



SPECIAL BULLETIN

PART 2 • MAY 2011

CLIMATE CHANGE

CALL FOR TRUTH IN TARGETS

■ "ACCENTUATE THE POSITIVE, ELIMINATE THE NEGATIVE" APPROACH TO LULUCF ACCOUNTING MUST END

In the Bangkok workshop on developed country targets and later Kyoto Protocol discussions this April, several countries openly recognised that, depending on how the LULUCF accounting rules might be changed, they might have to revise their targets.

What is it about LULUCF that has such an effect on targets? Why is it that intractable and shambolic discussions over LULUCF rules have been countenanced by senior UNFCCC negotiators, who may remain blissfully ignorant of the technical details of LULUCF discussions but are inescapably responsible for discussions about national emissions reduction targets?

In response to both their own citizens and the wider international community, Annex 1 Parties are understandably under pressure to announce commitments to ambitious targets – the pressure to be seen to be close to the 25-40% by 2020 range is intense.

Unfortunately, some country targets are likely to be based on a lie – because the LULUCF accounting rules not only **allow Annex 1 countries to choose not to report emissions** attributable to ‘forest management’ activities (like logging and roading), cropland and grazing land management, but also allow them to report sinks attributable to natural forest sequestration within ‘forest management’ areas **even when not in response to any human intervention**.

“Accentuate the positive, eliminate the negative” might have been a cute notion for crooner, Bing Crosby, back in 1944 but it’s no basis for sensible carbon accounting today. Citizens deserve to be told the truth by their own governments not inflated ‘feel good’ nonsense.

We have named this Bulletin series ‘Truth in Targets’ precisely because the only way out of the LULUCF mess is for senior negotiators to accept that it is ‘the right proper thing’ for them to ensure that the national targets they are claiming actually reflect expected reductions in emissions ‘seen’ by the atmosphere.

Translated, the Bangkok admissions are an acknowledgement by Annex 1 countries that, if perverse LULUCF accounting rules are abandoned, their overall national targets will need to be consequentially reduced. This is how it should be and there is no shame in deciding to do so.

Now is the time to ‘grasp the nettle’ and commit to ‘truth in targets’. Once this troublesome political decision is made – by the senior negotiators, the technical task before the LULUCF negotiators and SBSTA, becomes quite simple – well, a lot simpler, at least!

TRUTH IN TARGETS — HOW?

The truth requires Annex 1 countries to own up to two accounting deceptions:

- firstly, for those choosing not to account for emissions from their ‘forest management’, and other activities the atmosphere sees a whole lot of anthropogenic emissions that are not included in target calculations;
- secondly, by including natural sinks in managed areas, non-anthropogenic sequestration is included in target calculations (see ‘The Emissions Gap Report’, UNEP, Nov 2010).

As a result, in aggregate, targets are improperly inflated by more than a gigatonne of emissions each year.



YOUNGOs protest LULUCF loopholes, Cancún 2010.



WELCOME TO THIS SECOND SPECIAL BULLETIN ON TRUTH IN TARGETS. It outlines how unaccounted land and forestry emissions of developed countries are undermining emissions reduction targets and what can be done about it. Future bulletins will address other aspects of this problem.

- In this bulletin:**
- Page 1: ‘Accentuate the positive, eliminate the negative’ approach to LULUCF accounting must end
 - Page 2: Land-based accounting – next steps
 - Page 3: Reference levels: there should be no free lunch for the forestry industry sector in Annex 1 countries
 - Page 4: LULUCF perverse incentive for bioenergy must be remedied
 - Page 5: Biofuels – the mother of all perversities
 - Page 7: Urgent for SBSTA — time to elaborate the ‘forest’ definition
 - Page 8: IPCC Report on renewable energy ducks land use issues on ‘biopower’



SFM in Tasmania.



Dairying — sustainable but emissive. © iStockphoto.com.



Intact tropical forest — a resilient land use. © iStockphoto.com.

■ LAND-BASED ACCOUNTING — NEXT STEPS

In the first edition of this Truth in Targets special bulletin¹ we outlined how land-based accounting is the key to sensible accounting based on proper reporting of what’s really happening to terrestrial carbon stores.

The LULUCF co-chairs’ non-paper (containing the incipient LULUCF decision) refers the issue of land-based accounting to SBSTA, in the paragraphs below:

5. Also agrees that it is desirable to move towards complete coverage of managed lands when accounting for the land use, land-use change and forestry sector, while addressing technical challenges and the need to focus on accounting for anthropogenic emissions by sources and removals by sinks;

6. Requests the Subsidiary Body for Scientific and Technological Advice to initiate a work programme to explore ways of moving towards more comprehensive accounting of anthropogenic emissions by sources and removals by sinks from land use, land-use change and forestry, including through a more inclusive activity-based approach and a land-based approach, and to report to the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol at its [eighth] session on the outcomes of this work programme;

The important unresolved issue is timing. Negotiators for the CMP and COP need to make the political decision that land-based accounting will be adopted so that there is a deadline for the technical agenda at SBSTA.

This flows on to the proposed invitation to the IPCC to revise and develop supplementary methodologies for estimating emissions and removals in LULUCF (paragraph 10 of the non-paper) which will need to be completed in time for SBSTA to consider such revised methodologies for incorporation into a final draft decision.

We believe that a step-wise approach can and should be spelled out. More comprehensive accounting of 3.4 activities should be mandated for the second commitment period. Land –based accounting must follow for the third commitment period, or 2020, whichever is earlier. To achieve harmonisation with land-based accounting, accounting for all of AFOLU (agriculture, forestry and other land uses) needs to be made mandatory at the same time.

Negotiators need to clearly indicate this timing in the LULUCF decision in Durban so that work can be prioritised at SBSTA and the IPCC, and deadlines for implementation can then be met.

¹ http://hsi.org.au/editor/assets/Publications/Special%20Bulletin%20March_2011%20Truth%20in%20Targets.pdf

REFERENCE LEVELS: THERE SHOULD BE NO FREE LUNCH FOR THE FORESTRY INDUSTRY SECTOR IN ANNEX 1 COUNTRIES

This year Annex 1 Parties have been required to present their proposed forest management reference levels for review by the UNFCCC, pursuant to Cancun decision 2/CMP.6¹. These actions precede, and will inform, a decision on whether to adopt the reference level (forward looking baseline) proposal or something else at the Durban COP.

Having got away with using perverse accounting rules for the First KP Commitment Period, Annex 1 countries are pushing hard for an even more perverse accounting approach for the Second Commitment Period.

When initial estimates were submitted a year ago a sizeable half billion ton LULUCF emissions loophole was identified by ENGOs, compared to use of an historical base period as the baseline for forest management (logging). The scam was so unsettling, especially to developing countries, that no agreement to this approach was possible in Cancun, but a further round of updated proposals was conceived in order to keep this accounting option alive.

What can we conclude from this year's round of submissions?

Figure 1, is adapted from a diagram in the recent Climate Action Tracker briefing paper by ECOFYS, Climate Analytics and The Potsdam Institute (PIK)². Their figure neatly summarises the overall global situation as Annex 1 countries struggle to reduce emissions to avoid dangerous climate change. The red and dotted grey lines indicate the extent to which current unconditional and conditional pledges by countries would reduce emissions from business as usual (the solid grey line), respectively, while the solid and dotted black lines indicate how much is still left to be done if we are to get on track for 450ppm/2degC or 350ppm/1.5degC outcomes, respectively.

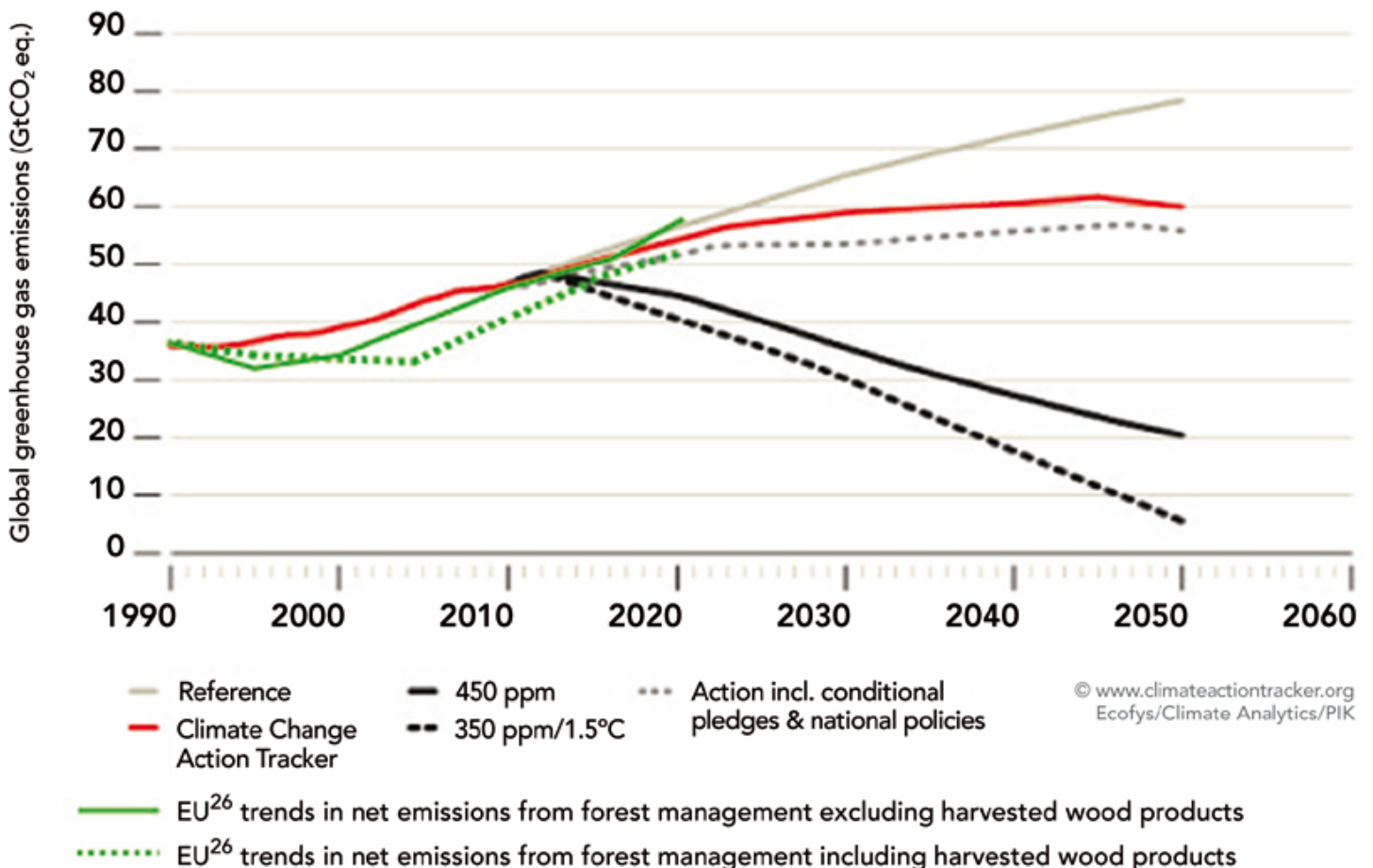
We have added in a solid and a dotted green line to compare trends in the EU's reported past and pledged future net emissions from 'forest management' (based on the numbers submitted by the Hungary and the EC on 8 April 2011 on behalf of the EU and its member states pursuant to Decision 2/CMP.6: The Cancun Agreements: LULUCF – see tables 5a, 5b, 6a & 6b, pp.11-14). These numbers are for the EU26 (all except Poland) and are broadly indicative of the overall situation for Annex 1 countries.

The solid green line represents relative changes in net 'forest management' emissions (the difference between total emissions and total sequestration for managed forests) while the dotted green line indicates the extent to which net emissions are reduced if 'harvested wood products' (estimated carbon remaining in products made from wood extracted from those forests) are included.

There is a lot of variation in the numbers – and methodologies and assumptions – both within the EU and more broadly among Annex 1 countries for their forestry industry sector emissions. The EU, however, is to be congratulated for the clarity and comprehensiveness of its submission – which is why we have singled out the EU – not because their behaviour is any more egregious than other Annex 1 countries.

The overall conclusion is inescapable – the EU intends the forestry industry sector to increase net emissions from 'forest management' activities at a time when every other sector of their economies – and individual households and citizens – are being asked to reduce their emissions. Note that the upward slopes of the green lines are almost exactly the same as the ECOFYS 'business as usual – reference' line: the forestry industry of Europe intends to carry on as if there was no climate change problem!

Continued overleaf





Continued from previous page

To add insult to injury, Annex 1 countries are seeking the support of the international community for the adoption of a new accounting rule for the KP second commitment period that would allow each of them to set a ‘forward looking baseline’ (also known as a ‘projected reference level’) that reflects its plans for its forestry sector as a baseline. That is, regardless of the level of emissions or of any growth in those emissions, it will all be accounted for as ‘zero’ if they keep to their plans. That’s the insulting part.

The injurious part is that any failure to meet their ambition for future growth in emissions can be accounted for as a reduction in emissions (below the baseline), for which credits could be issued even if it actually represents an increase in emissions seen by the atmosphere. Welcome to the Alice in Wonderland world of LULUCF!

Annex 1 countries have submitted updated proposals and they are now being reviewed. Beware! This is only a technical review. It accepts the policy settings submitted by each Party and simply checks whether the forecast emissions under that policy are correctly derived. The reviews make no judgement regarding the use of projected reference levels. The Durban CMP/COP still has to decide whether the overall approach is acceptable.

It seems unfair that only the forestry sector is given such a ‘free lunch’ and thus allowed to shirk efforts to fight dangerous climate change. We urge negotiators to reject the whole approach of using forward looking baselines in favour of simply calling a halt to the use of deceptive accounting rules for LULUCF.

So many opportunities to achieve immediate, large and cost-effective emissions reductions by appropriately changing forest management are frustrated by the ‘free lunch for forestry’ approach. Of particular concern is the missed opportunity to make early gains by protecting intact forest, with enormous benefits not only for the atmosphere but also for other, non-carbon ecosystem services (like biodiversity conservation, landscape resilience in the face of climate change, flood and erosion control, etc). This is as much an opportunity for Annex 1 countries’ forests as for developing countries’ forests.

¹ Appendix I lists Annex 1 countries’ initial proposals for forward looking baselines and Appendix II sets out guidelines for reviewing such proposals

² Chen C, Hare B, Hagemann M, Höhne N, Moltmann S, Schaeffer M (10 Jan 2011) Cancun Climate Talks – Keeping Options Open to Close the Gap; page 6

LULUCF PERVERSE INCENTIVE FOR BIOENERGY MUST BE REMEDIED

The failure to account comprehensively for forestry and land use emissions in LULUCF constitutes a perverse incentive for bioenergy and biofuels.

Why? Because they appear not to be emissive when in fact they are – sometimes much more so than the fossil fuels for which they are to substitute.

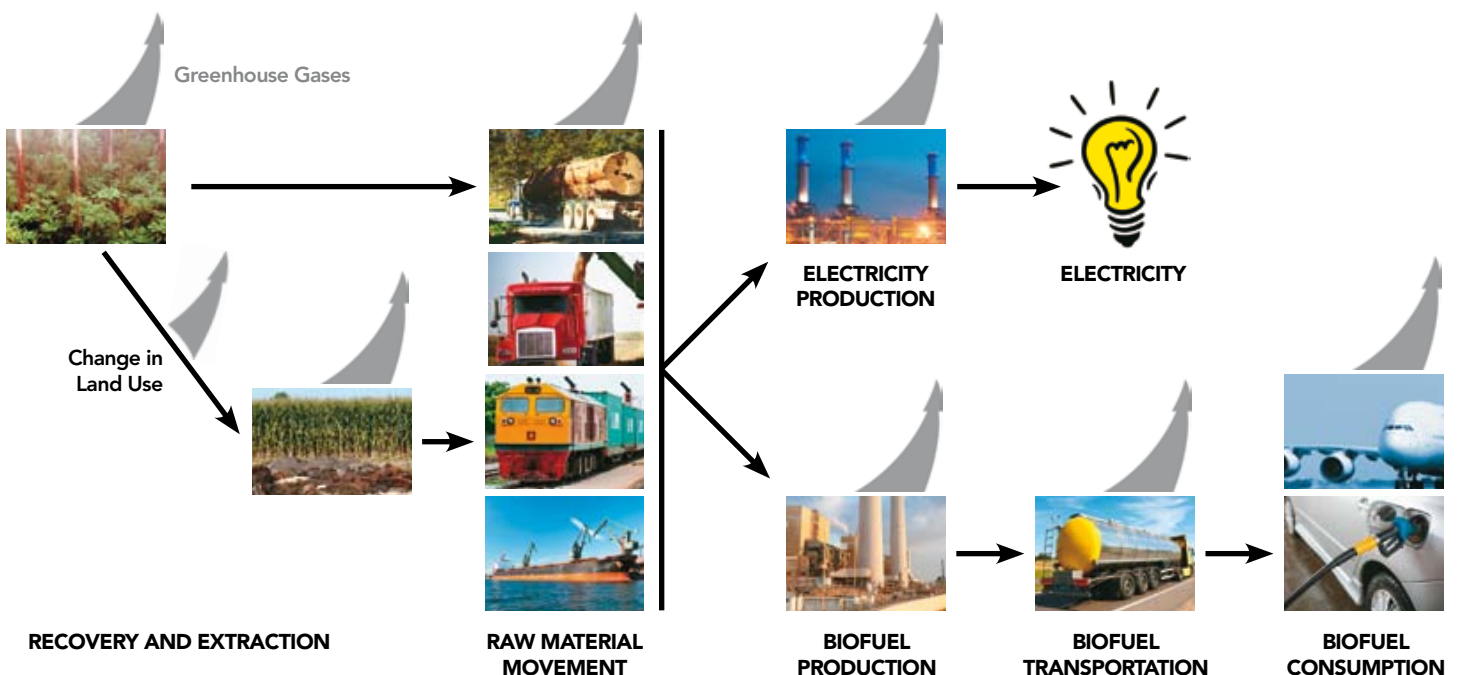
Emissions from harvesting, transport and combustion of biomass (forest products and crops), plus emissions generated in the process of converting biomass to biofuel all remain ‘off the books’ – not accounted for by most Annex 1 Parties. At the same time the accounting convention is that renewable energy is accounted as carbon neutral in the energy sector, so bioenergy emissions are not picked up there either.

Despite the fact that bioenergy / biofuels are emissive from harvest to combustion they score a false zero. This encourages expansion of this energy source based on a false premise.

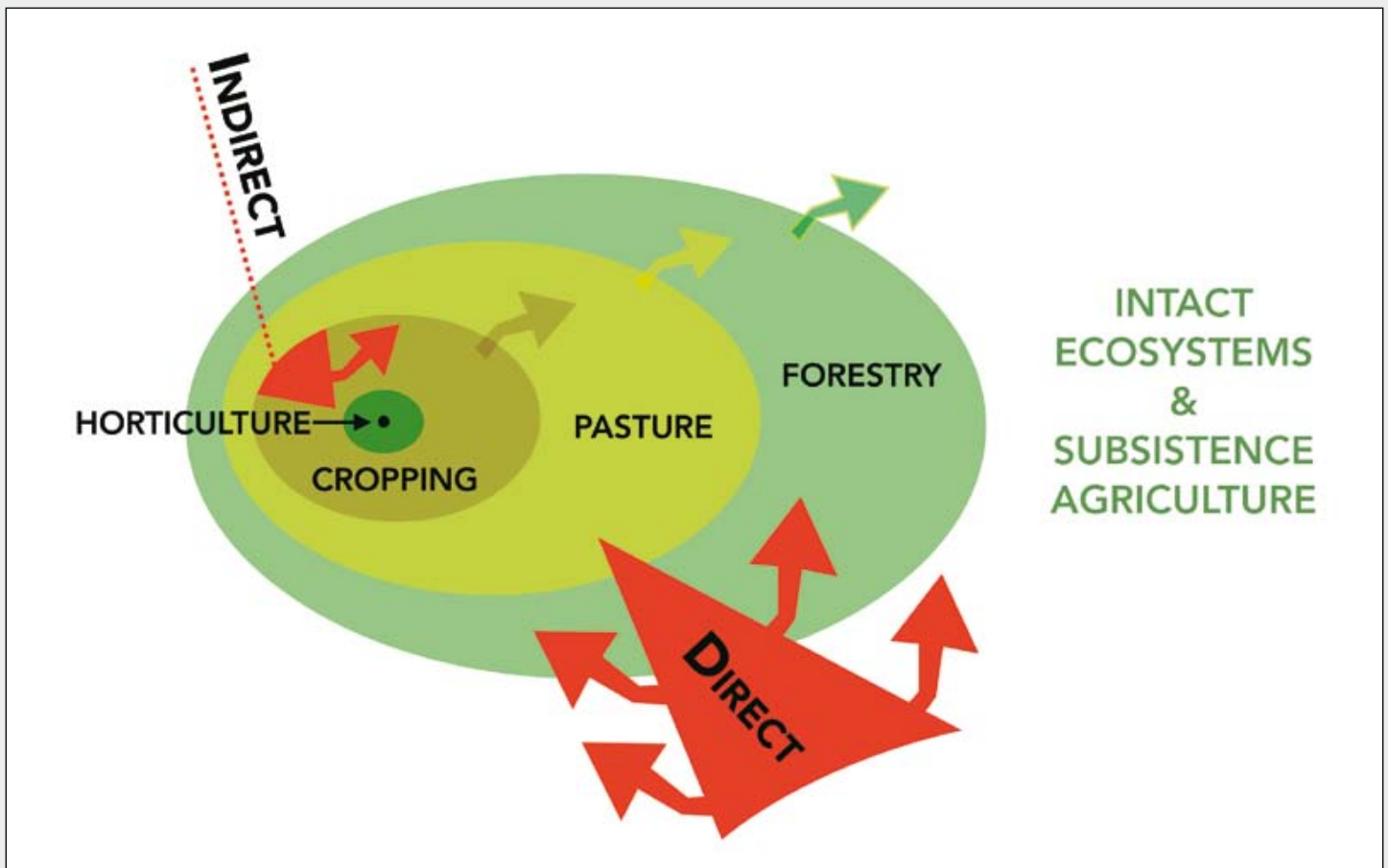
It is an unacceptable situation. We need to be absolutely clear about what the atmosphere sees when we make decisions about energy sources.

Fixing the LULUCF accounting rules so that they are comprehensively applied across the landscape, and ensuring that accounting for forest management owns up to all emissions above historical levels, is essential. A way should also be found to account for the full lifecycle and huge emissions generated by utilisation in Annex 1 countries of bioenergy / biofuels grown in developing countries.

Bioenergy / Biofuel Emissions



BIOFUELS — THE MOTHER OF ALL PERVERSITIES



The diagram is based on Von Thünen's Rings. Von Thünen was an early 19th Century economist from northern Germany who came up with a way of describing the relationship between choice of land use and distance from markets which has retained a remarkable utility over the years. His key concept was that those who could afford to pay higher rents tended to use land closer to markets, expressed as:

$$R = Y(p-c) - Yfm$$

[where 'R' is rent per unit of land, 'Y' is yield per unit of land, 'p' is price per unit of yield, 'c' is cost per unit of yield, 'f' is freight rate per unit of yield and 'm' is distance from market].

In Von Thünen's day when agricultural economies tended to be very localised, dairying and market gardening were in the innermost ring around a city (reflecting the absence of refrigerated transport and storage for fresh milk) and forest for fuel was in the next ring (reflecting heating realities in the days before cheap and plentiful fossil fuels – a cautionary historical note worth dwelling upon by bioenergy/biofuels enthusiasts). Next came grains and field crops followed by pastoralism, all surrounded by natural areas unprofitable for agriculture.

In today's world of globalised commodification of agriculture, Von Thünen's analysis remains remarkably valid – but the categories have shifted a bit: horticulture is still at the centre, then cropping land, then pastoral land, then forestry – all surrounded by subsistence livelihoods and natural areas/intact ecosystems. At the centre are mills and ports as such as cities. Note that these categories neatly approximate to the USDA's eight-category land use capability classification system developed mid last century and still widely used.

The policy-driven introduction of bioenergy/biofuels into the global land use mix stands to shift Von Thünen's Rings once again – in a way likely to be advantageous for some and disadvantageous to many.

Frustratingly, many governments are labouring under the misapprehension that, because biomass cropping for bioenergy and biofuels is 'renewable', it is 'carbon neutral' and thus preferable to fossil fuels as a source of fuel in their energy sectors. In the absence of proper carbon footprint analysis and in the presence of perverse accounting rules in the LULUCF sector, however, any assumption as to carbon neutrality is dangerously unsafe – leading to a whole new generation of perverse land use decisions – often with very high direct and indirect social and/or environmental costs.

'Europe's biofuels will be on average 81 to 167% worse for the climate than fossil fuels they are intended to replace', according to a recent study by IEEP (the UK's Institute for European Environmental Policy) cited in a briefing paper circulated by an alliance of ENGOs to European MPs on 'biofuels and indirect land use change (ILUC)'.

The energy sector and policy-makers more generally, need to wake up from their 'see no evil' approach to bioenergy/biofuels. Being policy-driven, rather than market-driven, the effects are rather more complex, pervasive and severe than would otherwise be the case.

While increasing attention is being given to the problem of 'indirect land use change' attributable to expansion of the bioenergy/biofuels industries, 'direct land use change' poses a more severe threat in some regards. To illustrate this problem of perspective on the issue, we have highlighted in the Von Thünen's Rings diagram above, two separate kinds of policy-induced land use change driven by artificially inflated demand for bioenergy and biofuels:

Continued overleaf



BIOFUELS — THE MOTHER OF ALL PERVERSITIES Continued from previous page

[I] – Indirect Land Use Change – part of the problem is attributable to initiatives such as the US and EU (among others) subsidising ethanol production to substitute for petrol and diesel as a liquid fuel for their land transport sectors. There is no direct land use change, just stronger demand for crop products such as corn syrup which is diverted from the food processing industry. This indirectly drives expansion of corn and other sugar crops at the expense of other food and fibre crops. The commercial ripple effect means that: a) higher prices as a result of reduced supply drive more expensive food for richer people and less food for poorer people – causing distress and disorder; and, then b) consequential expansion of cropping in response to those increased prices does little to calm people down if their land is taken from them. Besides the social impacts, climate change impacts of converting pastoral farming systems to cropping land can be initially severe and persistent, especially if peat or erodible soils are involved. For ILUC the social problems are serious but environmental problems, including climate change perversities, tend to be secondary. This differs from direct effects:

[D] – Direct Land Use Change – the acquisition of land, currently in some other use, for the express purpose of growing bioenergy/biofuels crops. This tends to happen at the periphery of Von Thünen’s Rings – converting abandoned drained peatlands for maize in Eastern Europe or tropical rainforests in Indonesia and Malaysia for palm oil for instance. In developing countries, this often involves targeting natural and semi-natural areas frequently owned and occupied by indigenous peoples and local subsistence communities (on the economic and geographical periphery of agricultural land used for commodity production, as yet beyond the reach of Von Thünen’s Rings). This drastically exacerbates environmental impacts, especially where intact natural vegetation and/or peat soils are involved, as well as having serious social impacts. This is where the climate change perversities are most acute – vast volumes of greenhouse gases are released to the atmosphere to produce modest volumes of fossil fuel substitute – which would simply not happen were it not for the EU’s policies of perverse encouragement.

It is hard to comprehend the blind enthusiasm of policy makers and some ENGOs to encourage such policy perversity. It is a classic case of ‘out of the frying pan, into the fire’. Trenchant antagonism to fossil fuel producers coupled with cowardice in the face of consumers, encourages

advocacy for alternatives that often have much greater carbon footprints than the fossil fuels they are intended to displace. This is accompanied by awful, but obvious, consequences for biodiversity and local communities (which no-one can claim to be ‘unintended’).

The real problem is that there can be no ‘solution’ to the climate change problem if the world is consuming resources at more than twice the rate deemed sustainable for the planet, with no signs of slowing the rate at which this imbalance is being exacerbated. To pretend that the world can continue on its indulgent consumerist way by simply substituting ‘renewable’ energy crops for fossil fuels is to perpetuate a great deception – and great destruction.

We are encouraged by the discussions within the REDD+ Partnership around the importance of ‘drivers’ of deforestation (principally demand for more cropping and grazing land) and forest degradation (principally demand for industrial roundwood and pulpwood). Developed country investors in REDD projects are beginning to realise that a lot of their public money is going to be wasted competing with demand from within their own economies for wood products from developing countries coming from exactly the places covered by REDD projects (often exacerbated by aid and development money from different agencies within the same governments). The best thing developed countries can do to facilitate prompt and cost-effective implementation of any REDD+ mechanism that might be agreed at the Durban COP/CMP is to dampen their own demand for wood products harvested from the forests they are trying to save (and for agricultural and energy products driving deforestation). ‘Leakage’ can thus be seen to be a demand-side problem not a supply-side problem.

Meanwhile, we’d like to urge bioenergy/biofuels proponents to dwell upon Von Thünen’s Rings a while longer. Consider the enormous buying power of users of electricity, ships, trucks, cars and planes and the preparedness of consumers to keep buying despite price increases. Their capacity to drive reallocation of land to meet their demands is obvious, and that’s before you think about there being more such consumers every day.

The potential scale of that land reallocation, if the current fashion for bioenergy/biofuels persists, is frightening – at least for the poor and those concerned for the fate of the planet’s biodiversity and natural ecosystems.



Swamp forest converted to palm oil plantation. Photo: Marcel Silvius.



Oil Palm Plantation, Bogor, Indonesia. Photo: Flickr User A Rabin.

■ URGENT FOR SBSTA — TIME TO ELABORATE THE 'FOREST' DEFINITION

The definition of a 'forest' in use at the UNFCCC was determined for application to LULUCF as part of the Marrakesh Accords. It has serious flaws that already lead to perverse accounting outcomes in LULUCF and make it inappropriate for continued use, or for application to the mechanism for reducing emissions from deforestation and forest degradation in developing countries (REDD+).

The current definition makes no distinction between complex biodiverse natural forests and planted crops of monoculture perennial woody plants ("plantations").

It obscures the conversion of natural forests to plantations, and forest degradation (caused by industrial logging, for example). The conversion of a natural forest to a plantation is not defined as deforestation and hence this is not necessarily accounted for by developed countries, despite being the cause of increased emissions.

There is serious concern that adopting this flawed definition in REDD would also undermine the intention to reduce emissions from forests in developing countries, in particular confounding implementation of the safeguard against conversion. Financing of plantation conversion in the name of climate protection may not be forestalled. Emissions from conversion of peat swamp forests, including their peat soils may not be captured.

Although the intrinsic problems with the structurally-based definition were identified years ago and parties requested the scientific advisory body (SBSTA) to develop a biome-based definition, this has never been done.

The current forest definition was developed by the FAO and adopted for use at the UNFCCC. The FAO have also elaborated a range of categories of forest that sit under the definition, thus enabling critical distinctions to be made, and policy applied accordingly¹.

These categories comprise: primary forest, other naturally regenerated forest, and planted forest.

It is imperative, and urgent, for the UNFCCC to also elaborate categories within the forest definition, so as to differentiate between various conditions of forest and thus enable the emissions associated with plantation conversion and forest degradation to be identified and accounted. Picking up the FAO categories is a workable option for now.

NOW IS THE TIME FOR SBSTA TO ACT, TO PREVENT THE FOREST DEFINITION FROM UNDERMINING EFFORTS TO REDUCE EMISSIONS FROM THE WORLD'S LAST REMAINING FORESTS.



This is a 'forest'. Temporarily unstocked forest, Kapuskasing, Northern Ontario.



This is a 'forest'. Conversion of natural forest to plantation, Tasmania, Australia.

¹ Forestry Department, FAO Working Paper 135, Global Forest Assessment 2010, Specification of National Reporting Tables.



■ IPCC REPORT ON RENEWABLE ENERGY DUCKS LAND USE ISSUES ON 'BIOPOWER'

IPCC working Group III has just released the 'Summary for Policymakers' of its 'Special Report on Renewable Energy Sources and Climate Change Mitigation' (SRREN). Unfortunately, its treatment of bioenergy issues is unlikely to give much comfort to said policymakers. The report does an excellent job of bringing together the key findings of lots of studies but one of its key approaches to comparing different sources, on 'life cycle GHG emissions', glosses over biomass problems by setting as a constraint, "land-use related net changes in carbon stocks ... and land management impacts are excluded .." (see Fig SPM.8. p17). Obviously, such an exclusion of a key part of the life cycle, insofar as it only applies to any significant extent to what the report terms 'biopower' (generating electricity by burning biomass), makes biopower look relatively more attractive than it really is – by a potentially large margin!

The IPCC does indicate some sensitivity to this intentional omission by noting (p.17) that, "The sustainability of bioenergy, in particular in terms of life cycle GHG emissions, is influenced by land and biomass resource management practices. Changes in land and forest use or management that, according to a considerable number of studies, could be brought about *directly* or *indirectly* (IPCC emphasis) by biomass production for use as fuels, power or heat, can decrease or increase terrestrial carbon stocks. The same studies also show that indirect changes in terrestrial carbon stocks have considerable uncertainties, are not directly observable, are complex to model and difficult to attribute to a single cause." It would appear that this latter consideration was sufficient to exclude from life cycle analysis not only the GHG emissions implications of such *indirect* changes but also to make no attempt to include readily estimable *direct* implications.

The Summary goes on to note that, "Proper governance of land use, zoning, and choice of biomass production systems are key considerations for policy makers. Policies are in place that aim to ensure that the benefits from bioenergy, such as rural development, overall improvement of agricultural management and the contribution to climate change mitigation, are realised;". IPCC WG III was clearly thinking of another planet when they came to that conclusion and perhaps they had some awareness of this when concluding, "their (Policies in place) effectiveness has not been assessed"! Sadly, current policies on planet Earth, viz the LULUCF accounting rules, are 'in place' to hide the grim reality that the principal bioenergy/biofuels industry development strategies currently in favour are designed to hide their perversely negative impacts on climate change mitigation efforts.

If realistic estimates of likely changes in carbon stocks, and in associated gross emissions and sequestration, had been included in the IPCC's so-called 'life cycle' analysis, this perverse reality would have been obvious to all policy makers. As it is, policy makers can continue to hide behind the convenient fiction that current biomass burning for bioenergy or biofuels strategies involve 'mostly harmless' activities. A far better conclusion would have been that the sooner full land-based accounting for carbon is required to be used for national reporting and accounting purposes, so that misleading accounting becomes a thing of the past, the better for all concerned.



Tropical deforestation — the aftermath. © iStockphoto.com.



YOUNGOs in action.

ABOUT THE AUTHORS

Peg Putt — previously Parliamentary Leader of the Greens Party in Tasmania 1998-2008, has a history of work in nature conservation, including as Director of the Tasmanian Conservation Trust and founder of the Threatened Species Network in that state. Ms Putt has been working internationally on climate and forests since 2008.
Contact: peg.putt@gmail.com

Alistair Graham — has thirty years experience working with and for local, national and international ENGOs on a wide range of conservation and environment issues, especially native forest conservation and oceans governance, including negotiation and implementation of regional and global international agreements.
Contact: alistairgraham1@bigpond.com



Humane Society International Inc.
ABN 63 510 927 032

PO Box 439 Avalon NSW 2107 Australia
Telephone (02) 9973 1728
Facsimile (02) 9973 1729
Email admin@hsi.org.au

www.hsi.org.au