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## WWF DISCUSSION PAPER

### **Policy approaches and positive incentives for reducing emissions from deforestation and forest degradation (REDD)**



## **Discussion paper – Policy approaches and positive incentives for reducing emissions from deforestation and forest degradation (REDD) as part of the post-2012 climate agreement**

This paper is intended to provide an overview to potential policy approaches and positive incentives for REDD in the post-2012 United Nations climate agreement. In particular, the paper discusses the potential implications or key elements for consideration when determining positive incentives for REDD. This paper is not a statement of WWF's position and should not be quoted as such, instead it is provided with a view to informing the discussions on this subject. The paper ends with a summary and key elements for further discussion and WWF would welcome comments on these areas and any other points raised in this paper.

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Forest on fire in Roraima state, Brazil, Spring 1998. © WWF-Canon / Nigel DICKINSON

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## REDD IN THE POST-2012 CLIMATE AGREEMENT

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The post-2012 United Nations (UN) climate agreement must incorporate reduction targets, mechanisms and incentives to avoid the worst impacts of climate change. To prevent catastrophic climate change **we must keep the global average temperature rise as far below 2 degrees centigrade as possible**. To have a high chance of doing so the latest Intergovernmental Panel on Climate Change (IPCC) Assessment report suggests that industrialised countries should take on greenhouse gas reduction targets of between 25% and 40% below 1990 levels by 2020<sup>1</sup>. In addition to this reduction in rich nations, some major developing countries need to ‘substantially deviate’ from their projected future baseline emissions by that time. By 2050, global emissions must be reduced by 50-80% compared to 1990 levels. WWF is calling for emissions reductions targets to be at the higher end of these ranges to increase chances of staying below 2 degrees; and for global emissions to peak and decline before 2020.

**Forests have a vital role to play in the fight against global warming.** Land use change is estimated to be responsible for 18% of current emissions, with deforestation accounting for most of these emissions<sup>2</sup>. It is increasingly recognised that this source of emissions needs to be addressed in order to keep the global average temperature rise well below 2 degrees centigrade above pre-industrial levels. WWF’s Climate Solutions report concluded that the probability of success in **limiting global warming to 2°C drops progressively from greater than 90% down to 35% in the absence of effective action to curb land use and land use change emissions**. In addition, reforestation and afforestation result in the sequestration (i.e. absorption) of carbon from the atmosphere, therefore, offering the potential for reducing atmospheric greenhouse gas (GHG) levels.

Economic factors play a big part in driving deforestation and forest degradation, due to demand for forest products or alternative land uses. The economic incentives to convert forests or for unsustainable forest management are often greater (at least in the short-term) than the incentives to conserve or responsibly manage forests, partly due to a failure to value the long-term economic goods and services that forests provide. **Providing financial incentives for forest-carbon has the potential to make forest conservation more economically viable.**

Other important factors in driving deforestation and forest degradation include poor governance and law enforcement, few policies directed towards addressing deforestation and forest degradation, and land tenure issues. The complexity of the different elements influencing deforestation and forest degradation require a **range of policy approaches and positive incentives to address the challenges and targeted efforts to ensure good governance and recognition of the broader values of forests**.

**WWF supports the inclusion of incentives for developing countries to curb greenhouse gas emissions from deforestation and forest degradation (REDD) in the post-2012 UN climate agreement.** WWF calls on parties to support the development, by the Copenhagen 15<sup>th</sup> Conference of Parties (COP) at the end of 2009, of a **robust framework that will provide the basis for zero net global deforestation by 2020**. This must be additional to substantial reductions in industrial emissions, contribute to maintaining high conservation values including biodiversity and should be implemented in a way that contributes to sustainable development and ensures that the rights of local communities and indigenous peoples are maintained. **To be effective, REDD must be transparent, equitable and practical, while also ensuring the environmental integrity of the international post-2012 regime.** REDD mechanisms under the post-2012 climate agreement, must be measurable, reportable and verifiable; address the risks of

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<sup>1</sup> IPCC, 2007, Full working group III report, chapter 13, Page 776, <http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter13.pdf>

<sup>2</sup> Stern Review, 2006, The Economics of Climate Change

leakage and non-permanence; and ensure integrity of baselines and additionality of emissions reductions. To achieve this, there is a need for capacity building as well as pilots to test methodologies. **WWF urges developed countries to leverage funds to contribute their fair global share to support developing countries in preparing for and implementing REDD as an immediate priority.**

## **POLICY APPROACHES**

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To succeed in achieving sustainable emissions reductions from deforestation and forest degradation at a national scale, each country / region must identify and address the drivers of deforestation and forest degradation. It is important to note, though, that key drivers of deforestation – such as cattle ranching, soy production and illegal logging – are also very strongly influenced by demand for products in wealthier nations. Efforts to address drivers, therefore, will need to be two-pronged, addressing the demand from developed countries as well as the more direct, on-the-ground dynamics in developing countries. In addition, REDD mechanisms in the post-2012 UN climate agreement should be considered as one approach to address deforestation and forest degradation, alongside further initiatives outside of the UNFCCC, for example to deal with demand-side issues.

Policy approaches for REDD should be flexible to accommodate differing national circumstances. Reducing emissions from deforestation and forest degradation in countries with high emissions from forests is a priority. In addition, the post-2012 REDD mechanism should identify ways to ensure that countries with large areas of intact forest that currently have little or no deforestation continue to protect their existing forests. This is important both to avoid creating a perverse incentive and to reduce the risks of international leakage.

**Policies for REDD must recognise the multiple values and uses of forests and accommodate the food and resources requirements of the human population.** Landscape planning will be an important tool in achieving this, e.g. to influence infrastructure development. A range of policy approaches would be useful mechanisms for achieving and incentivising emissions reductions. These include:

- Policies to incentivise forest conservation;
- Avoidance / removal of policies that provide a perverse incentive for forest conversion;
- Bans, such as the Zero Deforestation Law in Paraguay or legislation to address illegal logging;
- Establishing and improving enforcement of protected areas;
- Sustainable production of forest products and agricultural commodities, for example, through following the principles and criteria of certification schemes, such as the Forest Stewardship Council and the Roundtable on Sustainable Palm Oil.

Forests provide a range of values and services, such as protecting water catchments, improving air quality, protecting soil and biodiversity and providing resources and supporting the livelihoods of people. Therefore, policies for REDD must be consistent with other international conventions (including the Convention on Biological Diversity). To protect the rights of indigenous peoples and local communities, the REDD mechanism must respect and build upon the rights and needs of these people and communities.

**REDD mechanisms must contribute to development goals and ensure that benefits, including funds, are equitably distributed.** This can be achieved through a range of approaches, such as:

- Clarifying or enforcing land tenure and developing policies for “carbon tenure” (which has the potential to also deliver emissions reductions);

- Improving governance and enforcement, for example, through similar processes to those employed for the Voluntary Partnership Agreements under the EU Forest Law Enforcement, Governance & Trade Action Plan;
- Developing legal and institutional frameworks to address distributional issues and distributing of funding;
- Ensuring active stakeholder involvement in the development of policies and programmes for REDD, e.g. through multi-stakeholder roundtables

## **POSITIVE INCENTIVES**

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**Finance for REDD is part of the overall global financial architecture, which is needed in order to shift finance and investment flows, both public and private, towards low carbon development and climate resilience<sup>3</sup>.** A decision on the basic elements of this global financial architecture will need to be an essential part of the agreement for a Global Deal in Copenhagen (COP15). To be effective, an international regime to reduce emissions from deforestation will need to **ensure that developed countries provide sufficient resources to cover the associated costs of REDD over the long-term and contribute to national development goals**. This paper focuses on the associated costs and financial incentives required for reducing emissions from deforestation and forest degradation, rather than other elements of forest-carbon (such as finance for maintaining low rates of deforestation or enhancing forest-carbon stocks).

In addition to developing mechanisms for generating funding for REDD, it is vital to consider how funding should be managed and distributed, including the governance and flow of funding. This is an important element for consideration within the discussions on the structure of positive incentives for REDD, however, it has not been covered within this paper. As one example, the mechanism for distributing funding can influence how effective the funding mechanism is, e.g. depending on how centralised the financial flows are and the governance of the funds.

### **The Cost of REDD**

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Opportunity costs are reasonably assumed to be the minimum amount that is needed to be paid to prevent deforestation and forest degradation<sup>4</sup>. However, it is vital that additional costs are recognised and incorporated in estimates for the full cost of REDD.

Any financial mechanism for REDD must cover the costs of:

1. Capacity building, participatory development (elaboration) process and readiness for the implementation of a REDD mechanism, which will likely include clarifying legal and institutional aspects; establishing monitoring and verification systems and national reference levels; and the costs associated with learning through pilot projects;
2. Payment for reducing emissions from deforestation and forest degradation, including opportunity costs (including non-monetary values from subsistence demand); and
3. Ongoing administrative, implementation, monitoring, verification and transaction costs.

**Support for capacity building and readiness is an immediate priority as this must be provided to enable countries to prepare for a future REDD mechanism in post-2012.** It may also be necessary to provide upfront funding to cover the implementation costs of a REDD programme. One area for further discussion is whether funding should cover the full costs associated or whether some developing countries should be partially-compensated or supported through technology transfer and capacity building consistent with the principle of common but

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**3** Current projections are that more than \$200 billion will be needed per year for mitigation (including REDD), adaptation and technology transfer in developing countries.

**4** Boucher, in press.

differentiated responsibilities. There are several options that should be explored regarding the possible cost recovery of initial investments.

Given that true costs of REDD will vary, e.g. based on opportunity costs<sup>5</sup> or region, there should be consideration as to whether the true costs of REDD are paid or whether a fixed price is paid. For example, if only the true costs associated with the emissions reduction are paid, a lower total amount of funding would be required as compared with if all emissions reductions are given an equal price based on the highest costs of REDD.

## **Total costs**

A range of figures have been estimated for the costs of REDD, with most estimates falling within \$20-33 billion / year to halve deforestation<sup>6</sup>. Part of the variation in costs may be explained by differences in what elements are included in the costs (e.g. just opportunity costs or the full costs of REDD) or by differences in regional costs. One area for potential further focus is to develop more accurate predictions of the cost, to determine how much is associated with which elements (e.g. implementation, incentives) and when costs are incurred. However, a number of elements of the costs are unknown and will likely be unknown until countries have progressed with readiness and REDD schemes are operating.

As the emissions reduction target increases, so does the cost, for example, there are estimates that it will cost up to \$185 billion / year to halt deforestation<sup>7</sup>. In the long-term, REDD emissions reductions are not likely to be less expensive than industrial emission credits, as land is a fixed good and is in comparatively short supply, and any REDD mechanism must ensure that a long-term incentive is provided to address forest conversion and degradation.

WWF's goal is to achieve no net greenhouse gas emissions from deforestation and forest degradation by 2020. Values for halving global deforestation could be used as indicators of the cost to achieve net zero deforestation. This reflects the current patterns in land use change where afforestation and reforestation "offset" approximately half the gross global deforestation<sup>8</sup>. However, this may not be an accurate assumption and it would be valuable to consider how a REDD mechanism will have implications for land use and land use change outside of forest areas (e.g. from displacement of agricultural production to land that might have been reforested for timber plantations) to understand the wider implications of different policy options both for land management and for reducing emissions from this sector.

## **Price per tonne**

Research for the Stern Review suggested direct yields from land converted to agriculture, including the sale of timber are \$1 per tonne of CO<sub>2</sub> in many areas currently losing forest and usually well below \$5 per tonne of CO<sub>2</sub><sup>9</sup>. However, the Stern Review recognised that the opportunity costs must include value added activities and export tariffs, and therefore, concluded that it could be up to \$30 per tonne of CO<sub>2</sub> to completely eliminate deforestation. The UNFCCC<sup>10</sup> estimates that it

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**5** e.g. Commercial crops have the highest opportunity cost / ha then commercial wood extraction. The lowest opportunity costs are for fuelwood, charcoal production and NTFP gathering (not including subsistence demand). UNFCCC, 2007, *Investment and Financial Flows to Address Climate change*

**6** Stern, 2008, *Key Elements of a Global Deal on Climate Change*; Strassburg *et al*, 2008, *An Empirically-Derived Mechanism of Combined Incentives to Reduce Emissions from Deforestation*; UNFCCC, 2007, *Investment and Financial Flows to Address Climate change*

**7** UNFCCC, 2007, *Investment and Financial Flows to Address Climate change*

**8** FAO, 2006, *Global Forest Resources Assessment*

**9** These figures are based on the assumption that there are 500-750 t CO<sub>2</sub> / ha of tropical forest

**10** UNFCCC, 2007, *Investment and Financial Flows to Address Climate change*

will cost up to \$77 per tCO<sub>2</sub> to completely halt deforestation, excluding transaction costs. Funding for REDD should aim to incentivise emissions reductions in all areas, including those where there are high opportunity costs

## **OPTIONS FOR FINANCIAL INCENTIVES FOR REDD**

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**The post-2012 climate agreement should provide a framework that ensures sufficient and sustainable incentives are provided for REDD as an integral component to the global climate solution and the international financial architecture that is necessary. At this point, WWF believes that it is important to consider the full range of options further.**

### **Proposed financial mechanisms**

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A range of financial mechanisms have been proposed, which fall into the following broad categories:

1. Inclusion in carbon markets (either with unlimited or limited access), essentially as an offset mechanism for Annex I emissions reduction targets;
2. Market-linked mechanisms, such as auctioning of allowances (Assigned Amount Units – AAUs) – either for international allowances or specific sectors, dedicated auction revenues from national or regional emissions trading systems, a levy on all or some emissions;
3. Voluntary funding, such as additional public funds.

In both options 1 and 2, the amount of funding for REDD (and consequently the emissions reductions that will be incentivised) are based on market prices and size of the market. In option 2, while funding depends on market prices and size, emissions reductions from REDD are not traded for emission increases in Annex I countries (i.e. emissions reductions from REDD are additional to Annex I emissions reductions, as compared with option 1 where emissions reductions from REDD would be an alternative to Annex I emissions reduction).

There are further differences between these different ways of generating funding. For example, including REDD in the carbon market would only provide funding for verified emissions reductions, whereas market-linked mechanisms and voluntary funding is more flexible as it can be used to fund stabilisation (i.e. maintaining low levels of emissions) and capacity building, in addition to verified emissions reductions. Market-linked mechanisms and voluntary funding can provide upfront funding, while carbon markets will only provide funding once emissions reductions have been verified.

The implications of different funding mechanisms on different characteristics are vital to consider when assessing which funding mechanisms might be most appropriate. The range of characteristics can be grouped depending on what implications they relate to:

- Concerns with fungibility in a carbon market approach (i.e. offsetting emissions reductions from other sources with emissions reductions from REDD) and environmental integrity: e.g. net effect if leakage occurs, non-additional or non-permanent; effect on net global emissions; need for national baselines
- Carbon market effect: e.g. compliance costs, effect on net global emissions
- Scale: e.g. potential funding
- Flexibility of funding mechanism: e.g. pay for verified reductions; pay for stabilisation; pay for capacity building

Each of these funding mechanisms can either be from public or private sources; examples of each are given in Table 1. Therefore, it is important to consider not only which types of funding (i.e. inclusion in carbon markets, market-linked or voluntary funds) are appropriate but also which funding source (i.e. public or private) and how compatible REDD would be with the various funding sources and types.

Different Parties prefer different funding mechanisms and sources, partly due to preferences based on national circumstances and partly due to different funding sources having different perceived advantages and disadvantages. As negotiations continue towards the Copenhagen COP in 2009, there is a need to assess the implications of and concerns with different financial mechanisms and to identify when and in what conditions and combination of different mechanisms might be appropriate.

**Table 1**

	<b>Public</b>	<b>Private</b>
<b>Inclusion in carbon markets</b>	International emissions trading (such as government purchase of credits through the flexible mechanisms of the Kyoto Protocol)	National, regional or global trading schemes for companies (such as the EU ETS)
<b>Market-linked mechanisms</b>	e.g. auctioning of country assigned allocation units (AAUs); a levy on all or some Parties according to a formula; a levy on all or some emissions from specific sectors (e.g. aviation and shipping)	e.g. auctioning of allowances within regional trading schemes (such as allowances provided to companies in the European Union's Emissions Trading Scheme EU ETS)
<b>Voluntary funding</b>	e.g. additional public funds (such as that announced for reducing deforestation by Norway)	e.g. non-compliance carbon markets, voluntary donations

## **Carbon markets: concerns with fungibility and environmental integrity**

### **Environmental integrity**

One of the concerns voiced with regards to fungibility of REDD credits (and other LULUCF credits) is the risks associated if leakage occurs or if emissions reductions are non-additional or non-permanent. In market-linked approaches and with voluntary funding, if leakage occurs or emissions reductions are non-additional or non-permanent, there is no net increase in global emissions (i.e. in addition to the emissions from the target activity). However, if fungibility is allowed and REDD credits are included within the global carbon market, there would be a net increase in atmospheric greenhouse gas levels if there was unaccounted leakage or if the REDD credits were non-additional or non-permanent (i.e. in addition to the emissions from the target activity, there will have been the emissions that should have been offset).

Concerns over environmental integrity of credits through lack of additionality is not specific to REDD – e.g. a recent report by the Œko-Institut concluded that approximately 20% of CDM credits are likely not to be additional<sup>11</sup>. In addition to concerns about additionality, there are risks that there will be leakage which has not been accounted for or that emissions reductions will be non-permanent.

There are a number of potential ways of addressing concerns with fungibility of REDD:

- Excluding REDD credits from carbon markets and using only market-linked or voluntary mechanisms to fund REDD;
- If REDD credits are included within the carbon markets, a number of conditions / limits could be put in place, for example, on the type of REDD credits that are accepted or the amount of

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<sup>11</sup> Œko-Institut, 2007, *Is the CDM fulfilling its environmental and sustainable development objectives?*

credits to ensure that they provide a robust carbon benefit. For example, a phased approach might be applied where fungibility of forest-carbon is excluded or limited initially and is gradually phased in as countries meet conditions demonstrating their ability to deliver monitored and verified emissions reductions. Another example would be the use of a discounting factor.

## Sufficient ambition

In addition to the environmental integrity of any emissions reductions, the ambition of the overall emissions reductions is vital. To prevent catastrophic climate change we must keep the global average temperature rise as far below 2 degrees centigrade as possible. The IPCC 4<sup>th</sup> Assessment report suggests that Annex I parties should take on greenhouse gas reduction targets of between 25% and 40% below 1990 levels by 2020. In addition to this reduction in Annex I countries, some major non-Annex I parties need to ‘substantially deviate’ from their projected future baseline emissions (see Table 2).

*Table 2*

Scenario category	Region	2020	2050
450 ppm CO <sub>2</sub> -eq	Annex I	-25% to -40%	-80% to -95%
	Non-Annex I	Substantial deviation from baseline in Latin America, Middle East, East Asia and Centrally-planned Asia	Substantial deviation from baseline in all regions

Therefore, to achieve the ambition of emissions reductions needed to stay on the trajectory necessary to keep well below 2 degrees rise, emissions reductions from REDD (and other mitigation activities in non-Annex I countries) must be additional to action in Annex I countries. To achieve this through inclusion in carbon markets, Annex I countries must commit additional targets, on top of the 25-40% range. Given that REDD credits are considered to be a relatively low cost mitigation option, Anger & Sathaye<sup>12</sup> concluded that REDD has the potential to increase environmental effectiveness by encouraging Annex I countries to tighten the cap (i.e. commit to increased emissions reductions) without increasing mitigation costs to the same extent.

In recognition of the need for this scale of ambition, WWF is lobbying on this basis within the EU as part of its work on the Climate & Energy Package, where it is calling for:

- An overall greenhouse gas emission reduction target of 30% below 1990 levels by 2020 to be achieved within the boundaries of the EU; and
- The financial equivalent of an additional 15% emission reductions (below 1990 levels) to be invested in socially and environmentally robust adaptation and mitigation activities in developing countries.

These additional funds for developing countries could flow via a variety of mechanisms, e.g. via environmental and socially robust market-based mechanisms (provided that this was additional to the 30% domestic target) and other financial instruments. This approach is to ensure that the EU is put on a low carbon trajectory and plays its fair part in keeping the global temperate rise below 2 degrees; and to provide certainty that the long-term substantial financial support that the EU owes will be provided to developing countries to assist them in decarbonising their economies and where possible adapting to the impacts of climate change. These principles would also be relevant to other Annex I country commitments.

<sup>12</sup> Anger & Sathaye, 2008, *Reducing Deforestation and Trading Emissions: Economic Implications for the post-Kyoto Carbon Market*

A number of elements should be applied if REDD credits are fungible:

- National approaches (e.g. national-level accounting, regulatory frameworks, reference levels, monitoring and enforcement systems) need to be in place in order to reduce transaction costs, address domestic leakage and ensure the integrity of baselines.
- Measures must be put in place to minimise and account for leakage and the risk of non-permanence, and to ensure the integrity of baselines. Possible approaches include debiting, insurance, risk pooling and buffers.
- Activities in countries which currently have low emissions from forests should not be included within carbon markets, unless there is demonstrable additionality.
- Annex I countries must take on additional targets, on top of the 25-40% range agreed in Bali to ensure that the total emissions reductions are sufficiently ambitious to keep the global temperature increase below 2 degrees.

## **Carbon market effect: flooding the market and crashing the price?**

### **Cheap price?**

REDD is often cited as a relatively low cost mitigation option, and therefore, integrating REDD into international emissions trading is predicted to considerably decrease costs of achieving emissions reductions<sup>14</sup>. While this can be seen as beneficial in bringing down the overall costs of emissions reductions (which is one objective of the carbon markets) and maximising efficient allocation of resources, it is also seen as potentially negative because it could reduce the carbon price and consequently diminish incentives for investment in high cost industrial emissions reductions.

A study by the Environmental Defense Fund<sup>13</sup> for various scenarios showed that allowing unlimited use of REDD credits reduced the projected price by 13%, and impact increased if the scale of REDD credits increased or if credits from all forestry activities were included (in this scenario, the price is lowered by as much as 1/3). While this reduction in price may not be as large as is sometimes perceived, this decline in price may still be sufficient to reduce incentives for investment in higher cost emissions reduction options, and therefore, this risk should not be ignored.

One possible option for reducing this effect would be to apply a discount factor to credits that enter the market – e.g. a 3:1 ratio, where 3 REDD credits would equate to 1 tCO<sub>2</sub> emitted by the purchaser. This approach would also help in addressing concerns around leakage and non-permanence; and would increase the overall emissions reductions achieved through the market. If applied, it would be important to ensure that the discount factor still makes REDD an attractive option to implement in developing countries (based on the revenue generated as compared with the associated costs). Therefore, there should be consideration as to how to determine what discount factor would be appropriate.

### **Flooding the market?**

A related concern is the scale of potential credits from REDD and the risk of large volumes of credits “flooding the market” and reducing the price. In addition to the risk associated with the reduction in the price on the carbon market, a further concern of flooding the market is the reduction in incentives for addressing industrial emissions in general, because substantial proportions of emissions reduction targets could be achieved by purchasing REDD credits.

### **Demand and scale of the markets**

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<sup>13</sup> Environmental Defense Fund, 2008, *Reducing Emissions from Deforestation and Forest Degradation in Developing Countries: Implications for the Carbon Market*

The Annex I cap will be critical in determining the demand and the scale of the carbon markets in the post-2012 agreement. As an example, annual deforestation in Brazil and Indonesia only is estimated to be equivalent to four-fifths of the total Annex I reduction obligations under the Kyoto Protocol. Table 3 shows the scale of the demand based on various options for demand, compared to the potential emissions reductions from REDD.

**Table 3**

	<b>Volume / scale</b>	<b>Implications</b>
<b>Supply</b>		
90% global reduction in emissions from deforestation	3.2-6.4 GtCO <sub>2</sub> <sup>14</sup>	4-8 times the annual target of the Kyoto Protocol at present
Halting tropical deforestation (not forest degradation)	7.2 GtCO <sub>2</sub> <sup>15</sup>	Would require all Annex I parties to commit to emissions reductions of 50% for the purpose of purchasing of REDD credits
<b>Demand</b>		
EU with a 30% emissions reduction target, approximately one-third of the effort achieved through purchasing credits from outside of the EU <sup>16</sup>	493.3 MtCO <sub>2</sub>	6 times smaller than the 2.9 GtCO <sub>2</sub> that would be generated through halving emissions from deforestation and forest degradation
EU Emissions Trading Scheme third phase (2013-2020)	304.5 MtCO <sub>2</sub>	One-tenth of the potential REDD credits

These figures give an indication of the scale of emissions reduction obligations that would be needed from Annex I countries to create sufficient demand for REDD credits through the carbon markets. In addition to increased targets for Annex I countries, potential mechanisms for reducing the risk of flooding the market are:

- Applying a discount factor (provided that sufficient funding is still provided to cover the associated costs of REDD), which would achieve a higher volume of emissions reductions from REDD under lower Annex I emission reduction commitments.
- Limiting access to REDD credits – either as part of the overall limit on the effort that can be achieved through non-domestic efforts or as a specific limit on REDD credits.

### ***Supply and potential to enter markets***

The previous section focussed on the potential demand for REDD credits – but it is also important to consider realistic potential for supply and when countries would likely be ready to enter a REDD mechanism. This must take into account scale of emissions, capacity to reduce emissions and interest in participating in REDD.

Boucher (in press) estimated that the REDD system is not likely to include 75% or more of deforestation emissions until 2020 or later, based on capacity and interest. Therefore, the study concluded that this reduces the risk of the world carbon market being “flooded” with cheap REDD credits in the near future. This was based on predictions for the timing of entry of the countries that

**14** Strassburg *et al*, 2008, *An Empirically-Derived Mechanism of Combined Incentives to Reduce Emissions from Deforestation*

**15** Rainforest Foundation, 2007, *Carbon Sunk? The Potential Impacts of Avoided Deforestation Credits on Emissions Trading Mechanisms*

**16** This is the current proposal from the EU

rank highest in emissions from forests. Of the top forest emitters, only Brazil and Malaysia were considered likely to be ready for early entry; followed by Indonesia, Nigeria, Peru, and Papua New Guinea in a middle phase; while Myanmar, Democratic Republic of Congo and Zambia are not considered likely to be ready to enter until later.

### ***Assessing supply alongside demand is key***

The potential risk of flooding the market is closely tied to the overall cap on emissions by Annex I countries. Within this, it is important to be clear as to which elements of a potential future market are being considered – the potential demand is sufficiently larger (and subsequently, the risk of flooding smaller) with a global carbon market, as compared with individual regional systems, which do not cover the full emissions. However, this is not the full story and it is also important to consider the potential supply that will be generated by REDD (not just based on overall emissions from forests but based on capacity and interest). In addition, the scope of REDD would influence the potential supply, for example, if emissions from forest degradation are also included. It would be valuable to analyse the implications of changes in Annex I caps on the scale of REDD credits that could be incorporated and the impact on the price, if considering a fungible – offset – mechanism for REDD.

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### **A phased approach**

If fungibility of forest-carbon credits is considered, this may not be immediate or fully fungible – which would be potentially problematic for environmental and market integrity. Instead, a phased approach might be more preferable, where initially REDD has limited fungibility (e.g. through a discount factor or firewall). As countries meet conditions demonstrating their ability to deliver monitored and verified REDD credits, the fungibility coefficients for their credits could increase. Full fungibility would be conditioned on demonstrating verified compliance with monitoring, permanence, leakage and additionality criteria. Potential priorities, funding mechanisms and timings for a phase approach are outlined below.

The current phase between now and 2013 (and potentially longer, depending on country capacity) will largely be a capacity-building phase, focused on the development of baselines, methodologies and institutional frameworks needed to create robust carbon benefits. An important element of this phase is the pilot projects (both sub-national and national), which help to test methodologies and build capacity. This phase will help countries to achieve readiness to implement REDD mechanisms under national reference frameworks, which will be critical for engagement in a post-2012 REDD mechanism. Funding for this phase is a priority and could come from all voluntary sources (public and private), with governments and multilateral funds playing a critical role due to the uncertain nature of the future role of carbon markets in REDD.

Under the operation of the post-2012 global climate agreement, a second phase – largely focussed on testing and demonstration - could be initiated where countries begin to participate in a REDD mechanism. Countries would be capable of implementing national REDD programmes and monitoring, reporting and verifying associated carbon benefits. This phase would involve the application of the agreed policies and requirements, and evaluation of the effectiveness would be an important focus (e.g. to determine whether results had been as ambitious as expected). Limited fungibility may be considered depending on the structure of the REDD mechanism and the overall post-2012 framework, including the emissions reduction commitments by Annex I countries.

According to a process defined in the post-2012 agreement, countries might be eligible for full fungibility dependent on an objective judgement under the UNFCCC that specified conditions have been met, based on results from the second phase (rather than an automatic timing of entry). This increased level of fungibility may only be achieved in certain circumstances and ongoing limits on the system might continue to be applied (for example, a cap on REDD credits in the market).

## **Is it possible to deliver the scale of funding necessary?**

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One of the main advantages frequently cited for including REDD in the carbon market is the fact that large amounts of reliable funding can be provided. The carbon market is generating \$30 billion / year and is projected to reach \$100s of billion or more<sup>17</sup>. This indicates that there is the potential for sufficient and sustainable sources of funding to be generated for REDD by including it within the carbon markets.

It should be noted that if inclusion of REDD in the carbon market is considered, the approach used to address permanence in REDD credits is crucial in influencing “market interest” for these credits. One of the reasons cited for the small scale of CDM Afforestation / Reforestation projects, is the use of temporary CERs as the means to address permanence, which has resulted in little market interest in these credits (which have to be renewed every five years). Without finding an alternative approach to addressing permanence, it is possible that there would be no interest in a REDD mechanism, even if it were included in the carbon markets.

While there are advantages to approaches which do not involve fungibility / inclusion in the carbon market, such as emissions reductions being additional to Annex I caps, concerns have been raised as to whether sufficient funding can be raised through these mechanisms. Voluntary funds, such as additional public funds, are unlikely to deliver the scale of funding needed reliably. Market-linked approaches, such as auctioning allowances or setting aside a proportion of allowances, offer the potential for achieving the scale of funding required. As one example, Norway has proposed that a portion of allowances from national emissions trading systems should be withheld. The equivalent value would be provided for international activities. With 20% of emissions reductions below 1990 levels for all Annex I countries and just 10% of the allowances set aside (and a carbon price of \$30/t), this has been estimated to raise \$63 billion annually (though this would not all go towards reducing deforestation). In a similar approach, the Lieberman-Warner Bill in the US included 2.5% of allowances being set aside for international forestry efforts. It has been estimated that this could raise \$68.3 billion during 2012-2020. Given that this is over a period of 9 years, it would not likely be sufficient to halt or even halve deforestation based on the estimates of the costs of REDD. While this Bill has not been accepted, this is an example of one country’s domestic legislation – and if scaled up to cover all Annex I countries, this would have the potential to raise substantially more.

Similarly, the European Commission is proposing that all power sector allowances would be auctioned from 2013 and that by 2020 all sectors will be subject to 100% auctioning. By 2020 it is estimated that this would result in a revenue stream of approximately €50 billion per year<sup>18</sup>. WWF is calling for auctioning of all allowances within the EU ETS from 2013 and for at least half of the revenues to be spent on climate protection measures in developing countries. Under this WWF scenario, this would imply that there would be the potential to generate funding in the region of €50 billion per year from 2013.

The government of Norway as part of the UNFCCC negotiations made the proposal of auctioning AAUs as a source of funding, and calculated as an illustrative example that if 2% were auctioned this could generate \$15 to \$25 billion per year.

While funding generated through market-linked mechanisms would not all flow towards REDD activities, these predictions suggest that there is the potential for sufficient scales of funding to be provided. These figures indicate that sufficient funding could potentially be generated both through including REDD in the carbon market and through market-linked mechanisms, such as use of auctioning revenue.

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**17** Schwartzman et al, 2007, *Getting REDD Right*

**18** Stern put the cost of halving deforestation by 2020 at \$3 - \$33 billion per year. Stern, 2008, *Key Elements of a Global Deal on Climate Change*

## **Is there the political will?**

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Given that the scale of funding from market-linked mechanisms is theoretically sufficient to incentivise REDD, probably the main challenges with these approaches is whether there is sufficient political will. Auctioning allowances is a key design feature which helps to ensure that the progression towards a low carbon economy takes place in the fairest and economically most efficient way. A number of parties have proposed auctioning allowances and the use of auctioning revenues for climate protection measures but the acceptance and delivery of this option relies on political will from governments. Auctioning of emission allowances provides a number of benefits, including ensuring that the full cost of carbon is factored in, supporting the “polluter pays” principle and, as demonstrated in the previous section, raising significant sums of money. A recent report by the Carbon Trust stated that one of the greatest emerging challenges in climate change is the funding gap and identified auctioning revenues as a crucially important element in closing this gap<sup>19</sup>. A number of countries are beginning to announce using revenue from auctioning allowances for forestry activities (such as Germany). While these are positive commitments, this is not sufficient to provide the scale of funding necessary to reduce emissions from deforestation and forest degradation sustainably – and, therefore, the UN climate negotiations need to deliver increased commitments. In addition, there remain valid concerns that announcements are not always followed up with full delivery; that it takes time for funding to filter down; and that institutional costs and poor governance of funds can result in only a portion of these funds reaching the local level. These concerns with delivery of funds depend largely on the structure and governance of the funds themselves, including whether funding is all centralised through government to government funding, as compared with financing mechanisms where money is distributed more directly to the local level. A further barrier, which is also closely linked to the means of distributing the funds, is the capacity to manage the scale of funds in developing countries. Issues relating to the distribution of funds are relevant for all 3 options (voluntary funds, market-linked mechanisms and including in the carbon markets); however, they are outside the scope of this paper.

There also needs to be political will for inclusion in carbon markets in a way that ensures the integrity of the overall agreement, for example, to achieve sufficient ambition and when considering market interest in REDD credits. This has been discussed in other sections.

## **Liability**

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One country which has been a strong advocate for non-market mechanisms is Brazil. They are the main proponents of using a fund-based mechanism for REDD, which does not count towards emissions reduction commitments by Annex I countries. The proposal is based on the idea that positive financial incentives are considered on an annual basis:

- If for any given year the annual emissions from deforestation (RED) fall below the reference emission rate (RER), the participating country is eligible to receive financial positive incentives.
- In case RED falls above the RER (i.e. actual emissions are higher than the reference level), the participating country is not eligible to receive a financial incentive (but there is no liability for previous payments – i.e. there is no mechanism for ensuring permanence of the previous emissions reductions). However, this difference (i.e. the increase in emissions) is discounted from the next RED that falls below the deforestation reference emission rate. A financial incentive is provided only if there are additional emissions reductions.

This lack of liability for a later increase in emissions reductions is an important element of Brazil’s position. Using a mechanism where financial incentives are not provided as an alternative to emissions reductions elsewhere means that the net effect of non-permanent emissions does not

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**19** Carbon Trust, 2008, *Cutting Carbon in Europe: The 2020 plans and the future of the EU ETS*

have the same level of risk associated (i.e. the net effect with a non-market mechanism is that there has been no emissions reduction; while the net effect with a market mechanism would be that there was an increase in the atmospheric level of greenhouse gases). Therefore, Brazil's proposed approach where countries are not liable for an increase in emissions is more acceptable under a non-market mechanism. One reason why countries might prefer not to be liable for a future increase in emissions is that they are concerned about the feasibility of maintaining emissions reductions from deforestation permanently, particularly due to the potential for forests to become large sources of emissions with future climate change. If liable, this could result in countries being required to either reduce their emissions or if this is not possible to perhaps purchase emissions reductions from other countries.

While many countries have tended to prefer a market mechanism, this issue of liability with a market mechanism is a key element to consider and determine the implications and how it would be dealt with. It is vital that there is a mechanism to address the risk of non-permanence if a market mechanism is used and, therefore, the issue of liability for any non-permanence needs to be considered but the risk of making developing countries liable for future emissions is a justified concern (and the lack of market interest in the temporary CERs which have been used for the CDM A/R have indicated market concern with accepting liability for non-permanence).

### **Flexibility of funding mechanisms**

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While inclusion in the carbon market might be considered appropriate in certain conditions, there are likely to be a number of scenarios / circumstances where carbon markets will not provide the required financial support or incentive. This is only appropriate for activities where there are verified emissions reductions, and therefore, for example, this source of funding would not be appropriate for capacity building and support for readiness and so alternative funding sources must be used.

Given that only two countries (Brazil and Malaysia) are predicted to be ready for early entry to a REDD mechanism based on emissions, capacity and interest<sup>20</sup>, this indicates that there will be a clear need for funding options outside of the carbon market over the short-medium term to provide support for those countries who are building capacity for REDD or are implementing activities but do not yet have sufficient capacity for monitoring, reporting and verifying emissions reductions under a national baseline.

A further group of countries that may not be eligible for inclusion in the carbon market are those countries with high forest cover but currently with low rates of emissions from forests. This is due to questions about the additionality of any actions to maintain these low deforestation rates. There may be some countries where, though deforestation rates are low, they are on the increase, and therefore, baselines could be set based on this trend (though this may not be a sufficient incentive to avoid an increase in deforestation). However, for countries with consistently low rates of emissions from forests at a national level (either due to a lack of pressure on forest resources or due to previous activities to conserve forests), this approach would not be an option. Proposed approaches for such countries include projected emissions or the use of a global baseline. Any proposed mechanisms for developing baselines for countries with low emissions from forests must ensure the integrity of the overall system – and this is of particular importance if inclusion in carbon markets is considered. While there may be a number of potential approaches for developing baselines for countries with low emissions from forests, non-market mechanisms provide a valuable alternative for these countries which might generate greater scales of funding and avoid risks of undermining the integrity of the carbon markets.

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**20** Boucher, in press

Voluntary mechanisms can be used for activities other than verified emissions reductions, but they are unlikely to generate the scale of funding necessary (while Norway provided a large scale of funding for the next 5 years, support from other countries has not been as forth-coming and would be unlikely to provide sufficient sustainable funding. Likewise, much of the interest from private sources has been due to expectations of future compliance, rather than necessarily that the private sources will be a sufficient source of voluntary funding). Voluntary mechanisms will likely be of particular value in advance of and in the early stages of a post-2012 deal.

Market-linked mechanisms have similar flexibility to voluntary mechanisms (as compared with carbon markets) but the figures provided in the previous section indicate that they are more likely to provide funding of the scale needed and in a way that is sustainable. Therefore, market-linked mechanisms have an invaluable role as a funding mechanism for those countries that are not able to access market funding.

## **POLICIES AND POSITIVE INCENTIVES FOR ENSURING CO-BENEFITS**

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WWF believes that it is important for forest-carbon initiatives that ensure the integrity of existing forests, biodiversity protection and promotion of range of other environmental and social values. This includes clean water, poverty alleviation and respect for the rights of indigenous people and other local communities. To achieve this, policies and positive incentives should be developed to encourage activities that deliver co-benefits. While mechanisms under the UNFCCC are primarily aimed at carbon, they have the potential to help assure the continued provision of vital ecosystem services by forests and to enhance livelihoods. Such efforts would also contribute towards the goals of and obligations of countries under other multilateral agreements<sup>21</sup>.

Finance for REDD and other forest-carbon initiatives must be sufficient for a sustained reduction in carbon emissions, while also building good governance and strengthening the resilience and adaptive capacity of ecosystems and local communities in the face of increased vulnerability to climate change<sup>22</sup>.

It is vital the biodiversity, social and cultural values are taken into account in the design and implementation of REDD and other forest-carbon initiatives<sup>24</sup>. The concept of High Conservation Value Forests (HCVFs) aims to ensure that forests of outstanding and critical importance are maintained, due to their high environmental, socio-economic, biodiversity or landscape values. The High Conservation Value framework would provide useful elements to incorporate in mechanisms for REDD and other forest-carbon initiative to ensure that these various values, in addition to carbon, are respected and maintained.

Areas which provide a high carbon benefit and have score highly for other values should be top priorities for REDD. However, priority sites for REDD, based on carbon values, will not necessarily reflect priority sites for other values<sup>23</sup>. In these areas, REDD may not be a suitable funding mechanism (if the carbon benefit is not sufficient) and alternative funding should be targeted; or alternative there may be the need for co-financing (i.e. a further incentive in addition to that which will be provided through the carbon finance). Possible incentives for co-benefits should be considered through non-market mechanisms associated with the UNFCCC agreement or in processes outside the UNFCCC.

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**21** UNEP-WCMC, 2007, *Reducing Emissions from Deforestation: A Key Opportunity for Attaining Multiple Benefits*

**22** IIED & WWF, 2007, *Carbon, communities and conservation*

**23** Miles & Kapos, 2008, Reducing Greenhouse Gas Emissions from Deforestation and Forest Degradation: Global Land-use Implications, *Science* 320: 1454

## SUMMARY AND KEY ELEMENTS FOR FURTHER DISCUSSION

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WWF calls on parties to support the development, by the Copenhagen COP at the end of 2009, of a robust framework for reducing emissions from deforestation and forest degradation in developing countries that will provide the basis for zero net global deforestation by 2020. To be effective, REDD must be transparent, equitable and practical, while also ensuring the environmental integrity of the international post-2012 regime.

**Policy approaches:** Reducing emissions from deforestation and forest degradation in countries with high emissions from forests is a priority. In addition, the post-2012 REDD mechanism should identify ways to ensure that countries with large areas of intact forest that currently have little or no deforestation continue to protect their existing forests. Policies for REDD must recognise the multiple values and uses of forests and accommodate the food and resources requirements of the human population. A range of policy approaches would be useful mechanisms for achieving and incentivising emissions reductions, including policies to incentivise forest conservation, removal of policies that provide a perverse incentive for forest conversion and sustainable production of forest products and agricultural commodities. REDD mechanisms must contribute to development goals and ensure that benefits, including funds, are equitably distributed.

**Positive incentives:** To be effective, an international regime to reduce emissions from deforestation and forest degradation in developing countries will need to ensure that developed countries provide sufficient resources to cover the associated costs of REDD over the long-term and contribute to national development goals. A range of figures have been estimated for the costs of REDD, with most estimates falling within \$20-33 billion / year to halve deforestation. To start halting tropical deforestation, a combination of mutually reinforcing funding options - from market and non-market mechanisms – that generate resources at a sufficient scale is likely to be required. This paper has tried to assess a number of the concerns and potential implications of different financial mechanisms and a summary of these issues is provided in the following sections.

A range of financial mechanisms have been proposed, which fall into the following broad categories:

1. Inclusion in carbon markets (either with unlimited or limited access), essentially as an offset mechanism for Annex I emissions reduction targets;
2. Market-linked mechanisms, such as auctioning of allowances (Assigned Amount Units – AAUs) – either for all global allowances or specific sectors, dedicated auction revenues from national or regional emissions trading systems, a levy on all or some emissions;
3. Voluntary funding, such as additional public funds.

In options 1 and 2, the amount of funding for REDD (and consequently the emissions reductions that will be incentivised) are based on market prices and size of the market. In option 2, while funding depends on market prices and size, emissions reductions from REDD are not traded for emission increases in Annex I countries (i.e. emissions reductions from REDD are additional to Annex I emissions reductions, as compared with option 1 where emissions reductions from REDD would be an alternative to Annex I emissions reduction).

The implications of different funding mechanisms on different characteristics are vital to consider when assessing which funding mechanisms might be most appropriate. The range of characteristics can be grouped depending on what implications they relate to:

- Concerns with fungibility in a carbon market approach (i.e. offsetting emissions reductions from other sources with emissions reductions from REDD) and environmental integrity: e.g. net effect if leakage occurs, non-additional or non-permanent; effect on net global emissions; need for national baselines
- Carbon market effect: e.g. compliance costs, effect on net global emissions
- Scale: e.g. potential funding

- Flexibility of funding mechanism: e.g. pay for verified reductions; pay for stabilisation; pay for capacity building

**Environmental integrity with carbon markets:** One of the concerns voiced with regards to fungibility of REDD credits (and other LULUCF credits) is the risks associated if leakage occurs or if emissions reduction are non-additional or non-permanent. Potential ways of addressing concerns with fungibility of REDD include excluding REDD credits from carbon markets and using only market-linked mechanisms (such as revenue from auctioning of allowances) or voluntary mechanisms to fund REDD; or if REDD credits are included within the carbon markets, putting conditions or limits in place, by limiting the amount of REDD credits, discounting, or not including activities from countries which currently have low emissions from forests within carbon markets, unless there is demonstrable additionality.

**Ambition:** In addition to the environmental integrity of any emissions reductions, the ambition of the overall emissions reductions is vital. Therefore, to achieve the ambition of emissions reductions needed to stay below 2 degrees rise, emissions reductions from REDD (and other mitigation activities in non-Annex I countries) must be additional to action in Annex I countries. To achieve this through inclusion in the carbon market, Annex I countries must commit additional targets, on top of the 25-40% range agreed for the second phase of the Kyoto Protocol in Bali. Market-linked mechanisms and voluntary funding are not generated as an alternative to emissions reductions from Annex I countries, and therefore, emissions reductions from REDD would be additional.

**Carbon market effect:** REDD is often cited as a relatively low cost mitigation option, and therefore, integrating REDD into international emissions trading is predicted to considerably decrease costs of achieving emissions reductions, which could disincentivise emissions reductions from industrial sources. One possible option for reducing this effect would be to apply a discount factor to credits that enter the market. This approach would also help in addressing concerns around leakage and non-permanence; and would increase the overall emissions reductions achieved through the market. A related concern is the scale of potential credits from REDD and the risk of large volumes of credits “flooding the market” and reducing the incentive for addressing industrial emissions in general, because substantial proportions of emissions reduction targets could be achieved by purchasing REDD credits. In addition to increased targets for Annex I countries, potential mechanisms for reducing the risk of flooding the market include applying a discount factor and limiting access to REDD credits – either as part of the overall limit on the effort that can be achieved through non-domestic efforts or as a specific limit on REDD credits.

**A phased approach:** If fungibility of forest-carbon credits is considered, this may not be immediate or fully fungible. Instead, a phased approach might be more preferable, where initially REDD has limited fungibility (e.g. through a discount factor or firewall). As countries meet conditions demonstrating their ability to deliver monitored and verified REDD credits, the fungibility coefficients for their credits could increase, depending also on broader elements of the overall architecture, including the emissions reduction commitments by Annex I countries.

**Permanence and liability:** If inclusion of REDD in the carbon market is considered, the approach used to address permanence in REDD credits is crucial in influencing “market interest” for these credits. In addition, it is vital that there is a mechanism to address the risk of non-permanence if a market mechanism is used and, therefore, the issue of liability for any non-permanence needs to be considered. Permanence and liability are also important elements for consideration with market-linked mechanisms and voluntary funding if we are to achieve sustainable emissions reductions.

**Scale of funding:** One of the main advantages frequently cited for including REDD in the carbon market is the fact that large amounts of reliable funding can be provided. However, predictions indicate that there is the potential for market-linked mechanisms also have the potential for sufficient scales of funding to be provided without including REDD in the carbon market (while

recognising that funding generated through market-linked mechanisms would not all flow towards REDD activities).

**Flexibility of funding:** While inclusion in the carbon market might be considered appropriate in certain conditions, there are likely to be a number of scenarios / circumstances where carbon markets will not provide the required financial support or incentive. Inclusion in the carbon market would only be appropriate for activities where there are verified emissions reductions. Possible incentives for co-benefits should be considered through non-market and market-linked mechanisms associated with the UNFCCC agreement or in processes outside the UNFCCC.

Table 4 provides a summary of the different financial mechanisms and potential uses and issues associated.

Table 4

Funding source	Scale of funding and timing <sup>24</sup>	Source of funds, e.g.	Use of financial mechanism	Issues
Voluntary funding (non-market)	Relatively small Immediate and short-term  Can be upfront funding	Public funds	Trial processes  Preparation for REDD  Upfront costs  Compensation and incentives  Incentives for maintaining low deforestation rates	Relatively small-scale  Unreliable / unlikely to be sustainable
Market-linked mechanisms	Relates to emissions / targets for emissions reductions  Potentially up to \$100 bn/yr (not specific to REDD)  Medium-term  Can be upfront funding	Auctioning of allowances, levy	Preparation for REDD  Upfront costs  Compensate for verified emissions reductions  Incentives for maintaining low deforestation rates	Political will for auctioning of allowances and use of revenues for climate protection measures  Governance of funds generated
Inclusion in carbon markets	Potentially up to \$100 bn/yr (not specific to REDD)  Medium-term  Funding is provided after emissions reductions are verified	National or regional trading schemes	Compensate for reduced deforestation  Incentives for maintaining low deforestation rates?	Fungibility  Market credibility  Governance  Political will for sufficiently high emissions reduction targets

<sup>24</sup> Timing refers to the likely point at which funding will become available / utilised. While the timing for specific elements depends largely on wider processes, approximate timings are predicted as follows. Short-term: 2009-2012; Medium-term: 2013-2020

**WWF's mission** is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by:

- conserving the world's biological diversity
- ensuring that the use of renewable natural resources is sustainable
- promoting the reduction of pollution and wasteful consumption.

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