Moving Ahead with REDD

Issues, Options and Implications

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Chapter 2

What are the key design issues for REDD and the criteria for assessing options?

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2.1 What is REDD?

Reducing Emissions from Deforestation and Forest Degradation in developing countries, or REDD for short, is among the recent additions to the climate vocabulary. Taken literally, REDD is an objective rather than a clearly delimited set of actions or activities. United Nations Framework Convention on Climate Change (UNFCCC) documents refer to REDD as a broad set of approaches and actions that will reduce emissions from deforestation and forest degradation.[1]

In discussions, however, REDD primarily refers to: (i) developing mechanisms to make payments to developing countries for reducing emissions from deforestation and forest degradation (compared with a reference level); and (ii) readiness activities which prepare countries to participate in the REDD

1 Note that the abbreviation 'REDD' is used inconsistently in the debate – including UNFCCC documents - as regards the explicit inclusion of 'forest degradation' in the title. The Thirteenth Conference of the Parties (COP 13) in Bali in 2007, for example, refers to it as 'reducing emissions from deforestation in developing countries' (Decision 2/CP.13), whereas the recent submission of views on the Bali Action Plan names REDD as 'reducing emissions from deforestation and forest degradation in developing countries' (FCCC/AWGLCA/2008/18). Yet all explanations share the focus on reducing forest emissions in developing countries.

mechanism. A core issue in REDD is, therefore, to create a multi-level (international and national) 'payments for environmental services (PES)' scheme. This multi-level scheme is illustrated in Figure 2.1.

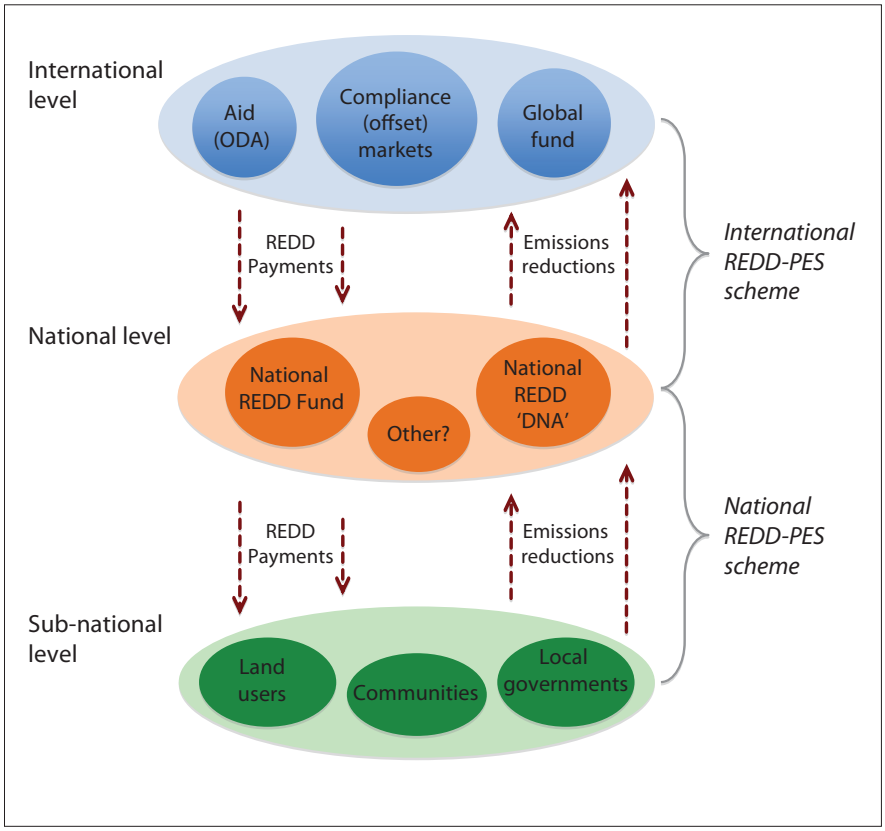

Figure 2.1. Conceptual model of a multi-level REDD 'payments for environmental services' (PES) scheme

At the international level service buyers will make payments (e.g. generated by voluntary or compliance markets) to the service providers (governments or subnational entities in developing countries) for an environmental service (reduced emissions from deforestation and degradation), or measures likely to deliver this service (e.g. tenure reforms, law enforcement). At the country level, national governments or other intermediaries (the service buyers) will pay subnational governments or local land owners (the service providers) to reduce emissions, or take other measures likely to reduce emissions (e.g. reduced impact logging).

Direct payments from international to subnational level are only possible where these transactions are approved by a national government agency – for example, a Designated National Authority (DNA) – as is the case under the current Clean Development Mechanism (CDM) and Joint Implementation

(JI) under the Kyoto Protocol. However, the current REDD debate largely considers this subnational approach as only an intermediary step towards a national REDD model (Chapter 4).

Importantly, national REDD strategies would – in addition to PES – also include a broad set of policies such as tenure reforms, more effective management of protected forest areas and policies which reduce the demand for forest products and forest land. Indeed, one of the advantages of a national approach is that these broad policies can be put in place and credited to the extent that they result in reduced emissions.

This book focuses on the international level – the design options for a global REDD agreement under the UNFCCC. This chapter discusses some of the overall issues related to design options that are not covered in the other chapters. Three such issues are: (i) where to place REDD within the UNFCCC architecture; (ii) the scope of REDD; and (iii) performance measurement. Finally, we introduce a set of criteria – the triple E criteria (3Es) – to assess design options: carbon Effectiveness, cost Efficiency, and Equity and the co-benefit implications. These criteria are used throughout the subsequent chapters.

2.2 REDD in the UNFCCC architecture

One of the critical issues in the REDD debate is whether REDD should: (i) be part of a broader post-2012 regime (cf. submissions by the Coalition for Rainforest Nations, September 2007 and Mexico August 2008); or (ii) be dealt with in a separate agreement (cf. Brazil, February 2007 and Center for Clean Air Policy (CCAP), August 2007). This 'one basket' vs. 'two baskets' perspective may, to some observers, seem like a technical issue, but it relates to several of the fundamental questions in the REDD debate. The most important issue is how REDD should be financed. If REDD funding is (in part) to come from compliance markets, that is if Annex I countries can purchase REDD credits (offsets) as part of their own commitments, then it makes better sense to include REDD in the broader post-2012 regime. If REDD finance is to be fund-based a separate REDD agreement is likely to work better. Hence, the positions in this debate essentially reflect diverging views on REDD financing.

Related to question of financing is the debate about REDD being additional to reductions in other sectors. On this issue, interestingly, both sides are putting forward the same arguments. In general, those arguing in favour of a separate REDD agreement believe that it would ensure additionality. A separate REDD agreement would avoid cheap REDD credits 'flooding' the market and would not displace mitigation efforts in other sectors (see Chapters 3, 4 and 6). Following this line of argument, the best way to ensure additionality would be

to keep the REDD separate from other commitments to reduce greenhouse gas (GHG) emissions.

Those who argue for including REDD in a broader post-2012 regime table two major arguments. First, REDD needs to be directly linked to the compliance market (i.e. selling REDD credits as offsets). Second, by integrating a low-cost mitigation opportunity (read: REDD) into the broader agreement, the overall GHG emission target can be set higher at no extra overall cost (Chapter 3). This would work best if REDD and the overall GHG targets are negotiated simultaneously. Those favouring this approach can refer to the Clean Development Mechanism (CDM) experience. The mechanics of the CDM were decided in Marrakesh in 2001 (COP 7) after overall targets for reducing GHG emissions had been set in Kyoto in 1997 (COP 3). In consequence, one reason for excluding avoided deforestation from the CDM was that it would not yield any additional reductions in emissions.

The issues of targets and commitments of developing countries are also central to the REDD integration debate. Some foresee a future comprehensive cap and trade (CAT) system that includes all countries and sectors (e.g. Eliasch 2008). Others are sceptical to the idea that developing countries should adopt binding targets, at least in the short term, and fear that including REDD in a comprehensive climate agreement might be a first step towards an all-inclusive cap and trade system. The proposal that developing countries also need to make cuts, but not commit to binding targets until developed countries have led the way by lowering their carbon emissions (Stern 2008), seems a promising avenue for global collective action to mitigate climate change.

The question of how REDD would fit in the UNFCCC framework is important as it relates to many of the fundamental REDD issues. It will affect the level of involvement and commitment of the parties (both on the supply and demand side) and how REDD should be financed. The REDD architecture should follow from an agreement on these issues.

2.3 Scope of REDD and creditable mitigation activities

The climate debate is about reducing the concentration of greenhouse gases (GHG) in the atmosphere. Including all sinks and sources can, however, become a daunting task. Instead, the climate negotiations can be seen as a stepwise effort, where mitigation is being brought up for discussion bit by bit in more and more sectors and activities. One of the key questions regarding REDD concerns the scope of creditable mitigation activities, and REDD needs to be viewed in relation to two broad accounting framework options: (i) the

option to include REDD in an overall framework for the forest sector; and (ii) the option to include forestry in an overall framework of agriculture, forestry and other land uses (AFOLU). We discuss each of these in turn.

The total forest carbon stock at any time is determined by two factors: the total forest area, and the carbon per hectare of forest (carbon density). This means changes can be measured by two factors: area and carbon density. Further, one can differentiate between activities that reduce negative change, and those that enhance positive change. This yields four conceptually different ways of boosting forest carbon stocks, as outlined in Table 2.1. These are deforestation, afforestation/reforestation (A/R), degradation, and restoration/rehabilitation.

Table 2.1. Possible scope of creditable activities in a REDD/forestry mechanism.[2]

Changes in:	Reduced negative change	Enhanced positive change
Forest area (hectare)	Avoided deforestation	Afforestation and reforestation (A/R)
Carbon density (carbon per hectare)	Avoided degradation	Forest restoration and rehabilitation (carbon stock enhancement)

The debate on the scope of creditable activities in REDD has evolved significantly over the last three years. Initially, the focus was on 'reducing negative changes', at first only from deforestation (COP-11 in 2005 in Montreal) then also from forest degradation (COP-13 in 2007 in Bali). In Bali, the Parties also agreed to explore options for 'enhancement of forest carbon stocks', that is, to possibly also reward the 'enhanced positive changes' (Table 2.1) through forest restoration/rehabilitation.[3]

Enhancing the carbon stock can be viewed as the positive complement of forest degradation – the latter reducing, the former increasing carbon densities. Similarly, A/R can be seen as the positive complement of deforestation. In both cases, the central element is not only to stop negative changes (deforestation, forest degradation), but to go further and reward additional positive changes (A/R, carbon stock enhancement).

2 Note that even in a system that rewards changes in forest area, one needs to know the carbon densities to calculate the overall carbon benefits. The densities might be assumed to be constant over time, or they can be monitored and accounted for to determine the overall changes in forest carbon (emissions), as is done in CDM A/R and some projects in the voluntary market (see Chapter 10).

3 Par. 11 of Decision 2/CP.13 reads: 'Notes the further consideration, under decision 1/CP.13, of policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries'

There is a strong logical argument for including REDD in a coherent forestry accounting system that comprises not only reduced negative changes, but also enhanced positive changes. Measures taken to stop negative changes can lead to a restoration of the forest area, that is, higher carbon densities. Why should such positive increases not be rewarded? A similar logic or argument can be applied to area increases. Put simply, a CO_2 molecule removed from the atmosphere and stored in a tree is just as good as one not emitted.

One challenge associated with such a comprehensive forestry accounting scheme is that A/R is already part of CDM under the Kyoto Protocol. This could be an argument for excluding A/R from the REDD scheme. But, two strong counter arguments can be tabled. CDM A/R has, for various reasons, been a failure so far; if no major revision is undertaken, excluding A/R from a new REDD agreement means that there will be no effective mechanism for taking care of positive changes in forest area. Further, excluding A/R from the REDD means risking fragmentation of the overall forestry architecture (see below).

Another issue related to where REDD fits in the UNFCCC architecture concerns to what extent forestry should be part of comprehensive agriculture, forestry, and other land uses (AFOLU) terrestrial carbon accounting systems. There are arguments in favour of a comprehensive AFOLU approach (Trines *et al*. 2006, Terrestrial Carbon Group 2008). Such an approach would treat all parties, and different carbon pools, sectors, and activities, consistently. New issues such as bioenergy could also be tackled within a comprehensive framework. A separate REDD agreement risks fragmenting the framework into separate systems for different land use categories. However, the work towards an integrated AFOLU framework is complicated. A promising avenue might be to address REDD as one building block that can be easily connected to a more comprehensive AFOLU framework in the future.

2.4 Input, emission and stock-based approaches

A third key issue in the overall design of REDD relates to the basis for crediting. Should payments be made based on the inputs needed to achieve a specific outcome, or on the actual outcome? These two approaches are referred to as input-based and output-based approaches.

In input-based schemes, payments are conditional on the inputs which are assumed to produce a desired outcome, but where the outcome cannot be measured directly. Such schemes are also referred to as 'policies and measures' (PAM). Examples of PAMs for REDD include reforming land tenure and enforcing forest law. They also include the adoption of land use practices likely to secure a desired outcome, for example, reduced impact logging, e.g. how to.

In output-based schemes, payments are directly conditional on the outcome. Two types of output-based measures are relevant to the REDD debate: emissions-based and stock-based. In an emissions-based (or flow-based) approach only the net changes in carbon stocks for specific periods are used to calculate credits (see Chapter 9). In a stock-based approach, payments are based on the total carbon stock in a forest during a specific period, that is, the absolute levels, and not the changes (emissions).

From effectiveness and efficiency perspectives, output-based schemes are preferable to input-based approaches as they directly connect payments with the service delivered. However, for output-based approaches the outcome must be measurable – a requirement that is not always feasible. In some situations governance and institutions are not yet sufficiently developed to enable output-based approaches. In other situations, current methodologies might hinder output-based approaches, such as in the case of forest degradation (see Chapter 10).

An emission-based approach was applied in the Kyoto Protocol, making its application to REDD a natural step. Indeed, the focus on emission is embedded in the REDD acronym. Nevertheless, advocates of a stock-based approach argue that it will likely ensure greater carbon effectiveness (Woods Hole Research Center (WHRC) and Amazon Institute for Environmental Research (IPAM) 2008, Terrestrial Carbon Group 2008) and greater willingness-to-pay in the private sector (Centre for International Sustainable Development Law (CISDL) and Global Public Policy Institute (GPPI) 2007). The proponents also refer to the methodological challenges associated with emissions-based approaches (notably reference levels and leakage control, and equity (to account for previous country efforts in forest conservation).

Although a stock-based approach might avoid some of the tricky issues of an emission-based approach, the emission-based approach has advantages in terms of effectiveness. The emerging global carbon markets trade in emission reductions. Preserving stock cannot in itself generate emission credits, which eliminates the opportunity to tap directly into compliance markets to fund REDD activities.[4]

A general principle of an effective mechanism is to target, as directly as possible, the problem at hand. The emission-based approach does this better than the stock-based or input-based approaches. A major risk of the stock-based approach is that large payments could be made to forest areas that are not under threat, thus 'diluting' the funds available for forest under threat and yielding low additionality.

4 Indirect links can, be created, for example, by auctioning GHG emission quotas or taxes in carbon markets to finance stock based approaches (see Chapter 5).

The emission-based approach is in line with the current focus and accounting architecture of the UNFCCC, and is also the main proposal on the table in the REDD negotiations. The rest of the book therefore deals with the emission-based approach.

2.5 The 3E criteria for assessing options

A large number of design proposals have been put forward for REDD. How can we evaluate them?

A typical REDD proposal seeks to reduce GHG at a minimum cost, while also contributing to sustainable development. Proposals can be evaluated against this objective on three sets of criteria, the '3E criteria' (Stern 2008): Is the mechanism achieving its GHG emission targets (**effectiveness**)? Is this target achieved at the minimum cost (**efficiency**)? What are the distributional implications and co-benefits (**equity** and co-benefits)?

2.5.1 Effectiveness

Effectiveness refers to the magnitude of the emission reductions achieved, that is, the 'carbon effectiveness'. Effectiveness depends on a number of factors, including political feasibility and the degree of commitment from countries to participate and implement REDD mechanisms, but -most importantly- on the design of the REDD model. For emissions to be reduced as much as possible, the REDD model would need both depth (significant reductions) and breadth (cover all significant sources and sinks), and the flexibility and robustness to cover diverse local conditions.

Emission reductions are not observed directly, but are defined as the difference between the emissions with and without REDD. It requires: (i) the measurement of actual emissions with REDD must be accurate and verifiable; and (ii) include a realistic assumption of what would happen without REDD (additionality). Finally, a REDD activity may have undesirable side effects in space (displaced emissions or leakage), in time (permanence), and/or on other mitigation efforts. These side effects need to be taken into account when assessing the overall effectiveness. Components of the Effectiveness criteria are listed in Table 2.2.

Table 2.2. Components of the Effectiveness criteria

Effectiveness criteria	
Depth and additionality	Reduction in absolute or relative emission compared with a business-as-usual (BAU) scenario. Additionality is a more specific criterion that requires reductions to be additional to what would occur in the absence of REDD (BAU).
Breadth/scope	Coverage of different sectors and type of forest users, type of forest and type of mitigation measures included.
Flexibility and robustness	Ability to adapt to meet both diverse local conditions and unknown future changes at all scales. Potential trade-offs between flexibility and robustness need to be considered.
Verifiability	Verifiability depends on (i) the technology used to make accurate and complete measurements; and (ii) the capacity to carry out such measurements.
Displacement of emissions (leakage)	Leakage can occur *within* or *across* countries, and also among land use activities (e.g. between deforestation and degradation activities if only one D is included). Generally, the larger the scale and the broader the scope of REDD, the lower the risk of leakage.
Permanence and liability	Permanence relates to ensuring long-term reductions, i.e. avoiding emissions reductions that are simply postponed for a short period of time. Liability measures can take effect if permanence has not been maintained.
Effect on other mitigation measures	A real risk is that REDD efforts will come at the expense of other climate mitigation measures. Such 'crowding out' effects are hard to measure.

2.5.2 Efficiency

Efficiency refers to whether the given emission reduction is achieved at a minimum cost. Various costs must be considered when developing a REDD scheme. Costs can be categorised into start-up costs (or 'upfront capacity building costs', see Eliasch 2008) and ongoing emission reduction costs. The latter can be further sub-divided into running costs (or forest protection costs, see Eliasch 2008) and opportunity costs (see Chapter 5). In addition to the landowners' opportunity costs, their transaction costs for participating in the scheme must be taken into account – a sometimes neglected aspect with profound implications. Table 2.3 summarises the efficiency criteria.

Table 2.3. Efficiency criteria

Efficiency criteria	
Start-up (upfront capacity-building) costs	Costs of setting up a REDD scheme, including establishing technical infrastructure and governance structures, and, most importantly, training and capacity building.
Running costs (forest protection costs)	Operational costs of a REDD regime that, in addition to periodic monitoring, include a variety of policies and measures, such as forest law enforcement and tenure reforms.
Landowners' opportunity costs	Opportunity costs are the foregone economic benefits from the best alternative (non-forest) land uses, e.g., the minimum amount a landowner must be paid to be willing to stop deforestation and forest degradation/ DD (compensation payment). This will be a key cost component of a national PES system.
Landowners' transaction costs	To participate in the REDD scheme, the landowner is likely to incur additional costs (e.g. put up fences, get certified), which need to be factored into the compensation payments.

2.5.3 Equity and co-benefits

Most REDD proposals include non-climate objectives related to the distribution of benefits and costs, livelihoods/poverty reduction, protection of rights, and/or biodiversity (Chapter 11). The equity considerations have several dimensions, including fair distribution of benefits between and within countries and the effects of REDD activities on local and indigenous communities. Criteria for assessing co-benefits include economic development and poverty reduction, biodiversity, rights and forest governance (Table 2.4).

Table 2.4. Equity and co-benefits criteria

Equity criteria	
Fair distribution among countries	One dimension relates to the poverty profile, i.e. (i) poor countries' abilities to participate in a REDD scheme (e.g. monitoring, reporting and verifying - MRV) and governance requirements); and (ii) preferential treatment of the poorest countries (e.g. in setting reference levels). Another dimension of fairness relates to 'not penalising early action' and 'not rewarding bad policies'. And, if basing reference levels on past deforestation, one should not penalise 'lack of development'.

Table 2.4. (continued)

Equity criteria (continued)	
Fair distribution within countries	This refers to intra-national fairness, i.e. the distribution of costs and benefits across administrative levels (local vs. national government) and across land use actors.
Effects on local and indigenous communities	The Bali Action Plan acknowledges the role of local and indigenous communities in REDD activities. The practical implications are that traditional rights will be recognised and that indigenous communities will be included in the REDD decision-making process.
Co-benefits criteria	
Economic development and poverty reduction	REDD may enable or constrain economic development at the national and subnational levels, and affect those economically dependent on forests as well as national economies as a whole.
Biodiversity	Carbon and biodiversity aims are largely compatible, but there could be trade-offs, for example, in the geographical targeting of funds (biodiversity and carbon hotspots may not overlap).
Rights and forest governance	REDD has the potential to improve forest governance and rights, e.g. through more transparent forest information systems. But, it also entails risks such as when the potentially large sums of money generated by REDD triggers corruption, mismanagement and elite capture.

2.6 Concluding remarks

Moving ahead with REDD and developing the global REDD architecture will require important decisions on the design. There is an urgent need for the UNFCCC to provide direction on some of the key issues. To make an informed choice, the trade-offs and implications of the various options must be carefully assessed. In essence, for REDD to become an internationally accepted mitigation mechanism, it will have to comply with at least three criteria. It will need to secure (i) actual emission reductions (be effective) at (ii) minimum cost (be efficient), while (iii) reducing undesired social and ecological trade-offs (be equitable and provide co-benefits).