Guidance for modalities relating to forest reference levels and forest reference emissions levels

in response to SBSTA's invitation to submit views

(see FCCC/SBSTA/2011/L.14, para.4 & annex 1, para.2)

September 2011

a contribution from the following members of

THE ECOSYSTEMS CLIMATE ALLIANCE

Plus the David Shepherd Wildlife Foundation

Global Witness, Wetlands International, Humane Society International, the Environmental Investigation Agency and The Rainforest Foundation UK are registered observer organisations to the UNFCCC

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The conclusions agreed by SBSTA[1] at Bonn in June 2011 invited Parties and accredited observers to submit to the secretariat, by 19 September 2011, their views on reference levels. In issuing this invitation, SBSTA drew particular attention to the matters referred to in the guidance from the Cancun COP (see appendix II, Decision 1/CP.16):

"2. *Guidance for modalities relating to forest reference levels and forest reference emission levels:*

(a) Scope and/or purpose;

(b) *Characteristics, including elements listed in paragraph 1 of appendix I to decision 1/CP.16* (see attachment 4 for details);

(c) Guidance for the construction;

(d) Process for communication;

(e) Other relevant issues."

Reference levels can be used for recording progress towards meeting targets or for calculating the scale of applicable incentives (including any financial benefits such as carbon credits). For application to REDD+, estimates of rates of GHG emissions or of changes in sizes of carbon stores can be used to indicate this progress. Reference levels developed under REDD+ should be capable, if required of also being applied to any eligible proposal under other mechanisms that might be recognised by the UNFCCC.

In summary, there are six key issues we would like to raise with delegates:

1. Definition of terms is needed as an important matter of urgency. It is particularly important that there be agreement on the consistent use of terms.
2. There needs to be clear separation between technical and political considerations in constructing a "reference level" (as a technical issue) and constructing a "baseline" (as a political issue) against which either progress towards meeting a target, or the level of results-based payments can be calculated (i.e. a 'compensation baseline'). Technical issues should be for SBSTA to advise on and political ones for the LCA to develop.
3. Equal attention needs to be given to estimating carbon stocks and stock changes as is given to emissions and changes in rates of emissions.
4. Peatsoils need special attention in the reference level discussion, because – unlike forests on mineral soils – emissions from deforested or drained peatsoils ***continue*** into the future until the entire peat is depleted or the degraded area is restored.
5. We suggest a definitional framework, based on already agreed FAO categories used for national Forest Resource Assessment purposes, for characterising changes in forest land use to facilitate MRV and safeguards implementation as well as meeting the primary forest carbon conservation goal.
6. Results-based payments should not be made on the basis of reference level calculations made using default values due to the inevitable lack of precision.

[1] FCCC/SBSTA/2011/L.14 dated 16 June 2011;

1. Need to clearly define terms at the outset

Currently, there is no agreed definition or consistent use of 'reference level' or 'reference emission level' in the climate negotiations (or in the literature) related to measuring emissions or carbon stocks. Similarly, 'forest reference level' and 'forest reference emission level' have no agreed definition or consistent use.

In the absence of agreed use of terms, misunderstandings are almost inevitable. Resolving this uncertainty is urgent and important. It is our view that the uncertainty created by ongoing use of undefined terms might be acting as a significant deterrent to making critical decisions on the whole range of issues relating to the management of terrestrial carbon that are before the UNFCCC.

(a) Differentiate technical and political components

There needs to be explicit recognition that the process of reporting progress towards targets, or of calculating eligibility for available incentives, has both a technical and a political component. If the technical and political components are not clearly separated, the development of any REDD+ mechanism will be beset by the same problems currently facing negotiators with respect to the future of LULUCF accounting rules under the Kyoto Protocol (KP). Past failure to separate components in LULUCF under the KP means that senior negotiators are being drawn into complex discussions over technical minutiae as a surrogate for open debate over policy. Development of a REDD+ mechanism provides negotiators with an opportunity to be transparent and sensible in taking a fresh approach.

'Reference level' is a technical concept
Our first proposition is that the term **'reference level'** (and any associated qualifiers, such as 'national', 'emissions' or 'forest') should be used to describe the **outcome of a scientifically robust technical process** based on transparently derived data through application of methodologies approved by the COP on advice from SBSTA.

'Baseline' is a political concept - derived from a subsequent process
Our second proposition is that the term '**baseline'** (and any associated qualifiers, such as 'compensation', historical, 'projected' or 'forward looking') should be adopted to describe the **outcome of a subsequent transparent political process** based on factors that might be adopted by the LCA. The baseline can then be used to transpose a technically derived *reference level* into a politically agreed **measure of progress towards a target and/or eligibility for incentive schemes**.

Decision 1/CP.16 provides that the REDD+ mechanism is to evolve into results-based actions – there is no suggestion that "results" are to be measured relative to the reference level alone. For this reason we see the need to introduce the new term "baseline" to allow for clear and transparent debate on how to convert a "reference level" based on historical data (see Decision 4/CP.15) into a "compensation baseline" for calculating results-based payments.

(b) Elaborate categories of reference levels

Reference levels should be regarded as key parts of approved methodologies designed to help Parties meet their obligations pursuant to the UNFCCC.

In this regard, it is important that, in developing methodologies for implementing a REDD+ mechanism, Parties do not repeat their earlier mistakes and omissions in seeking to implement the LULUCF provisions of the Kyoto Protocol, see Box 1, where Parties developed LULUCF methodologies based only on estimating and reporting changes in emissions rather than changes in carbon stocks.

It is hoped that negotiators will take this opportunity to give effect to the obligation to address both emissions and carbon stocks (reservoirs) in a more coherent and transparent way than has been the case with LULUCF rules under the Kyoto Protocol.

Box 1: Selected obligations of parties to the UNFCCC and Kyoto Protocol to protect carbon stores (reservoirs) as well as reduce emissions:

- UNFCCC Article 4.1 states that, "All parties … shall (inter alia): (d)Promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate of sinks and reservoirs … including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems;"
- Article 2.1 (a) (ii) of the Kyoto Protocol commits Annex I parties to *"(a) implement and/or further elaborate policies and measures in accordance with its national circumstances, such as* (inter alia): *(ii) protection and enhancement of sinks and reservoirs of greenhouse gases …".*
- KP Article 3.3 requires that *"the net changes in greenhouse gas emissions by sources and removals by sinks resulting from direct human-induced land use change and forestry activities, … measured as verifiable changes in carbon stocks in each commitment period, shall be used to meet the commitments under this Article …".*
- KP Article 3.4 goes on to require each Annex I Party to *"provide, for consideration by the [SBSTA], data to establish its level of carbon stocks in 1990 and to enable an estimate to be made of its changes in carbon stocks in subsequent years."*

There are two categories of reference levels that warrant explicit identification and elaboration based on the commitments established by ratification of the UNFCCC. These are (1) reference levels for *emissions* and (2) reference levels for *carbon stocks*:

1. **'reference emission levels'** (RELs). This term should be used to describe estimates of actual historical GHG emissions from clearly identified 'activities' in a specific area (or a specific aggregate of such RELs). It could be further elaborated as a 'national reference emission level', a 'subnational reference emission level', a 'forest reference emission level' – or any other relevant qualifier. It might also be elaborated as an 'historical emission level' (although, 'historical' would be unnecessary because all 'technical' RELs are based on things that happened in the past – any future considerations would be based on 'baselines' politically derived from an REL).
2. **'reference carbon stock levels'** (RCLs). This term should be used to describe estimates of carbon stocks in a clearly defined area. The area will either be defined administratively, as in 'national' or 'provincial' (or other appropriate sub-national descriptor), or ecologically, as in 'forest' or other agreed land use category. Such RCLs would be based on relevant guidance, notably the latest IPCC 2006 Guidance identifying a number of separate terrestrial carbon pools. An RCL might be expressed in absolute amounts of carbon, or be expressed relative to an estimate of undisturbed, non-degraded carbon levels – the natural carbon carrying capacity of a landscape (CCC) or part thereof. Use of RCLs allows for the development of 'stock change' methodologies necessary not only to support the introduction of land based accounting but also to support a range of useful baselines (see below) currently under discussion but which have yet to be developed. Carbon stock changes can still be attributed to activities if required and justified. See Attachment 1 of this submission for further explanation on the need to focus on carbon stocks as well as emissions.

In all cases, RELs and RCLs should be regarded as technical estimates of actual emissions to atmosphere or of carbon stores, based on approved methodologies.

Peat soil particularities in setting baselines and reference levels for forests

The enormous pool of carbon in forest peat soil (on average, ten times larger per hectare than the entire carbon stock in the biomass of tropical forests), and its sensitivity to oxidation, means that the emissions behaviour of peat swamp forests is fundamentally different from that of forests on mineral soils. A fundamental error is often made by not differentiating sufficiently between emissions resulting from clearing a forest and the ongoing emissions from forest peat soil that continue after clearing and draining.

Emissions from clearing a forest primarily involve the removal and oxidation of forest biomass. These emissions can be considered to be more-or-less instantaneous, but they largely stop once clearing stops (and may be promptly reversed by subsequent regeneration). In contrast, emissions from peatland drainage continue until the drained area is effectively rewetted (reinstalling water level + revegetation) or the entire peat is depleted - i.e. emissions may continue for decades, or even centuries, after clearing and draining. See Fig. 1, below.

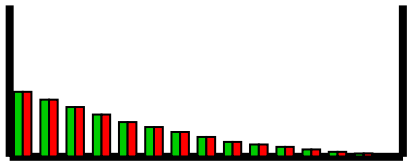
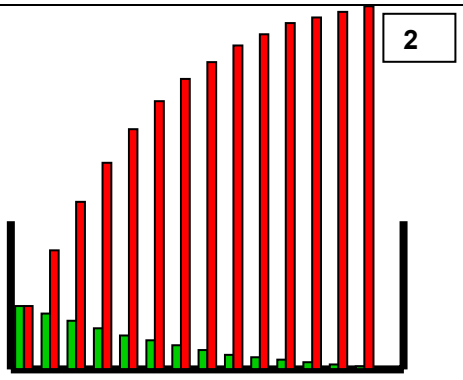
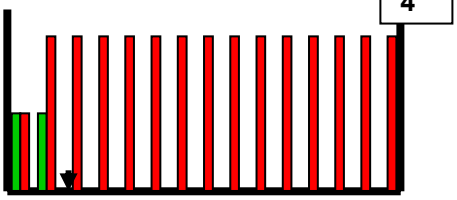
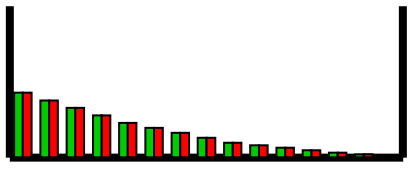
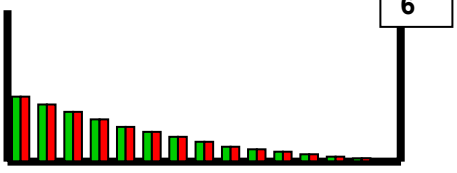
Forest biomass	**Peatland soil**
 A decreasing rate of deforestation and forest degradation decreases annual GHG emissions.	 A decreasing rate of peatland conversion that involves drainage increases annual GHG emissions because the emissions from newly drained peatland add to those of already drained peatland.
 Stopping deforestation and forest degradation stops GHG emissions.	 Stopping further expansion of drainage in peatlands does not decrease GHG emissions from existing drained peatlands where emissions will continue at the same level.
 Decreasing the rate of deforestation and forest degradation is indeed Reducing Emissions from Deforestation and forest Degradation.	 But only decreasing the absolute area of drained peatland is Reducing Emissions from Deforestation and Degradation.
REDD+: STOP DEFORESTATION and FOREST DEGRADATION	**REDD*: STOP NEW DRAINAGE + REWET**

Fig. 1: The relation between annual land use change ([1]-[5]) / land use ([6]) (ha/year, green) and total annual emissions (tonne of CO_2 eq./year, red) when considering forest biomass only (left) and when considering peat soil (right)

Failure to deal properly with peatland drainage can result in wrong estimation of the relative importance of emissions. Emissions arise not only from initial, once-off peat swamp forest clearing and drainage but also continue from subsequent and ongoing peatland use. Such failure will lead to severe underestimation of the annual emissions from drained peatlands and, consequently, lead to adoption of wrong reference level scenarios and hence provision of wrong guidance for planning, policy review and development.

Reducing emissions from peat swamp deforestation and degradation (REDD+) is only possible by the combination of

1. Preventing further peatland degradation and drainage (from new conversion or intensified drainage on already drained peatland). This will, however, merely maintain annual GHG emissions at the status quo level, because emissions from already drained peatland will continue.
2. Reducing drainage intensity in already degraded and drained peatlands. This requires peatland rewetting and reforestation (i.e. reducing drainage levels and/or intensity), which is the only means to decrease annual emissions from peat soils.

(c) Derive a baseline as a basis for calculating progress and / or incentives

The term 'baseline' should be used to describe the result of an explicitly political exercise of converting or applying a reference level to determine an amount to be used either as the basis for calculating progress towards meeting a target or for calculating eligibility for incentives schemes, including financial benefits such as carbon credits. Examples of such 'baselines' would include:

- **A 'forward-looking' or 'projected' baseline** based on either a direct extrapolation of an 'historical reference level' of actual emissions or on a modification of an historical reference level based on the implications of identified policy settings – or any other political choice or construct that might be agreed by a COP.
- **An 'historical' baseline**, for instance, might be simply derived from an historical reference level by choosing a specific year or period of years or by discounting or inflating such amounts by an agreed factor. Such factors might relate to the GDP of a country or province, to the scale or intensity of any driver of degradation, to the relative extent of accumulated degradation (such as Angelsen's forest transition curves[2]), or to any other factor deemed relevant by Parties.
- **A 'target' baseline** whereby a reference level of actual emissions is converted into a different amount to be included in calculations of contributions to meeting agreed targets by application of agreed accounting rules.
- **A 'compensation' baseline** whereby a reference level of actual emissions can be transposed pursuant to an agreed formula to derive an amount to be used for calculating benefits due for REDD+ eligible activities. Such benefits might be the number of credits to be issued to eligible entities pursuant to an agreed market mechanism or the scale of benefit due pursuant to any other funding mechanism adopted by or recognised by the COP.

This issue of a 'compensation' baseline is receiving much recent attention as people struggle to put the pieces together to operationalise a REDD+ mechanism. An agreement to refer to it as a 'compensation baseline' – rather than a 'reference level' – would be a good start.

[2] Anglesen, A. 2007. Forest Cover Change in Space and Time: Combining the von Thunen and Forest Transition Theories. *World Bank Policy Research Working Paper 4117* (February)

In summary, we propose that the term 'reference level', and all its variants, would be used to describe technical estimates of real stock levels or emissions based on application of agreed methodologies. 'Baseline', and all its variants, would be used to describe numbers derived from reference levels by application of one or more politically chosen conversion or transposition factor.

3. How a compensation baseline might be derived

We support development of a fair formula for converting a reference emission level or reference carbon stock level into compensation baselines that realistically recognise the different development status of the countries and communities involved. In all situations, however, we feel that it is important that 'compensation' must be seen to be explicitly linked to and constrained by verifiable, scientifically credible reports of estimates of emissions reduced or emissions avoided based on methodologies that clearly, credibly and comprehensively link measurements of environmental variables to emissions estimates.

To allow a compensation baseline to be constructed which allows benefits to be received even when emissions have increased is perverse and should be regarded as unacceptable. That things are not as bad as they might have been is not good enough! The pair of graphs in Figure 2, below, illustrates this potential for perverse outcomes when it comes to treatment of 'reduced impact logging' (RIL) or any other form of logging short of clearfelling.

A compensation level would preferably be based on the extent to which the land base of countries, or of sub-national provinces, have been degraded below their carbon carrying capacity (CCC – the carbon store expected in an intact, non-degraded landscape). This is most important when considering the appropriate land use policy response. In general, low degradation jurisdictions need to be assisted along alternative development paths that avoid further degradation while high degradation jurisdictions need help in restoring carbon density while delivering other development outcomes, and all variants and combinations in between.

Thus, while an estimate of changes in carbon stores or rates of emissions is needed to identify the overall scale of atmospheric benefit to drive potential compensation, the nature and scale of appropriate compensation should be related to the overall degree of degradation (current carbon stock level relative to original CCC).

4. The terrestrial carbon debate must focus on degradation in all its forms

Too often 'deforestation' is used lazily such that it is unclear whether the term is being used as shorthand to refer to 'deforestation and forest degradation' or to explicitly exclude other forms of forest degradation from consideration. In 2007 the Bali COP decided to include 'reducing emissions from deforestation and forest degradation' in the Bali Action Plan – the second 'D' in REDD. Parties thus have an obligation to ensure that 'forest degradation', in its widest sense, is given equal methodological treatment to 'deforestation'.

Obviously, it is simpler and easier to merely drive policy on the basis of reports or estimates of deforestation, but to promote the idea that it should be used as the interim, quick and dirty, basis for introducing a REDD+ mechanism would set back the cause of harmonising carbon and forest conservation policies by a decade.

Of immediate concern is that any moves to limit reference levels to 'deforestation' while excluding 'forest degradation' (which obviously includes 'deforestation' as an extreme form of degradation)

would exclude opportunities to report and account for carbon stock losses or emissions from forest degradation that do not involve deforestation. This has two serious problems:

- Firstly, deforestation is often the eventual result of a long and complex chain of degrading activities (such as logging, road-building, grazing, arson). Therefore, regardless of measures taken to directly limit deforestation (such as preventing conversion of forests to cropping land or pasture) if these degrading activities are not directly controlled, deforestation may eventually result;
- Secondly, forest degradation is often a major cause of carbon store reduction and a major source of emissions in its own right, and directly controlling such degrading activities is warranted in seeking to reduce emissions or maintain carbon stocks. The key degrading activity is obviously industrial-scale logging – a major source of emissions that need not directly cause deforestation. Industrial demand for wood is the principal driver of such forest degradation. A consequential problem that would arise from failure to develop methodologies that deal with such forest degradation is that this would frustrate attempts to address commodity wood demand as a driver of emissions and carbon stock losses from forests. Additionally, in the case of forests on peat soils, addressing deforestation only would fail to deal with emissions related to the drainage of organic peat soils for activities such as small-holder agriculture and industrial plantations, which are, in the tropics, the most substantial and most rapidly growing sources of peatland emissions. If these degraded areas are excluded from the REDD+ baseline, emissions will continue and increase without any incentive to reduce them. Moreover, new plantations will then preferentially move to deforested and abandoned peatlands leading to intensified (deeper and denser) drainage and larger, but unaccounted for, emissions (displacement of emissions or leakage). It is critical that the emissions from all peat forest soils are included in the baseline of REDD+, both of currently forested and previously deforested peat soils. We recommend that UNFCCC makes this explicit in its guidance for REDD+. Although currently without canopy cover, deforested and abandoned peat swamps are nevertheless 'temporarily unstocked as a result of human intervention' (see definition of "Forest" in the Annex to decision 16/CMP.1) and can naturally regenerate to forests in the absence of human management and anthropogenic fires.

The broadening of the Coalition of Rainforest Nation's 'RED' proposal (explicitly avoiding accountability for what happens within forests) to 'REDD' in Bali remains an historic step forward – it is not an historical curiosity to be put behind us as if it were an unfortunate anomaly.

Any attempt to limit consideration of the broad and complex field of forest degradation to the single extreme form of 'deforestation' can be expected to lead to perverse outcomes, as it turns a blind eye to the degrading effects of all those forest management activities that do not lead to 'deforestation' – including the conversion of native forests to plantations managed for production of wood or other products. This should be regarded as an unconscionable simplification. The two graphs in Fig. 2, below, illustrate this problem.

The first graph reproduces the Angelsen forest transition curve which has 'forest cover' on the Y-axis. We have added a red line to indicate what would happen if 'deforestation' is reduced to zero much more quickly than 'normal'. This line is exactly the same for both protection of intact, primary forest and for 'reduced impact logging' (RIL). I.e., using 'forest cover' as the primary indicator of change hides emissions attributable to reduction in carbon stores as a result of logging – or any other degrading activity, short of actual deforestation.

Note that, as defined by FAO and used by UNFCCC (Annex to decision 16/CMP.1) 'deforestation' is not a description of reality, but a consideration of future intent– a forest can be cleared but, as long as there is an intention (at some unspecific time in the future) to reforest, then clearing is not

regarded as 'deforestation'. Similarly, under this definition conversion of 'natural forest' to 'planted forest' is not counted as deforestation. Note also, that the eventual upturn in the Angelsen curve is not attributable to any restoration of natural forests but to the introduction of plantations into the forest/agriculture land use mosaic – 'normal' patterns of land use change involve ongoing degradation and loss of natural forest cover while overall 'forest cover' may be increasing.

The second graph indicates how the picture changes if the Y-axis shows changes in carbon density (relative to intact, non-degraded carbon carrying capacity (CCC)) rather than changes in forest cover. The shape of the red line remains unchanged if the natural forest is protected but, if RIL is introduced (the green line), the forest carbon store is steadily eroded – with considerable instant and eventual emissions to atmosphere as a result (depending on soil and forest type).

While it is true to say that RIL has a better emissions profile than 'business as usual' (the Angelsen curve), it still has a substantial emissions profile. Only protection of natural forest has a minimal emissions profile. This situation clearly indicates why it is preferable to take a carbon stock conservation perspective rather than an emissions reduction perspective. When looked at from a carbon stock perspective, RIL is less emissive than business as usual – but it is still emissive! It can clearly be seen to be perverse to prefer RIL management regimes over forest protection regimes.

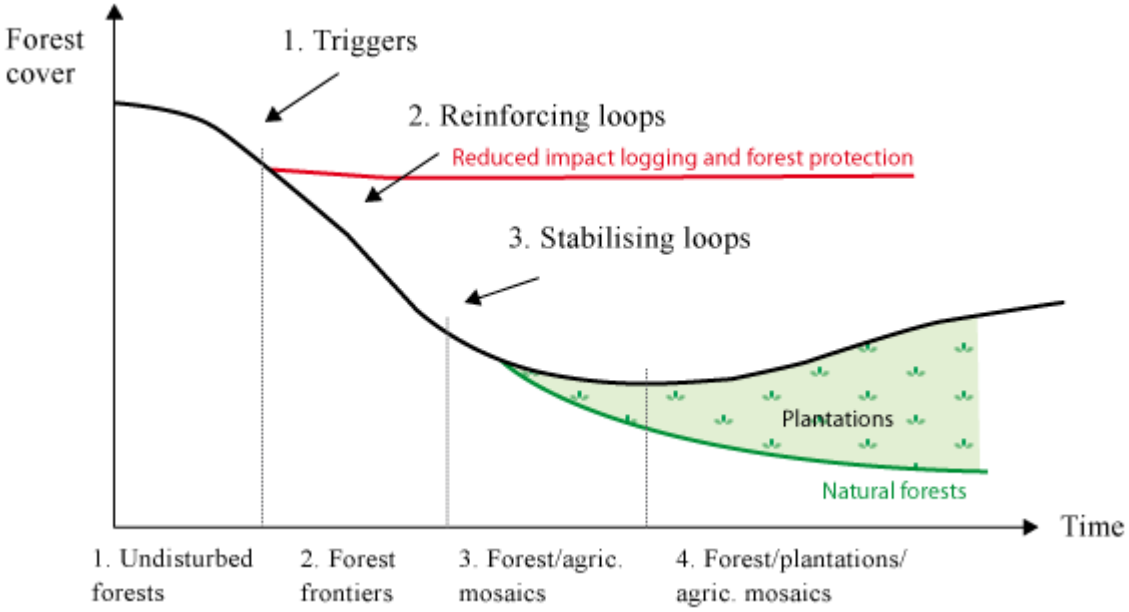


Figure 2: The original Angelsen forest transition curve modified to reveal conversion to plantations and to indicate possible effect of introducing Reduced Impact Logging or more Forest Protection

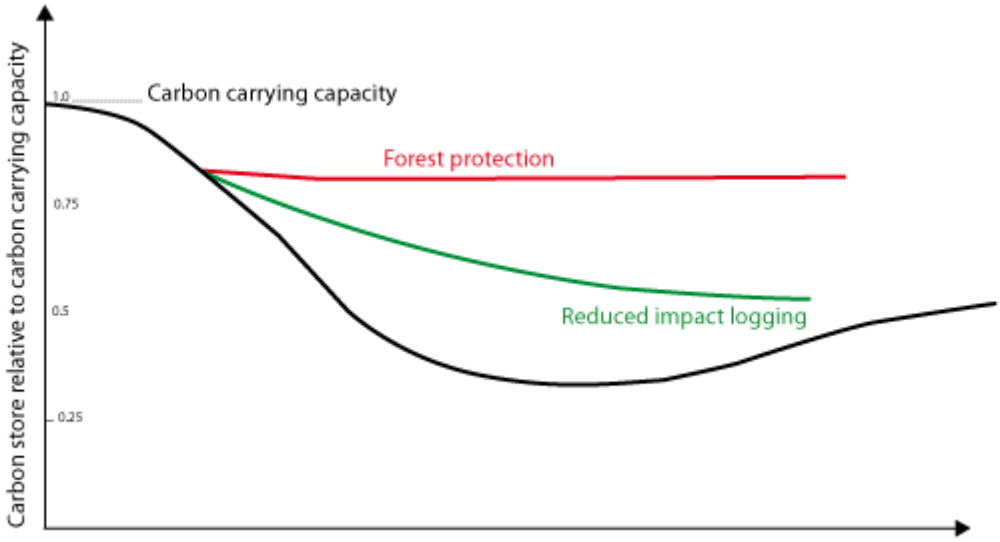


Figure 3: The forest transition curve with Carbon Store size relative to carbon carrying capacity on the Y-axis instead of Forest Cover – revealing the different effects of Reduced Impact Logging and Forest Protection

5. A Workable Framework for Categorising Deforestation and Forest Degradation Activities

The five categories of eligible activities included in decision 1/CP.16 (for reducing emissions from deforestation, and from forest degradation; conservation of carbon stocks, sustainable management of forests and enhancement of carbon stocks) can be usefully harmonised with the new FAO categories that countries are using for their 2010 Forest Resource Assessment as follows:

	**Primary forest**	**Other naturally regenerated forest**	**Planted forest**	**Other land uses**
Primary forest	Conservation of Carbon Stocks	Forest Degradation	Forest Degradation (safeguard exclusion)	Deforestation (safeguard exclusion)
Other naturally regenerated forest	Enhancement of Carbon stocks	Sustainable Management of Forest	Forest degradation (safeguard exclusion)	Deforestation (safeguard exclusion)
Planted forest	Enhancement of Carbon Stocks	Enhancement of Carbon stocks	Sustainable Management of Forest	Deforestation (safeguard exclusion)
Other land uses	Enhancement of Carbon Stocks - afforestation	Enhancement of Carbon Stocks - afforestation	Enhancement of Carbon Stocks - afforestation	Not Applicable

See Attachment 2 for notes to the matrix

A modified Matrix can be used for Peat/Swamp Forests

	**Primary/restored peatswamp natural forest**	**Degraded peatswamp natural forest**	**Planted forest**	**Other land use**
Primary/restored peatswamp forest	Conservation	Degradation	Deforestation and degradation (safeguard exclusion)	Deforestation (safeguard exclusion)
Degraded peatswamp forest	Enhancement of carbon stocks	Degradation	Deforestation and degradation (safeguard exclusion)	Deforestation (safeguard exclusion)
Planted forest	Enhancement of carbon stocks	Degradation	Degradation	Deforestation (safeguard exclusion)
Other land use	Enhancement of carbon stocks	Degradation	Degradation	Degradation

6. Need to use real estimates of emissions not conservative default values

Any approach that uses conservative default values for emissions from deforestation, or forest degradation, is not acceptable.

In general, we have long been concerned by the IPCC's use of default values of above-ground forest carbon density to estimate emissions based on deforestation rates (often themselves an estimate). On balance, this rather trite approach has often, but not always, tended to underestimate emissions from the land use sector. This might have sufficed as a stop-gap pending serious consideration of the problem, but it should not be regarded as an acceptable methodology, especially if it is to be used as the basis for calculating a 'compensation baseline'. The use of this stop-gap approach despite the ready availability of much more appropriate estimation methodologies should be avoided.

This leads to another concern, which is that eligibility for 'compensation' (benefit flows of any kind) may not be clearly based on a credible estimate of emissions reduced or avoided, when conservative default values are utilised.

With regards to estimating emissions from peatlands, it should be noted that credible estimates can only be derived from the revisions to the 2006 guidelines that are currently in progress. Recent science available has modified the emission factors currently used to estimate emissions and removals from peatlands. Use of these revisions will assist with accuracy of reporting.

Attachment 1
Need to Focus on Carbon Stocks as well as Emissions

The emerging discussion on how to address management of terrestrial carbon needs to be cast in terms of what is happening to carbon stores – or carbon reservoirs as the UNFCCC and its Kyoto Protocol also refer to them[3]. Annex II of 1/CP.16 requests the SBSTA to:
(c) Develop as necessary, modalities for measuring, reporting and verifying anthropogenic forest-related emissions by sources and removals by sinks, ***forest carbon stocks, forest carbon stock*** *and forest area* ***changes*** *resulting from the implementation of activities referred to in paragraph 70 of this decision...* (our emphasis)

Direct consideration of greenhouse gas (GHG) emissions is entirely appropriate as the basis for discussions on the fate of fossil fuels, however for emissions derived from land use and land use change, it makes more sense to think in terms of what is happening to carbon stores (or reservoirs).

There are three main reasons for wanting to shift the focus of the terrestrial carbon debate from consideration of emissions to consideration of carbon stock changes:

(a) This is how people customarily think about what is happening to land, soil or vegetation. For instance, soil is considered as having more or less 'organic matter' in it (the customary term to describe labile 'soil carbon') and forests are more or less heavily 'timbered'. People customarily think in terms of loss of such stores when soils are ploughed or eroded and forests are logged, burnt or cleared. They do not think in terms of emissions – such notions are derived from estimating observable changes in stores.

(b) Secondly, the use of land-based accounting to report estimation of carbon stocks and carbon stock changes allows for such information to be reported in the same land-based accounting systems used to report a wide range of other information.

This is particularly important when it comes to consideration of social and environmental safeguards – land-based accounting allows any number of values to be attributed to a single point or area on the ground. This is why the use of 'GIS' (geographical information systems) has become such a powerful planning tool. This information can include the rights and interests of indigenous peoples and local communities not only in the land itself but also in any attribute of land or vegetation. Similarly, information on elements of biodiversity or any other conservation value can be reported.

If emissions are reported independently using a reporting system that ignores all these other characteristics, there is a tendency for the debate over land-based emissions to become divorced from the land-based context – a recipe for maladministration on the ground. Land-based accounting can ensure that all the relevant information can be made readily available to any one group of decision-makers, especially those interested in climate change.

(c) Thirdly, as a result of this long-established way of looking at land use in terms of carbon stock change, there is an enormous accumulation of customary and scientific knowledge and understanding of these natural and modified terrestrial ecosystems – and a wide range of measurement and estimation techniques and technologies developed in pursuit of such knowledge and understanding that can readily be applied to the task of estimating changes in carbon stores and hence GHG emissions.

For instance, it is common for commercially tried and tested methodologies for estimating harvestable wood volumes from a native forest to be used as a 'reference level' from which a 'baseline' can be calculated using species-specific ratios to estimate other carbon pools (like branches and roots).

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[3] See Box 1, p3 of this submission

Attachment 2

A Workable Framework for Categorising Deforestation and Forest Degradation Activities

The five categories of eligible activities included in decision 1/CP.16 (reduced emissions from deforestation, and from forest degradation; conservation of carbon stocks, sustainable management of forests and enhancement of carbon stocks) can be usefully harmonised with the new FAO categories that countries are using for their 2010 Forest Resource Assessment as follows:

	**Primary forest**	**Other naturally regenerated forest**	**Planted forest**	**Other land uses**
Primary forest	Conservation of Carbon Stocks	Forest Degradation	Forest Degradation (safeguard exclusion)	Deforestation (safeguard exclusion)
Other naturally regenerated forest	Enhanced Carbon stocks	Sustainable Management of Forest	Forest degradation (safeguard exclusion)	Deforestation (safeguard exclusion)
Planted forest	Enhanced Carbon Stocks	Enhanced Carbon stocks	Sustainable Management of Forest	Deforestation (safeguard exclusion)
Other land uses	Enhanced Carbon Stocks - afforestation	Enhanced Carbon Stocks - afforestation	Enhanced Carbon Stocks - afforestation	Not Applicable

Notes to the table

1. '**Conservation of Carbon Sto**cks' equates to maintaining 'primary forest' as categorised by FAO, to 'conservation' as originally set out in the Bali Action Plan and 'stabilization' in paragraph 1(b) of Decision 4/CP.15 agreed in Copenhagen.
2. '**Sustainable Management of Forests'** equates to maintaining extractive use of forest, either as ongoing management of 'naturally regenerated forest' as naturally regenerated forest or ongoing management of 'planted forest' (plantations) as planted forest. [There may be boundary issues (with enhanced carbon stocks or forest degradation) depending on whether specific activities enhance or degrade carbon stocks in any particular reporting year or, within a single reporting or commitment period, or when viewed at different timescales.]
3. '**Enhancement of Carbon Stocks'** equates to all those movements between FAO categories as a result of specific activities that result in increases in the carbon stock of a particular area of forest. [There are six such cells in the matrix above. Such activities may result in enhancement for only part of the time and may involve conservation or degradation of carbon stores at different times or over different reporting or commitment periods.]
4. '**Forest Degradation**' equates to all those movements between FAO categories as a result of specific activities that result in decreases in the carbon stock of a particular area of forest. [Forest degradation involving conversion of primary forest or other naturally regenerated

forest to planted forest (plantations) would be ineligible for REDD+ support pursuant to the safeguard in paragraph 2(e) of Appendix 1 of Decision 1/CP.16.][There are three such cells in the matrix above.] [Such activities may result in degradation for only part of the time and may involve conservation or enhancement of carbon stores at different times or over different reporting or commitment periods.]

5. '**Deforestation**' equates to all those movements between FAO categories as a result of specific activities that result in forest being converted to non-forest use. [Deforestation would be ineligible for REDD+ support pursuant to safeguards in paragraph 1 of Appendix 1 of Decision 1/CP.16.][There are three such cells in the matrix above.] [Such activities involve degradation at a single point in time with no intention to restore carbon stocks.
6. '**Not applicable**' simply identifies that this final cell in the matrix is not relevant to discussions about support for eligible activities for REDD+ pursuant to the Bali Action Plan and Decision 1/CP.16. Insofar as 'agriculture' and 'blue carbon' are being discussed elsewhere, however, this matrix could readily be expanded to embrace land use categories relevant for a wider discussion across the entire AFOLU sector, either involving an expanded REDD+ mechanism or the creation of new mechanisms. In all circumstances, having a single categorisation system would be needed to allow relevant activities to be appropriately characterised for eligibility, safeguard and policy treatment purposes.

Note also that paragraph 1(c) of Decision 4/CP.15 from Copenhagen "*Requests* developing country parties … (c) To use the most recent [IPCC] guidance and guidelines, as adopted or encouraged by the [COP], as appropriate, as a basis for estimating anthropogenic forest-related greenhouse gas emissions by sources and removals by sinks, forest carbon stocks and forest area changes;" In other words, for as long as such 'encouragement' from the COP continues, parties can use the IPCC 2006 Guidelines as the basis for separating out 'planted forests' from 'natural forests' but additional guidance would be needed to separate 'primary' and 'other' naturally regenerated forest to enable full adoption of the FAO categorisation as we have suggested. We trust that parties will ask for such additional guidance.

The elegance of our suggestion is that it proposes a single categorisation for breaking down 'forest' that is regularly maintained by FAO, the competent international body, within which both forest carbon stocks and forest area, and any changes in such stocks or areas, can be reported and accounted for, while allowing relevant activities (with resultant emissions or removals) to be meaningfully characterised.

Acknowledgement: these ideas are based on emerging thinking within the European Commission and its Joint Research Centre.

Attachment 3

Paragraph 1 of Appendix I to decision 1/CP.16 lists desirable characteristics for any REDD+ mechanism, including:

(a) *Contribute to the achievement of the objective set out in Article 2 of the [UNFCCC] Convention;*

(b) *Contribute to the fulfillment of the commitments set out in Article 4, paragraph 3, of the Convention;*

(c) *Be country-driven and be considered options available to Parties;*

(d) *Be consistent with the objective of environmental integrity and take into account the multiple functions of forests and other ecosystems;*

(e) *Be undertaken in accordance with national development priorities, objectives and circumstances and capabilities and should respect sovereignty;*

(f) *Be consistent with Parties national sustainable development needs and goals;*

(g) *Be implemented in the context of sustainable development and reducing poverty, while responding to climate change;*

(h) *Be consistent with the adaptation needs of the country;*

(i) *Be supported by adequate and predictable financial and technology support, including support for capacity-building;*

(j) *Be results-based;*

(k) *Promote sustainable management of forests;*

Note that use of the word 'including' makes this is an open-ended list of desirable characteristics. The discussion remains open. Parties should feel free to suggest additional characteristics, if warranted.