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New Zealand Submission: Reducing Emissions from Deforestation and Forest Degradation in Developing Countries

Introduction and Mandate

Under paragraph 1(b)(iii) of the Bali Action Plan (Decision 1/CP.13), the international community has initiated consideration of possible 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.

This process should build upon the consideration of relevant methodological issues under the SBSTA agenda item on REDD. These discussions have demonstrated that robust methodologies are available, or can be developed, to allow an effective REDD mechanism to be implemented.

New Zealand considers that it is now appropriate to discuss the development of a mechanism to provide economic incentives to reduce emissions from deforestation and forest degradation in developing countries.

Discussions to Date

During discussions on methodological issues a number of key issues have emerged regarding policy approaches and positive incentives; in particular, how a financial incentive might be provided. Two leading approaches have developed:

1. A fund that is paid to developing countries that reduce their rate of deforestation and degradation; or
2. Using a Kyoto Protocol-type trading regime to allow avoided deforestation to create tradable 'emission units'.

Both of these approaches have major challenges, which if not addressed effectively, may ultimately mean any REDD mechanism lacks environmental integrity and durability.

New Zealand notes that under either approach, some other sources of funding are likely to be necessary to assist developing countries to build capacity, provide technology transfer, assist in improving governance and enforcement, initiate national programmes, provide demonstration projects, and the like.

While the development of specific methodologies to assess emissions and create baselines will be essential, these should follow the international community's agreement to a policy approach to provide economic incentives for REDD. New Zealand considers that SBSTA's consideration of REDD methodological issues has

clearly shown that non-biased, verifiable methodologies for assessing emissions from deforestation and forest degradation are available and that these can be refined once a policy approach is agreed.

The Economics of Reducing Deforestation and Degradation

Any REDD mechanism must provide developing countries with adequate financial resources to compensate them for the economic benefits they forgo by reducing deforestation (and a corresponding reduction in development, especially of agriculture, forestry and mining).

Modelling from a number of sources puts the financial incentive needed to significantly reduce deforestation rates in developing countries at somewhere in the range of \$10 - \$40 billion per year (see Annex 1) depending on assumptions, though there are a number of other estimates outside this range.

Economic analysis has found that for many developing countries the opportunity cost to retain their current area of forest (and therefore forego development opportunities and incur significant enforcement costs) was higher than the marginal benefit of retaining that area of forest. Many governments are therefore responding in an entirely economically rational way given the costs and benefits before them.

Without an incentive mechanism, forest area will therefore continue to decline until a country reaches an optimal forest area cover where its national-level marginal cost of retention is equal to its national-level marginal benefit of retention¹. It is important to note that:

1. The national-level socially optimum forest coverage will be well above the forest coverage that would arise considering only the marginal costs and benefits at the individual level. This is because the individual does not value many of the benefits of forests that are valued by wider society.
2. The national-level socially optimal forest cover is not static. As countries become more developed the benefits of forests tends to rise - for example as recreation and biodiversity become more valued by a wealthier society. In addition, as wages rise with development then conversion of forest land that is marginal for agriculture becomes less economic. As a consequence, the national-level socially optimal forest cover rises also. Therefore, as countries develop they tend to increase their forest area; something that is occurring across most of the developed and a significant proportion of the developing world.
3. Countries that may currently be at their national-level socially optimal forest cover may recommence forest clearance if the opportunity cost of forest retention rises; for example if the value of agricultural products rise.

Once countries fall to or are below their national-level socially optimal forest cover, then governments tend to regulate and strongly enforce regulations to prevent or significantly control further forest clearance. This is common in most developed countries and in a number of key developing countries.

¹ though experience, for example in developed countries, shows that often actual deforestation tends to over-shoot this optimal level because of delays in recognizing the external costs of deforestation (such as erosion, flooding and biodiversity loss) and delays in governments taking action, such as legislating, to limit deforestation.

Critically, when the global values of forest retention are also considered, especially the value to the climate system, then the socially optimal area of forest retention becomes significantly greater than the national-level socially optimal forest coverage. This is supported by a number of economic analyses that conclude that, deforestation in developing countries would virtually stop even at quite modest carbon prices.

In summary, the values of retaining forest cover increase as consideration moves from individual, to country-level, to global levels. This is because more of the non-financial services provided by forests are incorporated moving from the individual, to the national, to the global values.

Why are these underlying economics of deforestation important for negotiations?

Considering the underlying economic incentives facing countries is fundamental to establishing an effective and efficient REDD mechanism. A number of key conclusions can be drawn from the discussion above, including:

1. Proposals to avoid deforestation that focus solely on capacity building, governance, and enforcement will not, in most instances, significantly reduce deforestation, since they will not transfer sufficient value to a country to compensate it for the costs (in terms of foregone development) of greater forest retention.
2. Similarly, individual project-based mechanisms will also be largely unsuccessful at a country-level, since they will only increase the benefits of forest retention in the area subject to the project. The country may still face powerful economic incentives to allow deforestation and development elsewhere outside the project boundary.
3. To be effective, the mechanism must, at a minimum, transfer value to the national government of a country in return for that government retaining forest cover at a level higher than optimal for that country had the additional payment not been made. It can be expected that, should funding stop, then deforestation activity would return to pre-REDD mechanism levels. Therefore, all other things being equal, ongoing incentives are likely to be necessary; in effect meaning that the international community is 'leasing' the additional retained forest area for a period of time.
4. It is probably not necessary to compensate countries at a rate equal to the sum of individuals' opportunity costs, which would be much more costly than compensating for the opportunity costs at the country level.
5. Any country that has forest area above its national-level socially optimal forest coverage will require compensation if it is to avoid deforestation. This is regardless of its recent deforestation rates² which are not necessarily a good predictor of future deforestation rates.

² For example countries experiencing conflict may have had a low deforestation rate in recent times, though this is likely to increase rapidly as conflicts are resolved.

6. Any country already at its socially optimal forest cover (that is, that had been deforesting and has now stopped of its own accord) will not require compensation to retain that level of forest cover. The exception is where the opportunity costs of forest retention rise in future; something that could readily happen with rising food prices and therefore increasing benefits of forest conversion to agriculture. In such cases, some financial incentive may be required for countries to maintain forest cover even though they had recently had little or no deforestation.
7. It is important to note that, even where countries have stopped deforestation either of their own accord or as a result of a REDD mechanism, such countries may still have a forest cover below the optimal level when viewed from a global benefits perspective. This is because such countries will not be facing efficient economic incentives to expand their forest cover (such as through an efficient afforestation/reforestation mechanism). This is where carbon-value based incentives for afforestation could play a role, as intended through the sinks in the CDM mechanism, albeit unsuccessfully.
8. As countries develop they generally receive greater benefits from retained forests and the country is incentivised to retain a greater of area of forest without additional incentives. It may be therefore that over time the need for avoided deforestation incentives will diminish to some extent.

Options for a REDD Mechanism

A variety of options have been discussed as potential REDD mechanisms; some are complementary and could be considered as part of a package of options. The approach usually proposed is to either manage the drivers causing deforestation (input management options) or provide incentives to participants commensurate with the reduction of deforestation (output management options), or a combination of both approaches.

New Zealand has considered a wide range of options for a REDD mechanism. In general New Zealand considers that:

- To provide the primary financial resources to address REDD, a market-based approach is likely to be more durable and economically efficient than a fund-based approach. However, both approaches have their benefits and drawbacks. New Zealand is open to exploring both options.
- Despite its benefits, a market-based approach comes with significant risks of either:
 - flooding the carbon market and therefore reducing focus on fossil fuel abatement; or conversely,
 - 'avoided deforestation credits' not materialising in the volumes expected, and therefore countries are forced into far more costly abatement options in order to meet their obligations.
- Some degree of matching increased potential supply of units with increased demand for units could help address the risks described above. However, this is likely to be very difficult in the absence of any market evidence for supply of units from a REDD mechanism. It may therefore be appropriate to explore an interim mechanism using a funds-based approach that can provide evidence for supply of emission reductions from avoided deforestation.

- There should be no presumption that the source of financial resources to address REDD is limited to Annex 1 countries only.
- One option would be to explore a new Protocol under the UNFCCC, linked to the Kyoto Protocol, in which countries in addition to Annex 1 countries take on obligations to provide financial resources for a REDD mechanism (through either a market, fund or combination approach);
- A national-based mechanism (be it market or funds based) is likely to be significantly superior to a project-based mechanism, primarily because it is better at addressing intra-country leakage; will have lower compliance/administration costs; will allow a more accurate baseline to be developed in aggregate; and is likely to allow better assessment of possible “hot-air”.
- Some form of project-based mechanism may be appropriate as an initial step to aid countries’ development of a national-level approach. However, such an approach would ideally not involve crediting of tradable emission units due to concerns over leakage and consequently the environmental robustness of any units generated. New Zealand considers, therefore, that the international community should explore a funds based approach for initial projects, even if a market-based approach at the national level is ultimately agreed as the primary funding mechanism.
- Any mechanism should have maximum potential for global coverage, as this is the best way to address issues of inter-country leakage. The mechanism should not apply arbitrary adjustments to financial incentives to ‘correct’ for possible inter-country leakage.
- Overall, an output management scheme (that is funding based on actual reductions in emissions) will be necessary to achieve the substantial resource flows required. However, capacity building will be required to put countries in a position to participate in output management options.

Domestic Policies to Reduce Emissions from Deforestation

An effective REDD mechanism potentially offers significant financial incentives to reduce deforestation. However, the development of an international financially based mechanism (providing marketable units or funds) does not mean that domestic policies need to be credit based or even economic instruments. They simply must produce real, measurable reductions in emissions at the national level. The precise mix of domestic policy approaches and measures employed by developing countries is a matter for sovereign governments. New Zealand notes that this is the same framework that applies to Annex 1 Parties in their selection of policies and measures.

This said, any potential revenue from REDD should facilitate development and implementation of effective domestic policies. Under a market-based approach in particular, it is also likely to lead to those countries that want to purchase REDD derived units being actively involved in assisting developing countries to establish effective domestic policies and measures.

New Zealand does not consider there should be specific requirements incorporated into the operative elements of any REDD mechanism agreed under the UNFCCC

that would govern the domestic policies and measures of a country³. However, the development of principles may be appropriate to assist countries in the development of their policies and measures.

It will also be important that technology transfer, capacity building, assistance with developing a sustainable forestry industry and alternative regional employment opportunities, and the experiences gained from pilot and demonstration projects are readily available to developed countries to assist them.

³ Though there would be a mandatory requirement for an appropriate national system to “measure” and report in a manner that allows verification of any “emissions units” issued at a national-level.

Annex 1: Summary of Some Economic Estimates of the Opportunity Costs of REDD

Opportunity costs of REDD

The make up of the financial flows associated with REDD may be complex and varied. At a minimum these will probably need to provide for: compensation for the lost opportunity to use the land for other purposes (opportunity cost); finance to promote alternate development pathways; and finance for capacity to reduce the demand and/or otherwise control deforestation.

While a wide range of 'aggregate' REDD figures have been presented in the international literature.

Table 1 is derived from one review of these analyses – a paper prepared by Boucher and presented to the World Bank's Workshop on the Costs of REDD, 27 May 2008.

The parameters presented in table 1 for the opportunity cost estimates are:

- for "Regional empirical studies"; the mean of 29 studies \pm 3 Standard Error;
- for "Stern Review"; mid-point of high-low range; and
- for the "Global models", mean and minimum-maximum range of the 3 models.

The values presented here are for 50 percent⁴ of abatement of global emissions and 100 percent abatement of global emissions.

The Boucher paper indicates that the shape of the abatement cost curve is non-linear and rapidly plateaus after approximately 60% of the emissions abatement potential. In other words the modeling suggests that abatement above 60% of BAU emissions has a relatively high marginal cost per tonne (over ~US\$20/tonne).

Table 1: Summary of Estimates of Opportunity Costs for REDD

Analysis Approach	Opportunity Cost Estimate \$US/tCO ₂	High \$US/tCO ₂	Low \$US/tCO ₂	Implied global range of opportunity cost (\$US billion, at 50% reduction of global deforestation emissions)
Regional, empirical	2.51	4.18	0.84	15.9>9.6>3.2
Stern Review	5.52	8.28	2.76	31.5>21.0>10.5
Global models	11.26	17.86	6.77	68.0>42.9>25.8