



CLIMATE CHANGE

Forest Carbon Counts

Welcome to the first **Special Bulletin: Forest Carbon Counts**. It informs participants at the UNFCCC negotiations on a new Paris agreement about issues to be addressed in relation to primary forests. It follows on from the **Truth in Targets Special Bulletins** produced for earlier COPs. See www.hsi.org.au/go/to/25/climate-change

Emissions from forest degradation (logging) are too big to ignore

Last month, the UK's Prince of Wales' International Sustainability Unit (ISU) published its report, **Tropical Forests—a Review** which is an excellent review of the relevant scientific literature. The key take-home message identified by the Prince in his foreword, that "The potential for greenhouse gas emissions mitigation from reducing deforestation, reducing [forest] degradation and pursuing forest landscape restoration is highly significant. Together, doing just these three things could play a major role in our efforts to meet the global obligation [to avoid dangerous climate change]. **And we can act on forests now, therefore buying much-needed time to enable the global transformation to a low carbon economy...**" (p.iv). This 'wedge effect', and its potential scale, is poorly appreciated by UNFCCC negotiators—protecting forests can provide a large, one-off emissions reduction boost that can get the world onto a safer emissions reduction trajectory ahead of longer term initiatives.

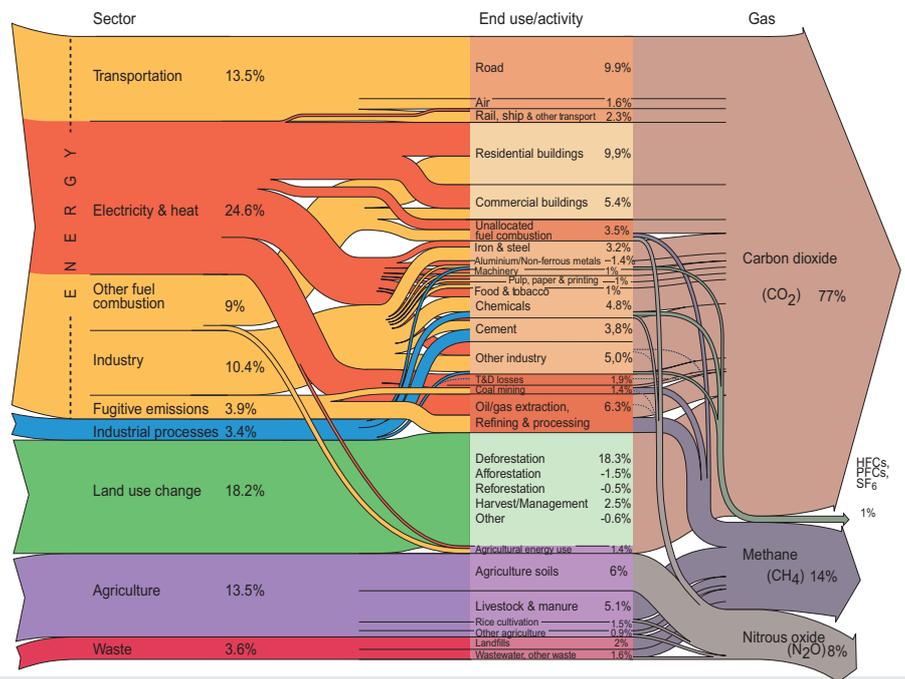
With this win-win-win opportunity in mind, we have joined IntAct, a growing network of civil society organisations seeking to secure the protection of the world's remaining primary forests and appropriate restoration of forest landscapes (see Statement of Principles, p7)—in all countries both developed and developing. While others are clutching at impossible straws, viz the IPCC's 'BECCS' scenarios (bioenergy with carbon capture and storage, see page 6 for more commentary), we're hoping that Paris agreement negotiators will wake up to their 'elephant in the room'—the potential for very large and very fast reductions in emissions from protecting the carbon stores/ reservoirs that are the world's remaining intact, primary forests. This potential, available at relatively low cost, is hidden from them by the perverse Kyoto accounting rules developed by Annex 1 countries' self-serving forestry agencies seeking to shirk their responsibilities to contribute to their countries' binding emissions reduction targets.

Insofar as pledges associated with a Paris post-2020 agreement are not expected to be binding, the rationale for these misleading and perverse Kyoto LULUCF accounting rules disappears. Non-binding pledges can be fairly and openly monitored using natural accounting rules—land-based accounting, using 'gross' accounting that separates out emissions in the land sector from removals (sequestration). Using natural, gross, land-based accounting, it readily becomes clear that **'acting on forests now', as the Prince puts it, requires a reduction in demand for wood** and wood products derived from native forest

logging—in importing, developed countries where most of the demand originates. If demand for wood is not moderated, any success in protecting forests and reducing emissions in one country or province is simply reflected in increased logging and emissions somewhere else (see "Consumption, leakage and drivers", p8) — **only a global consumption moderation commitment can capture the immediately available emissions reduction opportunity.**

The ISU Report notes that "Tropical deforestation remains a major driver of global warming, emitting 0.8-0.9 Gigatonnes of Carbon (GtC) annually, equating to 8% of global carbon emissions. **Less widely recognised, tropical forest degradation accounts for a further 0.6-1.5 GtC per annum, equating to a range of 6-14% of all anthropogenic carbon releases** (or 10-14% if estimates are based on the recent noteworthy studies by Grace et al. and Houghton. In aggregate, the two sources may account for 14-21% of all carbon emissions, perhaps higher still when tropical peatlands and mangroves are included." (ibid. p.4).

In other words, tropical forest degradation—principally attributable to so-called 'sustainable forest management' for industrial logging—is as big an emitter of carbon to the atmosphere as is deforestation, yet it receives very little policy attention by comparison. **At somewhere around 10% of global emissions, tropical forest degradation is too big to ignore.** This imbalance in policy attention between deforestation



World Greenhouse Emissions by Sector This diagram, from a 2009 GRID-Arendal 'Blue Carbon Sinks' info-graphic, summarises the situation as well as anything. Land use change includes both emissions and sequestration (and the 'harvest/management' figure is, itself, a net figure)—gross emissions are considerably larger. Data is for 2000. Source: World Resources Institute, Climate Analysis Indicator Tool, Navigating the Numbers: Greenhouse Gas Data and International Climate Policy, Dec. 2005. www.grida.no/graphicslib/detail/blue-carbon-sinks_10aa

► Emissions from forest degradation (logging) are too big to ignore...continued

and forest degradation needs to be rectified, in time for incorporation into any post 2020 agreement in Paris at the end of this year.

The ISU Report further notes, “Projected increases in global demand for wood products and agricultural commodities will significantly increase pressure on tropical forests over the next few decades.” FAO points out “reduced overall emissions, but increased degradation” in the front-page, take-home message of its leaflet, “FAO assessment of forests and carbon stocks, 1990-2015” (14470E/1/03.15 ©FAO 2015). While emissions from deforestation may have gone down by 25% over this period, emissions from degradation for the period 2011-15 are double those for the period 1991-2000 (albeit still amounting to only a third of the emissions attributable to deforestation).

This is the first time that FAO has published separate figures for emissions from and sequestration into forests and it’s time the IPCC and UNFCCC did likewise. Netting out emissions and sequestration hides this alarming trend of increased emissions from forest degradation. As demand for wood and wood products grows while deforestation slows, it is inevitable that degradation increases.

Remember, this 10% of emissions from forest degradation is from logging tropical forests only—there’s roughly as much again from logging temperate and boreal forests. It is fanciful to think that the world can generate sufficient emissions reduction pledges to avoid dangerous climate change without including pledges to substantially reduce emissions from Land Use, especially from deforestation and forest degradation.

Industrial logging has largely escaped the attention of mainstream UNFCCC negotiators over the years because they, rather unwisely, left it to the forestry agencies within their governments to develop their own emissions accounting rules for the LULUCF sector when the Kyoto Protocol was originally developed (Land Use, Land Use Change and Forestry) and renewed in 2011—a case of leaving the fox in charge of the hen-house if ever there was one.

Not surprisingly, the resulting set of perverse and arcane accounting rules did a good job of hiding emissions attributable to the forestry industry from those not familiar with its workings—especially the use of so-called ‘net-net accounting’. And, not to be outdone in the perverse accounting stakes, the developers of the REDD+ process have developed their own equally perverse accounting rules, especially the use of ‘forward looking baselines’. A critique of these accounting rules is shown on page 3. This graph (below) from Gabon’s INDC illustrates the situation very neatly.

The ICU Report goes on to note, “On the other side of the tropical forest carbon ledger, current sequestration of atmospheric CO₂ is also significant, drawing down 1.2-1.8GtC a year. The convention in [UNFCCC rules for] greenhouse gas accounting is to ‘offset’ these removals against tropical forest emissions; that approach is arguably insufficient, for two reasons. Recent findings on the importance of forest protection as a means to safeguard continuing sequestration

indicate that a significant proportion of CO₂ absorption occurs as a result of human agency. Additionally, the net accounting approach distracts attention from the reality of much higher gross emissions.” (ibid.p.4)

A good example of this perverse accounting is to be found in Norway’s INDC where footnotes clarify that, if land use were to be included in the 1990 base year emissions estimates, using net-net accounting, it would be reduced from 52.0 Mtpa CO₂eq. to 41.8 Mtpa. What remains hidden is how much higher than 52.0 Mtpa Norway’s actual, or ‘gross’, emissions were in 1990, if realistic accounting rules were used for the land sector that required separate reporting of, and accounting for, both emissions and removals. These perverse accounting rules have been adopted by the UNFCCC for use by all member states and are not a peculiarity of how Norway reports its emissions.

	Harris et al ^(b)		Grace et al ^(c)		Houghton ^(d)	
	GtC	% of all emissions	GtC	% of all emissions	GtC	% of all emissions
Tropical deforestation	0.80	8.00%	0.90	8.49%	0.81	7.44%
Tropical forest degradation	0.60	6.00%	1.10	10.38%	1.47	13.51%
Deforestation plus degradation	1.40	14.00%	2.00	18.87%	2.28	20.96%
Fossil fuels and cement production ^(a)	8.60	86.00%	8.60	81.13%	8.60	79.04%
Total emissions^(d)	10.00		10.60		10.88	

Sources: (a) Le Quere, C., et al. 2013. *Global Carbon Budget 2013*. Earth Syst. Sci. Data Discuss., 6, 689–760 (averaged for 2003–2012); (b) Harris, N., et al. 2012. *Progress Toward a Consensus on Carbon Emissions from Deforestation*. Winrock International; (c) Grace, J., et al. 2014. *Perturbations in the carbon budget of the tropics*. *Global Change Biology* (data from 2005–2010); (d) Houghton, R.A. 2013. *The emissions of carbon from deforestation and degradation in the tropics: past trends and future potential* (data from 2000–2005). Carbon Management. (d) emissions from other land-uses are included on a net basis (see IPCC AR5, chapter 11, pp16–22)

The Norwegian INDC indicates why: net removals (sequestration being bigger than emissions) from Norwegian forests in 1990 is estimated at 10.1 Mtpa and it is estimated to grow to 21.2 Mtpa by 2030. As logging steadily continues, it leaves behind an ever-larger extent of carbon-depleted regenerating forests such that the gap between emissions and sequestration continues to increase. This gap represents the ongoing—and permanent—reduction in carbon carrying capacity (the carbon density of primary, unlogged forest) attributable to so-called ‘sustainable forest management’ for industrial wood supply as primary forests are converted into regrowth forests. SFM may be sustainable for industrial wood supply but it comes at an awful cost to existing forest carbon stores—at a time when the world’s atmosphere really can’t cope with such emissions profligacy like it used to be able to do in past centuries.

Interestingly, the size of the gap between emissions from logging and sequestration from regrowth after logging represents the relative age of a country’s forest industry—lots of past logging means lots of current sequestration i.e. using a net-net accounting methodology **allows developed, ‘old world’ countries, with lots of past logging, to hide their emissions from current logging much more readily than ‘new world’ countries, with relatively less past logging and relatively more deforestation.**

Gabon’s forward-looking baseline (développement tendanciel) is simply a fanciful projection of continued expansion while their statement of ‘new’ intent (développement maîtrise), is what is expected to happen after some—very welcome—parks have been declared and anticipated logging rates subsequently reduced.

Calling the difference between the two a 62% ‘gain’, however, is **fanciful ‘straw dog’ accounting**. What is fair for Gabon to call a ‘gain’ is the actual reduction in emissions from forest degradation throughout Gabon from a baseline year—which would be a real benefit to the atmosphere. **When it comes to voluntary pledges, there’s no need to slavishly copy Kyoto Annex 1 countries’ accounting perversities.**



► Opportunity for a clean break from forest accounting scams and failures

A new agreement arising from the ADP negotiations must not be undermined by current failures to fully and fairly account for forest carbon emissions. When these emissions are not transparently accounted for, everyone is misled about the impact on the Earth's atmosphere and there is a consequent failure to take readily available measures to restrain forest carbon emissions. Even worse, policy incentives favouring these hidden emissions are passed off as contributing to a climate solution when they actually wreak further havoc on the atmosphere.

Yet there are proposals to carry the Kyoto Protocol's rules for accounting Land Use, Land Use Change and Forestry (LULUCF) into the new agreement and so entrench this unsatisfactory situation. It is one thing to continue efforts under the KP to tackle climate change and to build upon them, but quite another to allow developed countries to carry on with perverse accounting.

Forest biomass burning is not carbon neutral

Burning forest biomass to produce heat and electricity has been erroneously promoted as carbon neutral. In fact, biomass combustion emits more ghgs than fossil fuels per unit of useable energy in nearly all cases. This is because the material is less dense and contains more moisture. Additional emissions associated with logging and processing forest biomass must also be taken into account.

Whilst the emissions associated with logging and biomass combustion are immediate, regrowing those forests takes many years such that it will be decades or even centuries before the carbon released to atmosphere is re-sequestered in the forest—if that forest is regrown at all. We only have a few short years to turn around our emissions trajectory so we should not be pretending that the huge initial emissions aren't happening. The truthful approach is to acknowledge the large pulse of emissions when they occur and then acknowledge the much smaller and incremental sequestration as the forest regrows, if and when that happens.

A carbon accounting gap

As a result of IPCC guidance, bioenergy combustion is not accounted for in the energy sector. This is another source of the misapprehension that bioenergy is carbon neutral i.e. it appears as a zero for carbon emissions in the energy sector. Instead the guidance assumes that bioenergy use will be comprehensively accounted for in the land use sector (under LULUCF rules for A1 countries).

But LULUCF accounting for forest management (the activity where most forest biomass production is focussed) was voluntary in the First Commitment Period, meaning that most of these forest emissions were not captured at all in the accounts. An agreement to mandate accounting for forest management in the Second Commitment Period has been claimed to have rectified this problem. **It hasn't.**

Two outstanding problems remain:

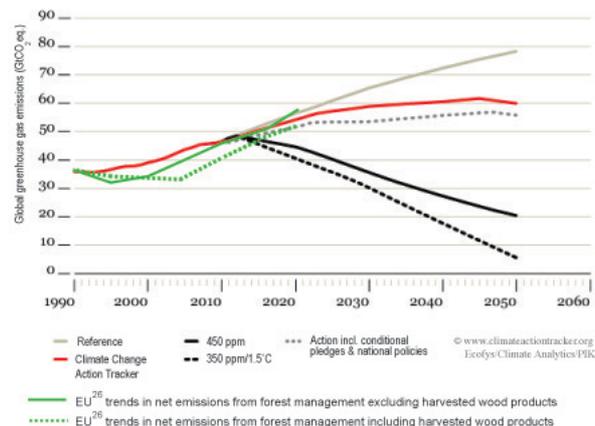
1) **Not every source of forest biomass actually accounts for the emissions as the IPCC assumed** would be the case, because many parties are not subject to the binding targets and accounting rules of the Kyoto Protocol. Europe is importing huge quantities of forest biomass—some from developing countries which do not account at all, and some from the US and Canada who also do not submit accounts as they are not signatories to the Kyoto Protocol. The assumption that comprehensive accounting would occur in the land use sector was deeply flawed and has created a large emissions loophole. What is occurring is a failure to account at all for these emissions.

2) **Even for those parties for whom accounting for forest management is now required** under the Kyoto Protocol, the new KP2 LULUCF rules for forest management enable most of the emissions to be ignored. This is due to the use of the forward looking baseline, also known as a projected reference level. In the case of the EU the

baseline against which forestry emissions are measured includes projected emissions increases under a business as usual (BAU) scenario. This BAU scenario allows for increased forestry emissions because of increased logging, much of which is to fill growing demand for biomass for heat and energy production. As these increased emissions are included into the baseline against which emissions are accounted for, they do not appear in the accounts—i.e. the EU does not have to take debits for these emissions even though they will increase over time, unless they increase even more than predicted. This is a scam we do not want to see further validated, let alone adopted more widely. Put simply, claiming a 'gain' when actually suffering a 'loss' is not acceptable accounting practice.

Perverse incentives to burn forest biomass

Based on the failure to require that burning this material be accounted for when and where that occurs and the misapprehension that forest biomass is carbon neutral, many developed countries have introduced policy and financial incentives to burn it as so-called renewable energy. Coal fired power plants that would otherwise be faced with closure are getting a new lease on life co-firing with wood pellets, despite no change in emissions. Others are making a complete transition to burning forest biomass. **New biomass combustion facilities are being built, and even some environment groups have mistakenly advocated biomass burning as part of a renewable energy solution.** The adverse climate impacts are significant.



Data submitted by the EU to the UNFCCC in 2011 shows this trend of increased emissions from so-called 'sustainable forest management'. While the EU may be seeking to sharply reduce emissions overall, this will be done despite the forestry sector's perverse increase in emissions.

Account for biomass emissions where they are consumed

The best way to fix this problem is to require that emissions from combustion of biomass be accounted for where they occur—in the consuming country. This is what happens for coal and oil, and to ensure there are incentives to restrain the carbon emissions arising from biomass burning the same basic dispositions for accounting should be made, regardless of the fuel type and source. Sequestration as forests regrow can be accounted for where and when that occurs. This would also give us a real picture of what is actually happening with forest emissions.

As a matter of principle consumers should take responsibility for the emissions created because of their demand for energy. Surely it is not going to be acceptable under a new agreement for developing countries supplying developed country markets with wood pellets and other forest biomass to have to own the emissions from the combustion of that material in wealthy countries?

The bottom line is that burning forest biomass is highly emissive, the emissions must be accounted for, and perverse incentives that encourage use of this fuel source by hiding emissions must be abandoned.

► Forests in the Geneva Negotiating Text

This analysis addresses the negotiating text agreed in Geneva, published at: unfccc.int/resource/docs/2015/adp2/eng/01.pdf. Negotiation on the text will commence in Bonn this June.

Forests are addressed as part of the land use sector. There is quite a bit of text about land use generally, especially accounting rules. There is not much specific to REDD+.

Parties have not determined where land use should be included and so it appears in two main places: Section D on Mitigation (under the subheading of Commitments/contributions/actions on mitigation) and Section I on Transparency of Action and Support (under Rules and Modalities). Land use appears together with other issues in both places: market mechanisms under Mitigation, and with provision of support under rules and modalities.

An expanded version of this article that includes the wording of all text options is available online: www.hsi.org.au/go/to/25/climate-change

General text on land use

“A. Preamble” to the Agreement

Option b) page 3 makes specific reference to land, saying that the “special characteristics” of land use systems be recognised.

Comment: It is appropriate to recognise in the introductory preamble that land is important to a lot of people for many different purposes, such that there are competing demands on the ability of the land to limit emissions. Emissions reductions and sequestration will be limited by these constraints. From this point of view keeping primary forests intact is an easy and practical contribution as they are not currently being used for other conflicting purposes.

“D. Mitigation” Under the general sub-heading of “Commitments/contributions/actions on mitigation”: see para 21 Option 6; 21.1 Options 5 & 6, 21.2, 21.11 which address mitigation generally, including some matters of particular relevance to land (including forests).

Comment: We strongly agree with a mitigation objective to conserve sinks and reservoirs—this includes the huge carbon stores that are primary forests and peat soils. Mitigation in the land sector, be it emissions reduction or sequestration, should indeed be accompanied by information about how the results are to be estimated and accounted for, as suggested in the text. We believe that emissions and removals should be accounted for separately, not netted out to hide emissions from logging behind sequestration.

Specific Mitigation text on land use/land sector

The two main references to land use in the Mitigation section are as options for paragraph 39, where some options cover just market mechanisms and some both market mechanisms and land use. The first land use option is Para 39 Option 1, see 39.5 & 39.6; the second is Para 39 Option 3. Another, Para 39 Option 6, is for no provisions in the land sector for either market mechanisms or land use accounting.

Comment on proposals under Para 39: Actions in the land sector will no doubt reflect national circumstances, a point made in the text, but what we need to see for most effective climate action is a **priority given to gross emissions reduction in this sector**, within the overarching context articulated in the preamble about the special circumstances created by competing demands on land.

Proposing ‘proper incentives’ flags payment for mitigation results, presumably to developing countries from a source such as a fund, or via a market mechanism such as REDD+. Availability of such incentives would enable emissions reductions by primary forest protection to be taken early. It is important that accounting rules quantify real emissions reductions (no use of forward looking baselines) and ensure no double

counting the giver and taker of an incentive have to decide who accounts for what). An assumption contained in this provision is that **results-based payments warrant accounting** rather than simply reporting under the Convention—as is currently the case for developing countries.

The text also must tackle the suite of inadequacies of current accounting. Negotiators quite rightly worry about double counting, but where is the parallel concern about the failure of developed countries to account at all for some existing forest and other land use emissions—these loopholes and accounting scams need to be done away with. **Including all sources and removals by key categories in a new agreement would go a fair way towards overcoming incomplete coverage resulting from the use of Kyoto Protocol LULUCF rules by developed countries to understate their land sector emissions whilst taking credits for land sector removals.** The **activities-based** approach under the Kyoto Protocol with its pick and choose options for which activities in which parts of the land sector get accounted for should be abandoned and instead all key categories (under the Convention) be addressed.

The aim is emissions reductions, and the approach must therefore be to **separate out emissions and sequestration** (removals). Netting out emissions and removals is pointedly unhelpful, yet these are currently confounded in the numbers that are produced. It is necessary to clearly see the gross emissions and the gross sequestration separately in order to accurately understand what is happening in the land sector and to then make informed decisions on effective mitigation action. Text recommendations are for net-net accounting, which entrenches this serious shortcoming of the status quo and evades the accounting and analysis that is vital to effectively identify and target the most appropriate actions to be taken.

Other problems remain (see ‘Opportunity to Make a Clean Break from Forest Accounting Scams and Failures’). One is the current failure to account at all for emissions from combustion of biomass, including biofuels, sourced from developing countries and used in energy production and transport in developed countries. This is the opposite of double counting—it’s the complete evasion of accounting. Another is the use of forward looking baselines, also known as projected reference levels, BAU baselines, or dynamic baselines. **Entrenching these accounting scams, as explicitly recommended in the text, should not be acceptable.**

We must **abandon the KP Land Use, Land Use Change & Forestry (LULUCF) rules**, not to carry them into the ADP. We need a **fully comprehensive land-based gross accounting** system free of scams.

In relation to consistency, and truthfulness, **baselines used in the land sector should not be different** to those used in other sectors. We assert



that they should be **historical**—quite simply so that we can know whether we are doing better or worse than in the past.

Stuff happens. In the land sector natural occurrences, such as wildfire, can have a significant impact on emissions. Developed countries tasked with meeting a binding target under the KP have thus been at pains to exclude non-anthropogenic emissions from accounting so that they only take responsibility for human actions. However this can be a disincentive to taking action in relation to non-anthropogenic sources, such as implementing fire suppression strategies. We certainly **need to know what actual emissions and removals occur**. As the ADP will have voluntary NDCs, why not account for everything but allow parties to identify which anthropogenic sources they want to take responsibility for? This would still elucidate the extent to which parties deliver on their NDC pledges.

Lastly, it seems that option 6 is postulating no actions in the land sector. Such an approach would ignore a substantial source of ghgs at a time when **we need to make all efforts** to reduce emissions. Fears that land sector removals will overwhelm the incentive to act on emissions in other sectors are best dealt with **by rectifying land sector accounting** to give a truthful reflection of the situation for emissions and sequestration.

“I. Transparency of action and support”

Much of this is very general but could be applied to land use or REDD+ if parts of the mitigation text and the transparency text are merged. The section begins with four different proposals for a transparency framework, in para 141. Three options follow under para 143 saying, in outline, what the framework should cover. More detail appears up to para 147. There is then a short section on commitments, followed by a section on rules and modalities where most text pertaining to land sector accounting is situated.

“Rules and modalities” There are five options for land sector rules in paragraph 152—see option 1, option 3 & option 5, as well as option 4 for no new rules. There is also a later option (para 154) saying that the governing body of the new treaty should adopt rules on transferable mitigation outcomes and the land sector at its first session.

Comment: An unacceptable provision to exclude accounting for carbon stocks appears in option 5 for para 152, and should be removed. We need an accounting system that recognises stocks, and their qualities (longevity, resilience, etc), as well as flows. There is an issue about how much detail regarding rules should be contained in the text of the new agreement and how much should be left to be developed subsequently, pursuant to agreed principles. Some of the detailed rules proposals seem to be an attempt to transport existing perverse rules into the new agreement.

Points made in discussion of the text in the mitigation section (above) also apply to this text on transparency of action and support, as the many of the same issues are raised in these textual options.

REDD+

There are not many specific references to REDD+ and they are short. See para 21.5 option 3; paras 37, 38, 39 option 1: 39.5 & 39.6, 39 option 3 & option 6, & para 43.

This seems to reflect a view that the Warsaw decisions establish REDD+ and set a framework for further work, such as more detail and rules on safeguards. Note however that the textual proposals on land use reviewed above should be read with REDD+ in mind.

“L. [Procedural and institutional provisions]” contains para 212 re institutional arrangements that proposes the governing body shall establish a REDD+ mechanism / The Warsaw Framework for REDD-plus, and also a joint mitigation and adaptation mechanism for the integral and sustainable management of forests.

Comment: Use of a REDD+ market mechanism to secure emissions reductions in forests is an important potential contribution.

REDD+ accounting should separately account for emissions and sequestration for each of the REDD+ activities (conservation, sustainable management of forests, restoration) These activities also should be defined and separately accounted for. We need to unpack what is happening in forests so that we can track what is happening to primary forests. ‘Conservation’ must include and prioritise the protection of primary forests so that genuine conservation is financed ahead of ‘sustainable management of forests’ and ‘restoration’. Otherwise the outcome will be subsidised logging followed by subsidised restoration of forests that have been degraded by logging (or other activities). The point is to target action so as to restrain the largest forest emissions as a priority, to recognise that restoration of forests is a slow process of sequestration with less immediate carbon benefits than emissions cessation from large intact forest carbon stores, and not to support degrading industrial forestry.

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▶ BECCS — a silly idea!

BECCs, bioenergy with carbon capture and storage, is one of a huge array of elements included in emissions reduction scenarios developed by IPCC Working Group 3, especially integrated assessment model (IAM) scenarios. The idea is that biomass crops can be harvested (or standing forests logged using perverse Kyoto accounting rules) and burnt to generate electricity (BE) and the emissions then captured and buried somewhere (CCS).

The idea is **silly primarily because it presupposes a reallocation of land to biomass cropping that would displace farming communities, food production and native ecosystems at such a scale as to be fanciful in practice.** There's nothing intrinsically wrong with this—the IPCC runs fanciful scenarios all the time. The problem is that somebody might be tempted to take this suite of BECCS scenarios seriously.

Apart from the problem finding the land, there are two more immediate problems. Firstly, CCS technology remains commercially unproven—it fails the BATEA test (it may be technically feasible at the pilot scale but it's not economically feasible as a broadly deployed mitigation technology, especially where deep ocean storage is anticipated).

Secondly, it only looks attractive if net-net emissions accounting rules are used to evaluate it—which may be OK for assessing crops planted for the purpose but delivers a perverse result when applied to the harvesting of standing native forests, especially if those forests are, themselves, major carbon stores.

The real worry with the BECCS scenarios is that they are based on the assumption that it has become politically and technically impracticable to reduce emissions from fossil fuel burning at a rate and scale large enough to avert dangerous climate change. Thus the proper **response to the BECCS 'answer' is that it was a really stupid question**—emphasising that it's time for the world to do more to rapidly reduce emissions, from the biosphere as well as from the geosphere, rather than shift the burden onto hugely enhanced biosphere-mediated sequestration regardless of the social, economic and environmental cost—**which would be the very antithesis of sustainable development.**



Intact natural forest, Sweden

Photo: Malin Sahlin, Swedish Society for Nature Conservation

Forestry Definitions

As adopted by FAO (Nov., 2007) for their latest specifications for national reporting tables for the 2010 Forest Resource Assessment

Primary forest: Naturally regenerated forest of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed. Some key characteristics of primary forests are: (i) they show natural forest dynamics; (ii) the area is large enough to maintain its natural characteristics; (iii) there has been no known significant human intervention or the last significant human intervention was long enough ago to have allowed the natural species composition and processes to have become re-established.

Other naturally regenerated forest: Naturally regenerated forest where there are clearly visible indications of human activities.

Explanatory notes: (i) includes selectively logged-over areas, areas regenerating following agricultural land use, areas recovering from human-induced fires, etc.; (ii) includes forests where it is not possible to distinguish whether planted or naturally regenerated; (iii) includes forests with a mix of naturally regenerated trees and planted/seeded trees, and where naturally regenerated trees are expected to constitute more than 50% of the growing stock at stand maturity. Other naturally regenerated forest of introduced species (*sub-category*).

Planted forest: Forest predominantly composed of trees established through planting and/or deliberate seeding. Planted forest of introduced species (*sub-category*).

Special categories: (i) Rubber plantations; (ii) Mangroves; Bamboo.

Comment: FAO's use of the phrase 'significant human intervention' to discriminate between primary and secondary forest is problematic. From FAO's perspective, the phrase simply means evidence of industrial logging, clearing or similar major commercial disturbance. Indigenous peoples' representatives, however, could be forgiven for thinking that FAO regards longstanding occupation and traditional use of forests and forest resources by indigenous communities as inconsistent with 'primary forest' designation. **This is obviously not true, regardless of what FAO thinks—unless they take up industrial scale logging.** Now would be a good time to raise this issue with the FAO Secretariat while they are reviewing the specifications for the next FRA for use in 2020 with a view to **making it clear that 'primary forest' is not inconsistent with occupation by indigenous peoples.**



Logged primary forest, Sweden

Photo: Malin Sahlin, Swedish Society for Nature Conservation

EU LULUCF Discussions: A delicate negotiation about how to account for forestry and land use emissions looms large over this year's UN climate conference in Paris. The issue is potentially divisive within the EU and **threatens to unravel the bloc's proclaimed leadership on climate change.** The European Commission launched (25 Mar.) a public consultation on the integration of agriculture, forestry and land use into the EU's climate and energy policy for 2030. The consultation is important with implications for the next round of emissions cuts expected in Europe, and globally.

The European paper industry, which is heavily reliant on the forest sector, sees a missing link between LULUCF and the EU's wider climate policies. **"What is considered missing** is the link between the LULUCF emissions and/or removals and the overall EU commitment to reduce CO₂ emissions, in other words how to factor the LULUCF positive or negative impact into the overall EU climate effort," said Bernard de Galember, of the Confederation of European Paper Industries (CEPI).

Media story (abbreviated), 12/5/15



IntAct Statement of Principles (abbreviated)

Earth's remaining primary forests are unique and irreplaceable natural life-support systems, critical to sustain forest dependent communities, indigenous peoples and cultures, biological diversity, and vital ecosystem services, such as climate stabilization, and clean water. Primary forests are fundamental to the good ecological functioning of the planet and to human wellbeing.

Despite their global importance, Earth's primary forests are in crisis. Over a third of the planet's original forest cover has been cleared, much of it in the last 60 years, and **between 2000 and 2012 we destroyed over 230 million hectares of forest**, an area larger than Greenland. Of our remaining forests, only about a third qualify as primary forests and we lose at least 4 million hectares of primary forest each year.

Only about a fifth of our remaining primary forests are protected, just 5% of their original extent. By comparison, about a third of the planet's forests overall are primarily used for the production of wood and non-wood products

A convergence of recent findings creates a powerful impetus for a new global consensus to respond to this crisis and protect our remaining primary forests:

- Primary forest degradation and destruction continues at very high rates and **significantly contributes to the global biodiversity and climate change crises.**
- Primary forest degradation and destruction has **profound social and cultural impacts.**
- Current best practices and certification schemes **have not reconciled industrial activity with primary forest conservation** at large scales.
- Excluding industrial activities from primary forests is the **most effective way to keep primary forests intact.**
- We can develop solutions to **meet global wood demand** that do not involve resorting to exploiting primary forests.

We therefore call upon governments, intergovernmental and non-governmental organizations, corporations and financiers around the world to recognize as a matter of principle that the planet's primary forests should be set aside as "No-Go Areas" for industrial activities.

A new policy consensus is needed on the protection of Earth's remaining primary forests to secure the ecological health of our planet and the wellbeing of people everywhere.

We will not achieve the objectives of key social and environmental agreements, including the United Nations Framework Convention on Climate Change, the Convention on Biological Diversity and the Sustainable Development Goals, **unless we move quickly to protect Earth's remaining primary forests.**



Primary forest, Tasmania, Australia

Photo: Kip Nunn



Primary forest subject to clearcut logging, Tasmania

excluding industrial activities from primary forests is the only effective way to keep them intact

► Consumption, leakage and drivers—different aspects of the same problem

While responsibility for ensuring permanence and additionality can fairly be laid at the door of developing country landholders and/or communities receiving benefits through any REDD mechanism, leakage is a different issue. While any country (or sub-national province with appropriate authority and control) can be expected to address those issues that are within its control, in all fairness, it cannot be held responsible for international leakage—the displacement of forest degradation actions, including those resulting in immediate or eventual deforestation, from one country to another as a result of REDD actions.

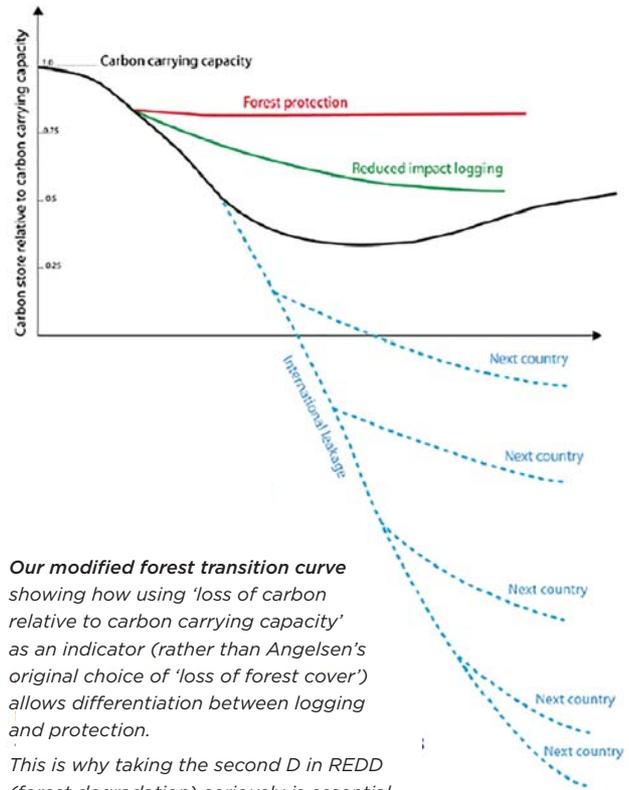
This responsibility clearly lies with the country responsible for the underlying demand for relevant natural resources or products derived from such resources—the drivers of forest degradation, including deforestation. Note that countries, or sub-national provinces, would still be expected to be responsible for leakage associated with demand drivers within their jurisdictions—just not for demand drivers from outside their jurisdictions.

It seems obvious to us that international drivers of degradation that result in leakage is a problem that must be tackled as a ‘demand-side’ issue, not a ‘supply-side’ issue. When viewed from this perspective, it is clear that consumption, drivers and leakage are all aspects of the same problem—if consumption is not addressed as an integral part of REDD implementation, any success in protecting forests in one place risks being negated by increasing forest degradation somewhere else.

It is also clear that addressing consumption driving international leakage is primarily a responsibility of developed countries—those importing and consuming most of the relevant resources or products derived from such resources.

Taking a ‘demand-side’ approach to emissions reduction would require developing a very different set of UNFCCC mechanisms than the current ‘supply-side’ ones. This is where the ‘carbon footprint’ concept can be very useful—consuming entities would be expected to be accountable for all the ‘whole of life cycle’ emissions associated with use and consumption of goods and services—using a ‘whole of life cycle’ analysis.

The end-use consumer would be expected to account for all such emissions—unless it can be established that someone else has already accounted for some of the identified emissions. **In other words, for REDD to efficiently and effectively achieve the hoped-for atmospheric benefits, any gains in forest protection must be matched by equivalent reductions in consumption that is explicitly related to the drivers of degradation being displaced.**



Our modified forest transition curve showing how using ‘loss of carbon relative to carbon carrying capacity’ as an indicator (rather than Angelsen’s original choice of ‘loss of forest cover’) allows differentiation between logging and protection.

This is why taking the second D in REDD (forest degradation) seriously is essential. The figure also illustrates how any success in moderating loss of forest cover in one country does little to stop the drivers of that loss simply popping up in other countries (see the blue dotted lines).

obvious that international drivers of degradation that result in leakage must be tackled as a ‘demand-side’ issue, not a ‘supply-side one

Sri Lanka Commits: The Sri Lankan Government is backing a partnership between local NGO, Sudeesa (an organisation of small fishers) and global NGO, Seacology, to protect all Sri Lanka’s remaining 8,800 ha. of mangrove forests and to restore the 3,900 ha. that have been logged. Such comprehensive ambition is billed as a world first and Seacology hope to use it as a model

for other coastal communities. That mangroves are efficient sinks and stable stores of carbon sequestered from the atmosphere means that this project should make a significant contribution to Sri Lanka’s INDC in preparation for the UNFCCC Paris COP.

BBC News, 12/5/15



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