reduce deforestation: annual administration costs for implementing payment schemes to compensate for 6.2 million hectares of avoided deforestation were separately calculated as being between \$25million and \$93 million for the first year (equivalent to \$4-15 per hectare). These costs rise over time, so that by year 10 they would be between \$250 million and \$1 billion.<sup>26</sup>

More recent estimates, also based on calculations of opportunity costs, place the annual bill necessary for completely mitigating greenhouse gas emissions from forests through REDD at \$12.2 billion per

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<sup>25</sup> See Agenda 21, Chapter 11: Combating Deforestation, online at:

<http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21chapter11.htm>

<sup>26</sup> Maryanne Grieg-Gran, “The cost of avoiding deforestation. Report prepared for the Stern Review of the Economics of Climate Change”. London: International Institute for Environment and Development, October 2006

year.<sup>27</sup> Another study found that the total volume of funds required to reduce deforestation by 50 percent globally is around \$33 billion annually.<sup>28</sup>

## 5.2 Categorisation of costs

As outlined above, there are three categories of governance interventions that will be necessary for countries to participate in REDD:

1. Mechanism costs (calculation of a baseline, monitoring, issuing credits etc.);
2. Developing a national strategy for REDD;
3. Implementing the strategy.

The costs of a project-based approach to REDD will be a subset of the costs required for a national-baseline approach. Depending on the parameters, the costs associated with readiness for a project-based approach to REDD could range from almost zero, provided investors are willing to invest, to substantial costs because the national framework in which everything is embedded is so complex. It is also difficult to define the boundary between the costs of readiness and those of reduction/implementation.

### 5.2.1 *Costs associated with the mechanism*

Costs associated with the mechanism include:

- Development of a baseline
- Development of monitoring and measuring capacity

The costs of setting up a national monitoring system has been estimated at \$500,000 to \$2 million, based on experiences from Brazil and India. The IPCC also estimated the cost of establishing vegetation carbon inventories at the national scale of between \$0.05 and \$0.6 per hectare (in 2000 prices). A further example comes from Cameroon, where a recent national forest survey carried out by Cameroon, in association with the FAO, cost €622,69.<sup>29</sup> Finally, the World Bank Forest Carbon Partnership Facility is planning to invest \$100 million to support measures in eligible countries to specify a baseline and set up a monitoring system and also to design national REDD strategies.

### 5.2.2 *Costs associated with developing a strategy for REDD*

Developing a national emission-reduction strategy involves three stages:

- Identifying the drivers of deforestation and degradation: In almost all countries that could be eligible for REDD there is a range of drivers with differing relative importance. Some of these are linked while others are independent, and in most cases they are changing;
- Identifying mechanisms for addressing each of the drivers: There may be different ways of addressing one driver, or a suite of measures may be required.
- Prioritising the drivers to be addressed and identifying the best mechanisms for addressing

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<sup>27</sup> Blaser and Robledo (2007), quoted in Peskett, L. Huberman, D., Bowen-Jones, E. and Edwards, G. (2008), "Making REDD work for the poor", paper prepared by ODI/IUCN on behalf of the Poverty and Environment Partnership, 2nd draft, 5 June 2008

<sup>28</sup> Obersteiner et al. (2006), quoted in Hare, B., Macey, K., "Tropical Deforestation Emission Reduction Mechanism: A Discussion Paper". Amsterdam: Greenpeace International, 2008

<sup>29</sup> These estimates, from Herold & Johns (2007) and the IPCC (2000), are quoted in a study by LTSi that was prepared separate for the Eliasch Review

them: For REDD to have any realistic chance of success, there will need to be agreement about what the priorities are and how they will be addressed (including identification of preferred/approved project types for the project model).

The development of a national strategy will require considerable technical input to ensure that there is a complete understanding of current and future drivers and mechanisms to address them. It will also require input and support from government. Since many of the measures considered will cut across different parts of government, the development of the national strategy must include the range of government institutions affected (forests, agriculture, development, infrastructure, mining, etc.).

What is less clear-cut is the extent to which all those involved in or affected by deforestation will also need to participate in the development of a national strategy. In many countries this is potentially a very large number of groups including forest-dependent communities, indigenous people, local and district government, illegal loggers, forest companies, smallholders, large-scale agriculture and plantation interests, mining interests and conservation groups. The costs of a process involving this wide range of interests are likely to be high, but it may be very difficult to make progress without a process that includes some or all of these groups. In particular, a strategy developed without wide consultation is likely to have only limited support, potentially undermining its implementation. Furthermore, such consultation is essential if the strategy is to be devised that will be equitable and legitimate. The greater the extent to which marginalised groups (including the rural poor and indigenous communities) are involved in the development of the strategy, the greater the likelihood that the resulting activities will be to their benefit. In most countries, to enable meaningful consultation with such groups, significant investment will need to be made into building capacity because of the low level of understanding and awareness of the issues.

The EU negotiation of Voluntary Partnership Agreements (VPAs), which aim to establish a legal trade in timber with a number of tropical forest countries, under the Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan has recognised the need to support national stakeholder consultation processes in order to achieve legitimacy. Each agreement commits the parties to trade only in verified forest products. National verification systems are to be based on a definition of legality that has been developed in individual tripartite processes that include government agencies, industry and civil society groups. To date, national processes have been established in Indonesia, Malaysia, Cameroon and Ghana. Each process has been structured according to the needs and circumstances of individual countries, but it has followed and in some cases exceeded the conceptual framework for engagement established by the European Commission. This mechanism was designed in bilateral negotiations, so establishing it as a prerequisite may not be a realistic aspiration for a multilateral environment, but the FLEGT VPA process at least demonstrates that such a framework is possible where national governments wish to pursue it.<sup>30</sup>

### 5.2.3 *Costs associated with implementing the strategy to avoid deforestation*

The strategies adopted by different countries are likely to be very different depending on the types of drivers, current land use and ownership patterns and political preferences. However, in all cases there are likely to be two parts to the strategy:

- Policy and institutional reform: addressing issues such as lack of governance, tenure, land-use planning, tax and other policy drivers.

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<sup>30</sup> See <http://ec.europa.eu/environment/forests/flegt.htm>

- Specific activities: reducing deforestation through a range of measures such as tackling illegal logging, sustainable forest management, alternative livelihoods, protected areas, etc.

In addition, pilot projects to test approaches are likely to form an important part of early implementation.

A key question arises about whether the first of these costs, policy and institutional reform, should be treated as an element of readiness or an element of implementation. As discussed above it will be very difficult to link any policy or institutional reform activity to a specific amount of reduced emissions. Several decades of experience from development funding for the forest sector (at the rate of perhaps \$1 billion to \$1.5 billion per annum) indicate that it will not be easy to make any direct correlation between money paid for institutional and policy reform activities and changes in forest cover. Therefore, it will not be possible to pay for these activities on a \$/tonne basis. In the case of ex-post national payments this would not be a problem since payment would be made for the aggregated reduction in deforestation and degradation from all activities. However, under either an ex-ante or a project-based approach it may be more appropriate or realistic for the investment to come from readiness funding than project finance.

A suite of actions can be taken to address the drivers of deforestation and are likely to be included under a national REDD strategy. These measures could include:

- paying communities directly for reduced deforestation, based on existing models of Payments for Ecosystem Services,
- strengthening forest fire prevention programs,
- improving land tenure security for forest-dwelling peoples,
- increasing efforts to reduce illegal logging,
- raising taxes on large-scale land clearance,
- promoting industry and other off-farm employment,
- agricultural intensification in existing favourable areas to relieve pressure on remaining forest lands,
- strategic planning of transport infrastructure to avoid unplanned logging or agricultural expansion,
- supporting community forestry.

We have assumed that these actions will be funded out of the REDD mechanism itself, i.e. paid for by the sale of carbon, rather than through readiness funding, so they do not form part of our cost estimation (since the scope of this study is limited to those measures that are not likely to be included in REDD payments but are nevertheless essential for the mechanism to go ahead). In some of the rainforest nations considered it will be very difficult to do address deforestation and degradation through any of the more specific activities outlined above until some of the policy and institutional reform activities have been undertaken, although this will depend on the model (national or project-based payments) and the timing of payments (ex-ante or ex-post). It should also be highlighted that REDD would most likely not begin for many years in most countries if it had to wait for policy and institutional reform to be completed.

Many of the governance reforms needed in the forest sector have been identified before and have been the focus of ongoing work for several decades. The potential change that REDD brings relates to:

- Possible increased availability of money: REDD may make more money available than there was previously, making forest protection more financially attractive.
- Possible changes in the distribution of benefits: Efforts to reduce forest loss in the past have often been hampered by interests that benefit from the status quo. Income from REDD may help to create a situation where these groups benefit from change, although this raises concerns about equity.
- Possible changes in the level of political will: The potential for increased revenues and more beneficiaries, together with an increase in the political focus on forest loss both nationally and internationally, may create a more conducive political climate in which to undertake forest sector reform.

Nevertheless, if REDD is unable to start until these issues are addressed then there is a danger of creating a “Catch 22” situation, where change does not begin because REDD leverage cannot be applied, which in turn cannot be applied because the necessary institutional reform has not happened. It should also be noted that this potential reform – increasing revenues, and shifting the potential distribution of benefits – also bring risks. If the value of forests are increased, there is considerable potential for worsening corruption and governance, with a higher risk of marginalised groups (such as forest-dependent communities) losing out as competition over forest resources increases.

This raises the question of how much reform is needed before activities can begin. For example, some interventions may be deemed essential (e.g. clear land tenure) whereas others would simply be desirable and could be achieved in the longer term (e.g. having effective forest institutions, which may not be essential for a project-based approach, or having legislation that allows for community forestry). Furthermore, in some countries only limited reform may be necessary to implement a “basic” REDD mechanism, one that reduces deforestation levels but is not designed to address biodiversity conservation or reducing poverty. To ensure these wider impacts are considered, a much higher level of governance performance and capabilities would be necessary, implying far more extensive processes of reform in many rainforest countries. The extent to which these are incorporated in the design of a REDD mechanism will depend on political decisions about the role that REDD should play in poverty reduction and, in part, relates to the question of national sovereignty – whether, and to what extent, it will be possible to insist that the wider sustainability impacts of REDD be taken into account in its design.

It may be necessary to move away from considerations of costs of *readiness* versus costs of REDD and towards consideration of the overall amounts of money needed to reduce emissions from deforestation, and then to identify the most appropriate income source and timing of payment for each activity and country. In particular, it may be useful to consider many of these activities as part of reducing emissions, but which could be paid for initially through development funding or soft loans (e.g. providing money which must be repaid through sale of credits if emissions are achieved, but without penalty if they are not).

In addition, it may be necessary to look at ways of moving forward and starting income flowing rather than waiting for readiness for a national approach. For example, a project-based approach could provide a means of building capacity within a country and of testing different approaches, ultimately leading to the development of a national-level approach.

### 5.3 Methodology for estimating costs of governance

To provide a global cost estimate for the capacity building needs of rainforest nations, we considered the types of intervention required (as described in section 4.4) and then estimated the costs of each of these interventions by comparing them to the cost of similar activities that have already been implemented. An evidence base was formed from a wide sample of project case studies relating to as many of the interventions as possible. Project data came from a number of donors, including the UK Department for International Development (DFID), the World Bank, the International Tropical Timber Organisation (ITTO) and the Australian Government Overseas Aid Programme (AusAID), as well as from experts who have been involved with implementing and managing relevant projects. These project case studies are summarised in Annex 1.

Based on this data, we estimated a range of costs for each intervention. We then calculated a range of total costs for a generic country by estimating the cost of introducing all of the governance interventions. This assumes that each of the interventions will be necessary, to a greater or lesser extent, due to existing gaps in governance capacity. As noted earlier, if a project-based approach is adopted, minimal interventions may be required, and in some countries, none at all, whereas a hybrid or national-baseline approach would require a greater level of intervention. Table 3 provides a range of costs for each intervention (costs are in US dollars unless specified otherwise).

This approach was adopted as a way produce some ballpark figures within a very short timeframe. Although the figures produced have been reviewed by a number of experts, they remain very tentative and would benefit from wider consultation and further review. Figures have been converted into US dollars.

**Table 3: Range of cost estimations**

Type of intervention	Indicative costs for 1 country (over 5 years)	Comments
<b>Development of a national REDD strategy</b>		
<i>Development of REDD strategy</i>	\$200,000 - \$1,000,000	Assumes 2-4 person years for a one-year project for a team of international consultants to lead the drafting of a national scoping study, raise knowledge within government through seminars, etc. This includes financial analysis of opportunity costs, policy analysis, & design of incentive mechanisms. E.g. the Liberia R-PIN estimated such costs at \$200,000 and the Bolivian R-PIN as \$690,000. <sup>31</sup>
<i>Establishment of REDD infrastructure</i>	\$700,000 – \$1,500,000	This will involve the establishment or strengthening of institutions to cover accounting and credit handling, inter-sectoral coordination, information systems, monitoring and evaluation.
<i>Stakeholder consultations</i>	\$150,000 – \$2,000,000	Two-year consultation followed by regular review. In many countries there is the need for significant training and awareness raising about the issues among stakeholders, particularly civil society. The higher estimate relates to larger countries. The stakeholder consultation in Indonesia for the establishment of legality for the VPAs under FLEGT cost about \$500,000 over four years. However, this built on considerable existing NGO competence and ongoing support projects. Building this capacity where it does not exist, particularly with time pressure, is likely to cost more.

<sup>31</sup> The R-PIN (Readiness Plan Idea Note) is a country's assessment of its forest governance capacity and needs prepared in application for funding under the World Bank Forest Carbon Partnership Facility. They are available to download at [http://carbonfinance.org/Router.cfm?&Page=FCPF&FID=34267&ItemID=34267&ft=DocLib&ht=37&dtype=41380&dl=0&so=c.Modified\\_DTS&sc=DESC](http://carbonfinance.org/Router.cfm?&Page=FCPF&FID=34267&ItemID=34267&ft=DocLib&ht=37&dtype=41380&dl=0&so=c.Modified_DTS&sc=DESC)

<i>Pilot testing</i>	\$250,000 - \$500,000	Start-up costs of \$50,000-\$100,000 per project (e.g. conservation concession estimate by Conservation International). This includes identification of existing successful projects and the cost of developing project but excludes the cost of implementing the project itself.
<b>Baseline &amp; inventory</b>		
<i>Establishment of baseline, monitoring system and inventory</i>	\$1,000,000 - \$6,610,000	<p>This estimate is provided by LTSi, which calculates the cost of estimating a baseline and setting up a monitoring system and inventory at UK£ 1,470,000 with annual operating costs of UK£ 367,000, giving a total of UK£3,305,000, or \$6,610,000 over 5 years). We have presented a lower figure of \$1,000,000 to reflect the fact that some countries already have many of the elements in place.</p> <p>The Bolivian RPIN estimates \$940,000 for the design of an emissions reduction monitoring system, real-time deforestation monitoring and twice-yearly degradation monitoring.</p> <p>The LTSi estimate calculates the cost of setting up an inventory as UK£ 567,000, with an additional UK£ 190,000 as annual operating costs. The cost of national level inventories is highly variable across countries, however, depending on access and the sampling fraction. In most cases, the budget determines the inventory type rather than vice versa. Use of remote sensing brings costs down and even for large forest areas UK£ 2,000,000 to UK£ 4,000,000 would deliver useful information (e.g. Brazil proposed a national mahogany inventory to ITTO some years ago at a cost in excess of UK£ 10,000,000. It was never funded). Where inventory needs only to be updated, the costs can be relatively low: Liberia estimates US\$ 150,000 for “technical strengthening, forestry inventory update and monitoring planning”.</p>
<b>Land-use</b>		
<i>Land tenure reform</i>	\$4,000,000 – \$20,000,000	Depends on size and complexity but this is likely to be time consuming and multi-million dollar scale – Rwanda was around UK£ 2m for the first phase only. The World Bank has provided \$20,000,000 for land reform in Ghana, and AusAID has provided Aus\$ 7,000,000 for strengthening land administration in the Solomon Islands.
<i>Land-use planning &amp; zoning</i>	\$1,750,000 - \$10,000,000	Developing maps and plans for forest cost an estimated \$300,000 for Liberia. According to LTSi, however, most projects aimed at this have budgets of under UK£ 5,000,000 but few have actually achieved success without repeated phases. Creating databases of geographical, social and climatic information for most countries is possible within this level of funding but without associated political changes, they are no more than databases. The cost of zonation depends on the level of detail required as well as the availability of data. A plantation forestry zonation of Uganda was done for less than £30,000 to guide the grant support scheme but this had to use historical data. The lower range is based on the cost of the ITTO project in Ecuador/Peru (\$701,701 for 24 months). A number of estimates for mapping/demarcation of land and land-use planning give costs of \$4,000-\$12,000/village, the higher price equivalent to \$2 / hectare.
<i>Development of capacity to provide support services for implementation activities, e.g. RIL, agricultural intensification</i>	\$1,750,000 - \$10,000,000	India Madhya Pradesh forestry development project spent \$8,400,000 over five years to support extension to improve management based on local community participation. AusAID project in PNG spent US\$ 1.400,000 over 4 years for establishment of advisory support agency.
<b>Legal reform</b>		
<i>Forest policy and legislation reform</i>	\$300,000 - \$1,000,000	This could include drafting of appropriate new laws, replacing existing laws, and removal of legal incentives for colonisation/settlement and

		other laws that are anti-REDD. FAO-funded legal reform in Liberia, including new forest policy logging code & regulations, cost \$300,000, but this required a complete rewriting of all forestry laws, so other countries may require less. Other projects have amounted to up to \$10 million but included institutional reform processes as well as policy and legislation design. Bolivia's R-PIN estimates a cost of \$500,000 to strengthen the legal framework.
Tax reform (e.g. removal of subsidies/ tax incentives)	\$300,000 - \$1,000,000	Assuming costs of tax-sector reform will be similar to forest-sector legal reform
Standards and guidelines	\$50,000 - \$1,000,000	The technical development of these, which is usually based around generic systems such as ITTO or FAO is not in itself a costly exercise: documents can be developed for £25K to £50K in most instances. The high cost of initiatives to do this (up to £0.5m and above for national level C&I through ITTO) is taken up by consulting with stakeholders.
<b>Enforcement</b>		
Enforcement of planning & environmental requirements, & forest laws	\$500,000 - \$2,000,000	Capacity-building projects include remote sensing monitoring (e.g. \$900,000 in Republic of Congo over 4 years), but this may overlap with forest monitoring activity; training of personnel and development and implementation of guidelines and campaigns (e.g. \$665,000 for 48-month project in Riau in Sumatera and West Kalimantan in Borneo, Indonesia). Project costs will depend on size of forest area. The lower range of the estimate assumes that some countries will already have much of the infrastructure and capacity in place.
Independent monitoring	\$ 1,000,000 - \$5,000,000	Independent monitoring of chain of custody in Liberia, Republic of Congo & Cameroon has been estimated at costing \$1 million per annum. Global Witness estimates costs per country at around \$40,000 per month; its ongoing project in Cameroon is valued at \$1,450,000 over three years. Costs will be sensitive to forest area.
NGO capacity building	\$100,000 - \$1,000,000	Based on average size of civil-society capacity-building projects under EU programme (European Initiative for Democracy and Human Rights)
Effective judicial system	\$500,000 - \$5,000,000	Court reform is a broad area but theoretically a country could focus on judicial capacity building specifically in forest sector, which could limit costs.
<b>Institutional reform</b>		
<i>Institutional reform, clarification of roles &amp; responsibilities, capacity building</i>	\$600,000 - \$14,000,000	The cost depends on how much training and education is included. Most training institution projects have incurred costs of between £50K and £100K for syllabus and teaching redesign to £2-3 million to set up and run new institutions. Tertiary level education costs in most countries under review are in the range of £2000 to £4000 per person per year for fees and living costs.  Bolivia's R-PIN estimates \$650,000 for local and regional capacity building over five years. India's Uttar Pradesh & Uttaranchal forestry projects spent \$8.6 million on institutional development, reform of policies, management of structures, human resources, IT systems etc.
<i>Treasury reform</i>	\$500,000 - \$5,000,000	There is a need for forestry institutions to have access to reliable regular funding so that they can provide the necessary service and support to external investment. As for the judiciary, it is a broad area of reform and difficult to cost outside general improvements to fiscal governance.
<b>Finance &amp; banking</b>		
<i>Establishment of ability to process and manage payments to project beneficiaries</i>	\$100,000 - \$5,000,000	No information from real examples was available but costs have been estimated on basis of provision of training and resources. The higher costs reflect the cost of introducing computer-based payments

## 5.4 Readiness costs

Every potential REDD country will have a different set of factors that need to be addressed as part of readiness and a more exact total will require analysis of the individual situation in each country to understand what the priorities will be. For this reason, only very generic costs per country can be calculated. Nevertheless, using the figures above, it is possible to calculate an indicative figure for the range of possible costs over five years. We have rounded the amounts up to two significant figures, emphasising that these amounts are a rough estimate designed to present an order of magnitude rather than an accurate calculation.

For a national-baseline approach to REDD the potential costs (in US\$) for a country over five years range from \$14 million to \$92 million (rounded up to two significant figures). If this is multiplied by 25 to reflect the 25 rainforest under review, this indicates a range from \$340 million to \$2.3 billion. Since some of the range of costs were dependent on the size of the country, we have also calculated costs assuming that all countries were a single size. This amounts to \$1.75 billion (see Table 4). The global figure can be calculated according to how many countries are thought likely to participate in the REDD mechanism. For instance, a scenario encompassing 40 countries could see a range of costs from \$550 million to \$3.7 billion.

For the project-based model, the minimum costs to allow projects to begin could be as low as \$1-2 million per country in order to establish an approval process. The upper end of the range would depend entirely on what other issues, if any, had to be addressed before REDD projects could begin.

For a hybrid approach, where national baselines and inventories would be required in addition to project approval and registration, costs of readiness begin at \$3 million–\$4 million per country; as with the project approach, the upper limit depends on the approach and the extent to which it is considered necessary to address other factors.

**Table 4: Estimates of costs of “readiness” for REDD**

Activity	Lower estimate	Upper estimate	Upper estimate excluding “size dependent”	Comment
Development of REDD strategy	\$200,000	\$1,000,000	\$1,000,000	
Establishment of REDD infrastructure	\$700,000	\$1,500,000	\$1,500,000	
Stakeholder consultations	\$150,000	\$2,000,000	\$150,000	<i>size-dependent</i>
Pilot testing	\$250,000	\$500,000	\$500,000	
Establishment of baseline, monitoring system and inventory	\$1,000,000	\$7,000,000	\$7,000,000	
Land tenure reform	\$4,000,000	\$20,000,000	\$4,000,000	<i>size-dependent</i>
Land-use planning & zoning	\$1,750,000	\$10,000,000	\$10,000,000	
Development of capacity to provide support services for implementation activities, e.g. RIL, agricultural intensification	\$1,750,000	\$10,000,000	\$10,000,000	
Forest policy and legislation reform	\$300,000	\$1,000,000	\$1,000,000	
Tax reform (e.g. removal of subsidies/ tax incentives)	\$300,000	\$1,000,000	\$1,000,000	
Standards and guidelines	\$50,000	\$1,000,000	\$1,000,000	

Enforcement of planning & environmental requirements, & forest laws	\$500,000	\$2,000,000	\$2,000,000	
Independent monitoring	\$1,000,000	\$5,000,000	\$1,000,000	<i>size-dependent</i>
NGO capacity building	\$100,000	\$1,000,000	\$1,000,000	
Effective judicial system	\$500,000	\$5,000,000	\$5,000,000	
Institutional reform, clarification of roles & responsibilities, capacity building	\$600,000	\$14,000,000	\$14,000,000	
Treasury reform	\$500,000	\$5,000,000	\$5,000,000	
Establishment of ability to process and manage payments to project beneficiaries	\$100,000	\$5,000,000	\$5,000,000	
<b>5-year costs for one country</b>	<b>\$13,750,000</b>	<b>\$92,000,000</b>	<b>\$70,150,000</b>	
<b>Total 5-year costs for 25 countries</b>	<b>\$343,750,000</b>	<b>\$2,300,000,000</b>	<b>\$1,753,750,000</b>	

There are two important caveats to be considered when using these figures, which in many cases come from past projects carried out mainly with donor funding. First, costs of previous interventions do not necessarily reflect the actual amounts needed to achieve certain ends – funds spent are more often a reflection of the availability of funds and donor priorities rather than actual requirements. For example, an independent forest monitoring programme was implemented in Cambodia at an annual cost of \$150,000, but these funds were felt to be insufficient by the implementing agency. In many cases the cost of a project are a reflection of aid and donor modality. For example, donors typically have a series of cost levels at which approval can be granted and most projects tend to cluster just under the limit for rapid approval. Second, the projects have not always been successful in achieving the desired outcomes. No analysis was made as to whether this was due to too little being spent, poor project design and management or lack of political will (discussed above).

## 6 Some conclusions

It is notable that even the high end of the cost spectrum calculated for readiness is a relatively low total global figure for five years' investment, given what may be achieved and the magnitude of donor commitments already made. This is encouraging in terms of moving forward with REDD.

However, the figure was developed in the context of a number of assumptions that may be difficult to establish in reality.

*First*, the figure assumes that REDD readiness projects will be successful in achieving their aims despite being based on historical cost data for projects that have often not been able to do this. Project failure can be due to a wide range of factors described above, including inefficient and uncoordinated delivery, and more emphasis on donor modalities than country needs. However the greatest challenge for most projects is the absence of political will among those that need to make critical leadership decisions or change their behaviour in order for a project to succeed. In many cases the lack of political will can be put down to economic incentives, either personal or inter/national, which encourage decisions and actions that undermine the project.

Therefore spending this amount of money will not provide any guarantee of achieving REDD readiness in the absence of effective project design, political will and an attempt to reverse the overwhelming current economic incentives for deforestation with an efficient mechanism and a stable and ambitious carbon price.

*Second* it assumes that while readiness may require public investment, all implementation costs, which in total are likely to be orders of magnitude higher than the figures quoted here, will be paid for by carbon revenues. Given that any payments are highly likely to be ex-post, implementation funds will need to come from either individual governments that wish to pursue a national REDD strategy or (more likely given the magnitude of funds required) investors or project developers from the private sector, planning to achieve a return on their investment from the sale of carbon credits disbursed once an area has been protected over an agreed crediting period. In either case, this model will favour countries that are already relatively developed and well-governed<sup>32</sup>, as those that are not will have less government revenue for up-front investment and a national risk profile that is likely to deter private sector investors in the absence of sizeable potential profits. This market "efficiency" may appeal to those wishing to establish a REDD market at relatively low cost but it implies that it will not be economically viable to invest in REDD in many poor countries until carbon prices are sufficiently high.

*Third*, it assumes that the political and policy framework for REDD, whether a national or project-based approach is adopted, will provide sufficient demand for carbon, adequate levels of certainty about the framework and a sufficiently practical mechanism for implementation, which together are necessary to ensure that substantial money flows to those responsible for reducing deforestation. It remains unclear from the current debate whether all of these conditions will be met.

Therefore the relatively limited spectrum of readiness costs may underplay considerably the real cost of establishing a REDD market that is accessible to more than a handful of tropical forest countries. Given the political pressure for REDD not only to reduce GHG emissions but also to achieve a range

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<sup>32</sup> As discussed above, in the CDM about 70 percent of investment has gone to China.

of other ambitions, this efficiency may not be in the best interests of establishing consensus on a REDD mechanism in the highly volatile political context of the UNFCCC.

### **6.1 Costs of readiness for achieving development and biodiversity “co-benefits” in REDD**

If governments wish to look beyond the climate mitigation imperatives discussed at the UNFCCC and attempt to use tropical forest carbon market payments to tackle poverty or biodiversity loss, the challenges and potentially the costs are likely to be higher.

In some cases it may be reasonable to assume that avoiding deforestation is intrinsically in the interests of the poor and forest-dependent. However, it is clear that this is not always the case and that increasing the value of forests through carbon payments may undermine tenure and use rights of poor and indigenous groups. Where traditional use is technically illegal, or illegal use has been driven by poverty and lack of alternatives, increasing the value of forests may lead to greater government “protection” of the resource, which in turn displaces traditional or essential activities and results in increased poverty.

Similarly, while it is probably reasonable to assume that protecting forests contributes positively to maintaining biodiversity, areas which offer the best potential for conserving carbon may not be priorities for biodiversity. Therefore, a focus on protection which conserves most carbon at the lowest cost will not always protect important biodiversity.

There are a number of ways in which this might be addressed depending on the mechanism adopted for REDD and the type of country being considered.

Development of the REDD strategy: as discussed above, whether REDD is implemented at a national or project level there is a need for a national strategy setting out how reductions in deforestation and degradation will be achieved. In most countries and even in many individual projects there will be a range of ways in which deforestation can be tackled, some of which have less impact or provide greater co-benefits than others. The greater the involvement of a wide range of stakeholders and particularly affected parties in the development of the strategy (and in some of the follow-on activities identified such as land-use planning, tenure clarification or legal reform), the greater the potential to come up with approaches which are appropriate for poor forest-dependent people, indigenous people and biodiversity. Evidence from other processes such as FLEGT suggests that where there is wide participation results can be more sensitive to poverty imperatives. Therefore, investing as part of “readiness” in either a national strategy process or a project planning process which is as inclusive as possible is likely to have long-term benefits in reducing any negative impacts on the poor and biodiversity and, where possible, increasing co-benefits.

Linking with other forms of funding: As discussed above, many of the activities identified as important for readiness and for reducing deforestation have already been identified as priorities for funding from other sources such as international development aid, national development programmes or conservation projects. Therefore, there may be some scope for leveraging co-benefits by linking REDD to other projects which help finance the co-benefits.

Investment in poorest countries: In the poorest countries investing only in “readiness” is not likely to achieve a workable REDD sector. Public money (donated, lent or used to underwrite larger private sector sums) will need to be made available to establish institutions and implement a range of

activities that, in theory, should be considered implementation and “project” costs, if there is to be any hope of accessing international carbon markets. This is particularly true of sub-Saharan Africa, where many countries currently have national/sovereign risk profiles that impede foreign direct investment in all sectors except for those with the most controllable production processes and highest potential profits (e.g. oil, extractives). Even if a REDD mechanism includes a less demanding project phase for countries that are not able to meet institutional requirements for a national approach, it may not be possible to stimulate investment in such countries without significant public subsidies or very big differences between the price paid for the carbon and the ultimate selling price.

Creating market demand for co-benefits: It may also be necessary to look more closely at actors that are outside the REDD debate or the development/aid paradigm and recognise the importance of establishing carbon buyers that are willing to pay the additional cost of “producing” such co-benefits. Experience from the CDM suggests that there is little political appetite for establishing mandatory sustainability standards within UNFCCC mechanisms, but it is possible to establish voluntary higher standards, against which compliance can be verified, for those that wish to meet them. Within the CDM, the best known standard of this type is known as the Gold Standard, and in 2007 Gold Standard CDM credits were traded at up to a 15 percent premium over average annual credit prices, driven in relatively large part by CSR-buyers in the voluntary market. Unsurprisingly, projects yielding carbon credits which include environmental or social “co-benefits” are most likely to be developed where investors can see a clear market demand for them, and the Gold Standard has allowed the relatively small voluntary sector to express a preference for “charismatic carbon”. However, achieving demand for co-benefits in the potentially much larger compliance market will take a commitment on the part of Annex I countries to give preferential treatment to such credits and to pay a price which reflects the additional costs and risks attached to their generation. There is some potential for this: for example the UK Department for Environment, Food and Rural Affairs stated that all offsets purchased by the UK government should meet the Gold Standard.

In summary, the figures developed in this paper provide an indication of the type of costs which are required to develop readiness for REDD if there is adequate money for implementation and there is political will. In practice, both of these are very uncertain and in situations where this is not the case, further measures will be needed to provide access to REDD and to develop the REDD mechanism in a way which is positive for both the poor and biodiversity.

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## Annex 1: Project case studies and their costs surveyed for this report

AREA OF INTERVENTION	PROJECT NAME	ACTIVITIES	COUNTRY	SOURCE OF FUNDING/ IMPLEMENTING ORGANISATION	AMOUNT	PERIOD	SOURCE OF INFORMATION
<b>Land use</b>							
Land tenure reform	Ghana Land Administration Project		Ghana	World Bank	US\$ 20,510,000	2003-	World Bank
	Solomon Islands Institutional Strengthening of Land Administration Project (SIISLAP)	Capacity building, establishment of land register, management reforms, policy development, et al.	Solomon Is	AusAID	Aus\$ 7,200,000 (for 2nd phase)	2000-	AusAID
	Embu-Meru-Isiolo project		Kenya	DFID		1991	LTSI
	Solomon Islands RAMSI Law and Justice Program		Solomon Is				AusAID
Land-use planning & zoning	Bi-National Conservation and Peace in the Condor Range Region, Ecuador-Peru		Ecuador / Peru	ITTO	US\$ 701,701	24 months	ITTO
	Mapping & land-use planning		Liberia	World Bank, USAID & FAO	US\$ 400,000		FAO, pers comm
	Mapping of village lands	Mapping, demarcation & planning	Tanzania		US\$ 4,000 / village (estimate)		Blomley, pers.comm.
	Participatory mapping	Mapping, demarcation & planning & training of local people	Democratic Republic of Congo	Rainforest Foundation	US\$ 12,000 / village; USD 175,000 / territory (= ~US\$ 2 / ha.)		Rainforest Foundation
Capacity to provide support services for agricultural intensification, SFM, community forestry etc.	Strengthening Participatory Approaches to Forest Management in Ghana, Guyana & Uganda	Promote of participatory methods for natural resource management	Ghana, Guyana, Uganda	DFID	US\$ 1,600,000	2002-2005	DFID

AREA OF INTERVENTION	PROJECT NAME	ACTIVITIES	COUNTRY	SOURCE OF FUNDING/ IMPLEMENTING ORGANISATION	AMOUNT	PERIOD	SOURCE OF INFORMATION
<b>Legislation</b>							
Legal reform	Forestry Law Regulation in Bolivia		Bolivia	ITTO	US\$ 116,050	12 months	ITTO
	Support for the Development of a Forestry and Wildlife Law in Peru		Peru	ITTO	US\$ 223,660	72 months (in late 1990s)	ITTO
	Definition of legality		Indonesia	DFID	GBP 500,000	5yrs	DFID (pers comm.)
Tax reform (e.g. removal of subsidies/ tax incentives)	Sawlog Promotion Scheme		Uganda				LTSI
Removal of financial incentives for colonisation/ settlement schemes							
<b>Institutional reform</b>							
Forest sector reform	Uganda Forest Sector Policy and Strategy Project (UFSPSP)	Institutional & policy reform, extension services, et al.	Uganda	DFID	GB£ 6,963,000	1999-2004	LTSI
	South Africa - Water and Forestry Support Programme (WFSP) - Forestry Programme		South Africa	DFID	GB£ 5,250,000	2002-2005	DFID evaluation report
	Madhya Pradesh Forestry Development Project	Institutional capacity building; implementation of JFM; research & extension; protected areas;	India	World Bank	US\$ 58.5 million	1995-9	World Bank evaluation
	Uttar Pradesh and Uttaranchal Forestry Project	Institutional capacity building; implementation of JFM & reforestation; protected areas;	India	World Bank	US\$ 52.94 million		World Bank evaluation
Clarification of roles & responsibilities	Solomon Islands Machinery of Government Program	Capacity building for financial management	Solomon Is.	AusAID	Aus\$ 6,700,000	2003 - 2009	AusAID

AREA OF INTERVENTION	PROJECT NAME	ACTIVITIES	COUNTRY	SOURCE OF FUNDING/ IMPLEMENTING ORGANISATION	AMOUNT	PERIOD	SOURCE OF INFORMATION
		and administration, et al.					
	Forest sector institutional reform		Liberia	US & World Bank	USD 500,000	3 years	FAO (pers comm.)
Capacity building	Advisory Support Facility (ASF) – Adviser team – forestry		PNG	AusAID	Aus\$ 1,300,000 in 2005/6	2004-2008	AusAID
	Institutional support – SGS estimate for 1 expat adviser				US\$ 300,000		SGS
Improved transparency	WRI Forest Transparency Initiative	Capacity building for governments; provision & dissemination of information;	Central Africa (Cameroon, Gabon, Congo, DRC and CAR)	DFID (proposal)	US\$ 1,400,000	2008-2011	DFID
<b>Enforcement</b>							
Enforcement of forest laws / planning & environmental requirements	Development and Implementation of Guidelines to Control Illegal Logging for Sustainable Forest Management in Indonesia		Indonesia	ITTO	US\$ 665,850	48 months	ITTO
	Independent monitoring of chain of custody		Liberia	SGS	US\$ 1,000,000	Per year	FAO (pers comm.)
	Independent monitoring	IM & capacity building	Cameroon & Congo-B		~€700,000	Per year & for each country	Forests Monitor
	Independent monitoring		Cambodia		~US\$ 150,000	Per year & for each country	Global Witness
	Use of Remote Sensing Technology and Information Systems to Support Forest Legislation Monitoring in the Republic of Congo		Republic of Congo	ITTO	US\$ 892,414	48 months	ITTO

AREA OF INTERVENTION	PROJECT NAME	ACTIVITIES	COUNTRY	SOURCE OF FUNDING/ IMPLEMENTING ORGANISATION	AMOUNT	PERIOD	SOURCE OF INFORMATION
Effective judicial system	Law and Justice Program	Support to courts, judiciary, infrastructure of courts & correctional facilities;	Solomon Islands	AusAID	US\$ 80 million	2006-9	AusAID
Capacity building	Training in monitoring of timber production		Liberia	World Bank	US\$ 30,000		FAO (pers comm.)
<b>Finance sector</b>							
Banking/ finance sector reform							
<b>Monitoring/ establishing baseline</b>							
Establishment of baseline	[Cost estimate as part of scoping study]	Monitoring & controlling deforestation	Brazil - state of Mato Grosso		US\$ 5,500,000 per annum (in addition to existing gov't budget)		Micol et al. 2008
	[LTSi cost estimate]	Modelling baseline	n/a		UK£ 37,000	Per annum cost, repeated every 2 years	LTSi
Establishment of monitoring system	[LTSi cost estimate]	Monitoring setup and maintenance	n/a		UK£ 820,000	5 years	
Establishment of inventory	[LTSi cost estimate]		n/a		UK£ 1,517,500	5 years	LTSi
<b>Improved forest management/ land-use</b>							
Sustainable forest management	Testing of ITTO Revised Criteria and Indicators and Dissemination of Results Applying to Cameroon		Cameroon	ITTO	US\$ 172,136	72 months	ITTO
	A Sustainable Management Model in the Iwokrama Rain Forest		Guyana	ITTO	US\$ 780,626	50 months	ITTO
	The Promotion of Sustainable Management of African Forests		10 countries	ITTO	US\$ 807,733	36 months	ITTO

AREA OF INTERVENTION	PROJECT NAME	ACTIVITIES	COUNTRY	SOURCE OF FUNDING/ IMPLEMENTING ORGANISATION	AMOUNT	PERIOD	SOURCE OF INFORMATION
	Solomon Islands Forest Management Project	Training, advice, establishment of working groups, extension	Solomon Is.	AusAID	Aus\$ 8,200,000	2004 - 2008	AusAID
Reduced impact logging	Biodiversity Management and Conservation in Forest Concessions		Republic of Congo	ITTO	US\$ 742,241	2007-2010	ITTO
Community forestry	Biodiversity Management and Conservation in Forest Concessions		Republic of Congo	ITTO	US\$ 2,289,384	2007-2010	ITTO
	Establishing a Cooperative Framework between the Office de Developpement et D'Exploitation des Forets (ODEF)		Togo	ITTO	US\$ 139,898	24 months	ITTO
	Sustainable use and Reforestation of Amazon Forests by Indigenous Communities		Peru	ITTO	US\$ 939,945	36 months	ITTO
	Sustainable Management of Tropical Resources through Stakeholder Agreements in Traditionally Owned Areas of PNG		PNG	ITTO	US\$ 452,196	36 months	ITTO
	USAID support for community forestry		Liberia	USAID	US\$ 2,000,000	2-3 yrs (from 2008)	FAO (pers comm.)
	MEMA Projects: Community forestry in Iringa District		Tanzania	Danida	US\$ 3,100,000		Topp-Jørgensen et al (2005)

AREA OF INTERVENTION	PROJECT NAME	ACTIVITIES	COUNTRY	SOURCE OF FUNDING/ IMPLEMENTING ORGANISATION	AMOUNT	PERIOD	SOURCE OF INFORMATION
Support for other forest-based activities (e.g. PES, tourism)	Redução das Emissões do Desmatamento e da Degradação (REDD): potencial de aplicação em Mato Grosso	Rural farmers scheme	Brazil - state of Mato Grosso		60 million Reas for top priority areas; 270 m Reas high priority; 340 m Reas low priority		Micol et al. (2008)
	Gola Forest	Protected area; carbon sequestration; PES	Sierra Leone		US\$ 1,000,000 (for ongoing management)		RSPB
Conservation concessions	Estimated average start up costs for conservation concessions				US\$ 50,000 - 100,000		Conservation International
Protected areas	Establishment of the Mengers-Minkebe Transboundary Gorilla Sanctuary (MMGS) at the Cameroon-Gabon Border		Cameroon / Congo	ITTO	US\$ 770,751	2002-2008	ITTO
	Conservation and Development in the Natural Protected Areas System of Tambopata (Peru) and Madidi (Bolivia)		Peru & Bolivia	ITTO	US\$ 1,253,783	12 months	ITTO
Sustainable agriculture	Australian Contribution to a National Agriculture Research System (ACNARS): Agricultural Innovations Grant Facility component		PNG	AusAID	Aus\$ 22,300,000	1998-2006	AusAID
	PNG Australia Research Development Support Facility (ARDSF)	Capacity building for agricultural research institutions	PNG	AusAID	Aus\$ 35,000,000	2007-2011	AusAID