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I. IN THE PRESS

10 December 2012 - AlertNet

[Doha delivers little for poor, climate-hit states](#)

Aid and environment groups have criticised the outcome of the U.N. climate talks in Doha as a betrayal of the poorest people who are suffering the worst impacts of more extreme weather and rising seas. But negotiators from developing states have singled out an agreement to advance work on loss and damage from climate change as a bright spot, even though it is weaker than they had hoped.

8 December 2012 - The Guardian

[Doha climate change deal clears way for "damage aid" to poor nations](#)

Poor countries have won historic recognition of the plight they face from the ravages of climate change, wringing a pledge from rich nations that they will receive funds to repair the "loss and damage" incurred.

8 December 2012 - The Economist

[Heated debate. The costs of climate change can be mitigated if economic activity moves in response](#)

WHEN Superstorm Sandy roared ashore in late October and the lights of lower Manhattan went out, New Yorkers were given a stark vision of a possible future. Climate-change science is still a realm of great uncertainty but there is consensus that the planet is warming dangerously and that people are to blame. A recent report commissioned by the World Bank warned that the world is on track to have a global mean temperature that is 4°C above pre-industrial levels by 2100. If so, sea levels could rise by between half a metre and a metre by the end of the century, threatening hundreds of millions of people in coastal cities. Other regions would face the threats of droughts, bigger storms and changing rainfall patterns. That entails not just human costs but economic ones, too.

5 December 2012 - The Rockefeller Foundation

[New initiative to improve the accountability of climate finance to launch today](#)

A new initiative to increase the accountability of climate finance adaptation programs will be launched today in Doha, at the sidelines of the UN Climate Change conference by Oxfam, the Overseas Development Institute, and the World Resources Institute with funding from the Rockefeller Foundation.

4 December 2012 - ICIMOD

[Time to act for prosperous, resilient, and sustainable mountains: Mountain Day 2, Doha](#)

Mountain Day 2 - a gathering of global experts and others interested in mountain development, organized on the sidelines of the global climate change negotiations currently underway in Doha, Qatar - sent the clear messages to negotiators that water availability and use will be critical in the future and that mountain communities need global support to adapt and build resilience to climate change, rather than simply coping with the impacts.

3 December 2012 - IISD

[Agriculture, Landscapes and Rural Development Day Shares Advancements on Climate-Smart Agriculture](#)

Lamenting the lack of progress on agriculture in the UNFCCC negotiations, participants at the Agriculture, Landscapes and Rural Development Day explored options for climate-smart agriculture to address mitigation, adaptation and smallholder farmer challenges.

3 December 2012 - IISD

[UNFCCC and Partners Launch UN Alliance on Climate Change Education, Training and Awareness](#)

The Secretariat of the UN Framework Convention on Climate Change (UNFCCC) launched the UN Alliance on Climate Change Education, Training and Public Awareness along with the Food and Agriculture Organization of the UN (FAO), the UN Environment Programme (UNEP), the UN Educational, Scientific and Cultural Organization (UNESCO), the UN Children's Fund (UNICEF), the UN Institute for Training and Research (UNITAR) and the World Meteorological Organization (WMO).

2 December 2012 - CIFOR

["Come out of the forest" to save the trees](#)

Forestry experts have called for a new approach to managing land and tackling climate change - challenging the ongoing debate that forests have to be sacrificed for the sake of rural development and food security.

II. MULTILATERAL PROCESSES IN CLIMATE CHANGE

Summary of Doha negotiations

Overview

The 2012 UN Climate Change Conference took place in Doha, Qatar, from 28 November until 7 December. The meetings included the 18th session of the Conference of the Parties to the UN Framework Convention on Climate Change (COP 18) and the 8th session of the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (CMP 8). Five subsidiary bodies also convened: the Subsidiary Body for Implementation (SBI), Subsidiary Body for Scientific and Technological Advice (SBSTA), Ad Hoc Working Group on Annex I Parties' Further Commitments under the Kyoto Protocol (AWG-KP), Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA) and Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP).

The main objectives of the negotiations in Doha were to adopt the second commitment period of the Kyoto Protocol and complete the work of the AWG-KP; to complete the work of the AWG-LCA; and to advance negotiations under ADP. Major concerns were how to fill the gap between mitigation pledges and what is required to achieve the 2°C target, given the low level of ambition expressed so far by developed countries, and how to secure adequate financing - securing financial flows to 2020 following up on the fast-track financing that expires in 2012 and long-term financing from 2020, commensurate with the target of mobilizing \$100 billion per year from 2020 to support developing countries. The outcome of two weeks of difficult negotiations was the "Doha Climate Gateway", the elements of which were as follows:

- Adoption of amendments to the Kyoto Protocol and establishment of the second commitment period for an 8 year term (2013-2020). The amendments included new emission reduction commitments by industrialized Parties and the objective of an aggregate reduction of greenhouse gas emissions not controlled by the Montreal Protocol by Parties included in Annex I of at least 25 to 40 per cent below 1990 levels by 2020. Having concluded its work, parties agree to terminate the AWG-KP.
- Agreement to terminate the AWG-LCA and to move outstanding issues to permanent bodies of the Convention (SBI, SBSTA, COP, CMP). Among the issues discussed by AWG-LCA and agreed was to consider loss and damage, such as an institutional mechanism to address loss and damage in developing countries that are particularly vulnerable to adverse effects of climate change.
- Agreement on the ADP's plan of work until completion in 2015, including under its work stream 1 (related to pre-2020 ambitions, including on mitigation) and work stream 2 (related to the 2015 agreement concerning the post-2020 arrangement).

At the conclusion of the negotiations, many parties and observers expressed concern over low levels of ambition on mitigation and on finance, in particular as concerns 2013-2020 finance.

The Secretary-General of the United Nations, Mr. Ban Ki-moon, announced at Doha his plans to convene a summit of world leaders in 2014 to raise visibility and encourage increased ambition for action by countries.

The next UNFCCC session (SBSTA38, SBI, ADP2) will be in Bonn, Germany from 3-14 June.

COP19 (also CMP, SBSTA39, SBI, AWG-ADP3) will take place in Warsaw, Poland from 11-22 November 2013.

On forests and related issues

REDD+

SBSTA addressed methodological issues on REDD+, specifically as relates to monitoring, reporting and verification (MRV) and modalities for national forest monitoring systems. SBSTA was unable to reach agreement on these points - largely over lack of consensus on verification and how to refer to the need of related financial support. SBSTA agreed to continue the discussions on NFMS and MRV, with the intention of completing its work on a draft decision for consideration and adoption at COP19. Next year, SBSTA will also

resume discussion of how Parties will present information on how the safeguards are being addressed as well as consideration of issues related to drivers of deforestation and forest degradation.

AWG-LCA discussed financing of REDD+. Among the issues discussed were the proposal to establish a REDD+ Committee to promote and coordinate REDD+ activities, and consideration of non-carbon benefits in REDD+ implementation and financing. Parties agreed to undertake a work programme over the coming year, including two workshops, to scale up and improve financing of REDD+. SBSTA will consider non-market based approaches (e.g. joint mitigation and adaptation approaches), and methodological issues related to non-carbon benefits from REDD+. SBSTA and SBI, in their sessions next November, will jointly address the question of coordination of support for REDD+ and report to COP19.

LULUCF (under the Kyoto Protocol)

Definitions, rules and modalities for LULUCF activities during the second commitment period were agreed at CMP 7 in Durban. SBSTA continued the discussion of some of the pending issues related to land use, land use change and forestry (LULUCF) from Durban, in particular:

- Exploring a more comprehensive accounting for the LULUCF sector, including through a land-based approach;
- possible additional LULUCF activities under CDM..

No conclusions were reached, and Parties agreed to continue discussing these issues in the next meeting of SBSTA (June 2013) and will report to the next session of CMP. If more comprehensive accounting and broader eligibility of land-based activities for CDM were adopted, this could help pave the way for a more comprehensive land-based approach in the post 2020 agreement under UNFCCC.

Other issues

SBSTA (FCCC/SBSTA/2012/L.31) requested that the UNFCCC Secretariat organize a workshop to be held by SBSTA 39 (November 2013) to consider information on ecosystems with high-carbon reservoirs. Parties are invited to submit views on the content of the workshop. One might expect that countries propose discussion of peat lands, in light of their high concentrations of carbon and huge emissions when drained or subject to burning.

SBSTA discussed agriculture. At SBSTA's opening plenary, the UN Food and Agriculture Organization (FAO) reported on activities related to agriculture and climate change, including the report by the High-Level Panel of Experts on food security and nutrition. Developing countries expressed the need to focus on adaptation in agriculture, while developed countries will like to include also mitigation in the discussions. Some attempts were made to define some steps to continue the discussions, but no agreement was reached, and it was agreed that SBSTA would continue to consider this issue at its next meeting.

On adaptation, continued calls were made for balanced support to adaptation and mitigation in the bodies of UNFCCC. Agreement was reached on a three year work plan for the newly established Adaptation Committee, whose role is to coordinate adaptation work across UNFCCC. The three year work programme includes consideration of an annual adaptation forum to raise awareness and ambition with regard to adaptation. The UNFCCC Least Developed Countries' Expert Group (LEG), which is charged with supporting the development and implementation of National Adaptation Programmes of Action (NAPA), has been requested to assist LDCs in the development of National Adaptation Plans (NAPs), which are longer term, development-linked national adaptation plans. Technical guidelines for NAP development were launched in Doha by the LEG. The Global Environmental Facility has been requested to continue its support to NAPA implementation as well as NAP development through the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF). Developed countries were urged to mobilize financial support to the NAP process and called for the UN and its specialized agencies to provide support to these processes.

An 8-year work programme on Article 6 of the Convention on education, training and public awareness was agreed.

III. EVENTS & MEETINGS

Upcoming events

World Forests Summit. Achieving sustainable forest management on a global scale

5-6 March 2013, Stockholm, Sweden

Forests play a crucial role in the world's environment, health and economy - yet they are under threat. Our World Forests Summit will assemble a leading group of experts from around the world to identify common ground and discuss mechanisms for forest stakeholders to work together differently. The summit will openly explore the tensions and compromises that are involved in creating a thriving global green economy, delivering fresh insight into solving critical challenges at both global and national levels. [More](#)

11th International Conference on Dryland Development: “Global Climate Change and its Impact on Food & Energy Security in the Dry lands”

18-23 March 2013, Beijing, China

It has now been well established that the global climate change is occurring and is having a wide impact on the environment and the livelihood of the people across the world. Dry areas of the world have highly fragile ecosystem, which is highly vulnerable to climate changes. For sustainable development of the drylands and other dry areas in the face of global climate and other changes, it is important to recognize the impacts of climate change and human activities on dryland ecosystem and understand the process and mechanism of dry lands ecosystem changes occurring because of these pressures. In addition, other global changes are also triggering challenges for food and energy security in the drylands. The Conference will provide an opportunity to exchange research results and experiences among colleagues from around the world and to promote international cooperation in developing strategies to meet the challenge of sustainable development of the drylands in the face of these changes. Emphasis will be specially laid on identifying adaptation and mitigation strategies using traditional knowledge as well as modern science and technology for different dryland ecologies. [More](#)

International Conference on Climate Change and Tree Responses in Central European Forests

1-5 September 2013, Zürich, Switzerland

The conference aims at exchanging the state of the art regarding direct (physical environment) and indirect effects (interspecific interactions) of climate change on the performance of trees and forest ecosystems. Topics to be discussed stretch from tree physiology and genetics to disturbances and community diversity, with a clear regional focus on Central Europe including the Alps and Carpathians. Keynotes on the response of trees/forest ecosystems to Climate Change (CC) in the focal region and in other regions of the world will frame the sessions, which are open for contributed talks. [More](#)

IV. RESEARCH ARTICLES

The global carbon budget 1959-2011

Quéré, C.L., Andres, R.J., Boden, T., Conway, Houghton, R.A., House, J.I., Marland, G., Peters, G.P., van der Werf, G., Ahlström, R., T., Andrew, R.M., Bopp, L., Canadell, J.G., Ciais, P., Doney, S.C., Enright, C., Friedlingstein, P., Huntingford, C., Jain, A.K., Jourdain, C., Kato, E., Keeling, R.F., Klein Goldewijk, K., Levis, S., Levy, P., Lomas, M., Poulter, B., Raupach, M.R., Schwinger, J., Sitch, S., Stocker, B.D., Viovy, N., Zaehle, S., Zeng, N.

Earth Syst. Sci. Data Discuss., 5, 1107-1157

Accurate assessment of anthropogenic carbon dioxide (CO₂) emissions and their redistribution among the atmosphere, ocean, and terrestrial biosphere is important to better understand the global carbon cycle, support the climate policy process, and project future climate change. Present-day analysis requires the combination of a range of data, algorithms, statistics and model estimates and their interpretation by a broad scientific community. Here we describe datasets and a methodology developed by the global carbon cycle science community to quantify all major components of the global carbon budget, including their uncertainties. We discuss changes compared to previous estimates, consistency within and among components, and methodology and data limitations. Based on energy statistics, we estimate that the global emissions of CO₂

from fossil fuel combustion and cement production were 9.5 ± 0.5 PgC yr⁻¹ in 2011, 3.0 percent above 2010 levels. We project these emissions will increase by 2.6% (1.9-3.5%) in 2012 based on projections of Gross World Product and recent changes in the carbon intensity of the economy. Global net CO₂ emissions from Land-Use Change, including deforestation, are more difficult to update annually because of data availability, but combined evidence from land cover change data, fire activity in regions undergoing deforestation and models suggests those net emissions were 0.9 ± 0.5 PgC yr⁻¹ in 2011. The global atmospheric CO₂ concentration is measured directly and reached 391.38 ± 0.13 ppm at the end of year 2011, increasing 1.70 ± 0.09 ppm yr⁻¹ or 3.6 ± 0.2 PgC yr⁻¹ in 2011. Estimates from four ocean models suggest that the ocean CO₂ sink was 2.6 ± 0.5 PgC yr⁻¹ in 2011, implying a global residual terrestrial CO₂ sink of 4.1 ± 0.9 PgC yr⁻¹. All uncertainties are reported as ± 1 sigma (68% confidence assuming Gaussian error distributions that the real value lies within the given interval), reflecting the current capacity to characterise the annual estimates of each component of the global carbon budget. This paper is intended to provide a baseline to keep track of annual carbon budgets in the future.

The article is open to interactive discussion [here](#)

REDD+

The journal Current Opinion on Environmental Sustainability has just published an issue dedicated to REDD+. The issue includes 17 review articles on REDD+ from different perspectives and disciplines. The overview article 'Will REDD+ work' is open access. [More](#)

Forests and trees for social adaptation to climate variability and change

Pramova, E., Locatelli, B., Djoudi, H., Somorin, O.A.

Wiley Interdisciplinary Reviews: Climate Change; 2012. 3: 581-596

Ecosystems provide important services that can help people adapt to climate variability and change. Recognizing this role of ecosystems, several international and nongovernmental organizations have promoted an ecosystem-based approach to adaptation. We review the scientific literature related to ecosystem-based adaptation (EBA) with forests and trees, and highlight five cases in which forests and trees can support adaptation: (1) forests and trees providing goods to local communities facing climatic threats; (2) trees in agricultural fields regulating water, soil, and microclimate for more resilient production; (3) forested watersheds regulating water and protecting soils for reduced climate impacts; (4) forests protecting coastal areas from climate-related threats; and (5) urban forests and trees regulating temperature and water for resilient cities. The literature provides evidence that EBA with forests and trees can reduce social vulnerability to climate hazards; however, uncertainties and knowledge gaps remain, particularly for regulating services in watersheds and coastal areas. Few studies have been undertaken on EBA specifically, but the abundant literature on ecosystem services can be used to fill knowledge gaps. Many studies assess the multiple benefits of ecosystems for human adaptation or well-being, but also recognize trade-offs between ecosystem services. Better understanding is needed of the efficiency, costs, and benefits, and trade-offs of EBA with forests and trees. Pilot projects under implementation could serve as learning sites and existing information could be systematized and revisited with a climate change adaptation lens.

Ecosystem services in the National Adaptation Programmes of Action

Pramova E., Locatelli B., Brockhaus M., Fohlmeister S

Climate Policy; 2012. 12(4): 393-409

The extent to which ecosystem services have been considered in the National Adaptation Programmes of Action (NAPAs) and the proposed adaptation projects is assessed. By August 2010, 44 least developed countries had prepared their NAPAs in response to climate change. The NAPAs constitute a starting point for planning adaptation nationally and sub-nationally, but need to be evaluated and improved as new knowledge emerges. Ecosystem-based adaptation (EbA) is an emerging approach that recognizes that ecosystem services play an important role in reducing people's vulnerability to climate change. The importance of ecosystem services is acknowledged in more than 50% of the NAPAs. Approximately 22% of the proposed projects include ecosystem activities for social well-being or adaptation, with most of them in support of other adaptation measures (e.g. infrastructure). These projects deal mainly with regulating services (soil rehabilitation, erosion control and water regulation) and provisioning services (food, fibre and fuel wood). They also have the potential to promote integrative and cross-sectoral adaptation, as many of them consider multiple ecosystem services and beneficiary sectors. However, more technical, political and financial support is needed to foster the role of ecosystem services in adaptation.

Reforestation: a potential approach to mitigate excess atmospheric CH₄ build-up.

Singh, J. S.; Singh, D. P.;

Ecological Management & Restoration; 2012. 13: 3, 245-248

Methane (CH₄) is a very dangerous greenhouse gas, and its atmospheric concentration is rising due to natural and anthropogenic disturbances. Anthropogenic disturbances such as forest clearing, land-use changes and farming practices all result in considerable increases in N inputs and alterations in soil properties, including the CH₄ sink potential of the soil. Forest soils contribute to the consumption of CH₄ due to the presence of methanotrophic bacteria. It is proposed that the restoration of degraded forest ecosystems or unused degraded land may significantly contribute to the recovery of methanotrophic activity in the soil and thereby the soil CH₄ sink potential.

Discourse on climate-smart agriculture for REDD+ strategy in the Congo basin

Molua, E. L

Journal of Sustainable Development; 2012. 5: 10, 77-88

Sustainable agriculture is central to the development challenges of the Central African sub-region. It is the nexus for achieving the Millennium Development Goals. The Congo basin in the central African sub-region stores a vast amount of carbon. However, deforestation and degradation from agricultural practices compromise the forest carbon stocks at the expense of sustainable forest management. This paper contends that in the advent of climate change, agriculture must be one that meets the triple challenge of ensuring food security, adapting to climate stressors and contributing to climate change mitigation. The goal of this discourse is to unveil the potentials for climate-smart agriculture in contributing to a better REDD+ strategy for countries in the Congo Basin. The paper reveals that agriculture based on agroforestry systems and conservation practices will be required to conserve forests and ensure food production, and also contribute to meeting the objectives of REDD+. The paper demonstrates that sustainable land management and climate-smart actions that form the panoply of agroforestry actions could help increase carbon sequestration, increase overall productivity and ensure systems cope with the adverse effects of climate change. Harnessing these opportunities requires that the prescribed strategies strengthen the link between forestry and agriculture, and agrarian efforts maximize synergies and minimize trade-offs in addressing agricultural production, food security and climate change adaptation and mitigation challenges.

Impacts of Jatropha-based biodiesel production on above and below-ground carbon stocks: a case study from Mozambique

Rasmussen, L. V.; Rasmussen, K.; Bruun, T. B

Energy Policy; 2012. 51: 728-736

The need to mitigate climate change makes production of liquid biofuels a high priority. Substituting fossil fuels by biodiesel produced from *Jatropha curcas* has gained widespread attention as *Jatropha* cultivation is claimed to offer green house gas emission reductions. Farmers respond worldwide to this increasing demand by converting forests into *Jatropha*, but whether *Jatropha*-based biodiesel offers carbon savings depends on the carbon emissions that occur when land use is changed to *Jatropha*. This paper provides an impact assessment of a small-scale *Jatropha* project in Cabo Delgado, Mozambique. The paper outlines the estimated impacts on above and below-ground carbon stocks when land use is changed to increase *Jatropha* production. The results show that expansion of *Jatropha* production will most likely lead to the conversion of miombo forest areas to *Jatropha*, which implies a reduction in above and below-ground carbon stocks. The carbon debts created by the land use change can be repaid by replacing fossil fuels with *Jatropha*-based biodiesel. A repayment time of almost two centuries is found with optimistic estimates of the carbon debt, while the use of pessimistic values results in a repayment time that approaches the millennium.

Climate change, growing season water deficit and vegetation activity along the north-south transect of Eastern China from 1982 through 2006

Sun, P., Yu, Z., Liu, S., Wei, X., Wang, J., Zegre, N.

Hydrol. Earth Syst. Sci. Discuss., 9, 6649-6688

The results showed that all vegetation types experienced warming during the study period, and the majority of them experienced precipitation decline. Warming and growing season water deficit exert counteracting controls on vegetation activity. Our study found insignificant greening trends in the northernmost cold temperate coniferous forest (CTCF), three temperate herbaceous types including the meadow steppe (TMS), grass steppe (TGS) and grassland (TG), where the growing season warming exerted more than offset effect on vegetation activity (phenology) than growing season water deficit. For the three temperate forest including the coniferous (TCF), mixed (TMF) and deciduous-broadleaved (TDBF), growing season water deficit was the main constraint on vegetation activity. Differently, the growing season browning in subtropical or tropical forests of coniferous (STCF), deciduous-broadleaved (SDBF) and evergreen-broadleaved (SEBF) and subtropical grasslands (STG) were likely attributed to decline in sunshine duration due to increased summer cloudiness. Poor water status in TDS, TG, TMS and severe drought in TGS have been identified by using growing season water deficit index (GWDI), suggested these ecosystems were subjected to severe progressing drought that may create

greening trend reversal in future. The emerging water deficit in CTCF, TCF and SDBF suggested their rising susceptibility to future climate change.

Revaluing unmanaged forests for climate change mitigation

Krug, J.; Koehl, M.; Kownatzki, D

Carbon Balance and Management; 2012. 7: 11

Background: Unmanaged or old-growth forests are of paramount importance for carbon sequestration and thus for the mitigation of climate change among further implications, e.g. biodiversity aspects. Still, the importance of those forests for climate change mitigation compared to managed forests is under controversial debate. We evaluate the adequacy of referring to CO₂ flux measurements alone and include external impacts on growth (nitrogen immissions, increasing temperatures, CO₂ enrichment, changed precipitation patterns) for an evaluation of central European forests in this context. Results: We deduce that the use of CO₂ flux measurements alone does not allow conclusions on a superiority of unmanaged to managed forests for mitigation goals. This is based on the critical consideration of uncertainties and the application of system boundaries. Furthermore, the consideration of wood products for material and energetic substitution obviously overrules the mitigation potential of unmanaged forests. Moreover, impacts of nitrogen immissions, CO₂ enrichment of the atmosphere, increasing temperatures and changed precipitation patterns obviously lead to a meaningful increase in growth, even in forests of higher age. Conclusions: An impact of unmanaged forests on climate change mitigation cannot be valued by CO₂ flux measurements alone. Further research is needed on cause and effect relationships between management practices and carbon stocks in different compartments of forest ecosystems in order to account for human-induced changes. Unexpected growth rates in old-growth forests - managed or not - can obviously be related to external impacts and additionally to management impacts. This should lead to the reconsideration of forest management strategies.

The integration of biodiversity and climate change: a contextual assessment of the carbon farming initiative

Oosterzee, P. van

Ecological Management & Restoration; 2012. 13: 3, 238-244

The Carbon Farming Initiative (CFI) allows the creation of tradable Australian Carbon Credit Units (ACCUs) derived from across the ecosystem sector via project-level baseline and credit activities: it is the first national offset scheme in the world to broadly include farming and forestry projects. Because these activities have the potential to produce both biodiversity and climate change benefits, a crucial outcome is for widespread uptake of the policy. However, the design, complexity and cost of the CFI project development process, and low prices as a result of ACCUs trading in the voluntary market, will all likely militate against this. This article shows how international politics and policy surrounding the Kyoto Protocol have influenced the design of the CFI, with its potential to proliferate complex and narrow methodologies and counter-productive approaches to integrity standards such as permanence. The article shows that despite the pressing need to integrate biodiversity and climate change considerations as equally important challenges, their global integration remains poorly articulated. Biodiversity considerations are also not integrated into the CFI but, rather, are dealt with indirectly through safeguard measures that avoid perverse incentives and unintended harm, and as an optional co-benefit via the development of an index. This article suggests that we need to move past the shackles of Kyoto towards streamlined and standardized approaches such as risk-based assessments and the use of regional baselines. Using regionally specific baselines such as for avoided deforestation would allow landholders to opt-in to regionalscale mitigation opportunities. Activities that Australia accounts for, such as reforestation and deforestation, should also be able to opt-in for coverage under the Clean Energy Act (and out of the voluntary carbon market) to obtain a secure price.

Pattern of carbon allocation across three different stages of stand development of a Chinese pine (*Pinus tabulaeformis*) forest

Cao JiXin; Wang XiaoPing; Tian Yun; Wen ZhiYong; Zha TianShan

Ecological Research; 2012. 27: 5, 883-892

The pattern of carbon (C) allocation across different stages of stand development of Chinese pine (*Pinus tabulaeformis*) forests is poorly documented. In order to understand the effects of stand age on the C pool of the Chinese pine forest ecosystem, we have examined the above- and belowground C pools in three differently aged stands of Chinese pine in the northern mountains of Beijing, China, by plot-level inventories and destructive sampling. Our results suggest that tree branch and foliage biomass should be estimated by age-specific equations. Reasonably accurate estimates of tree stem, tree root, aboveground, and total tree biomass in a Chinese pine forest at different development stages were obtained using age-independent allometric equations from tree diameter only. The ratio of belowground to aboveground tree biomass was relatively constant with stand aging, remaining around 21 %. The contribution of aboveground tree biomass C increased

from 21 % of the total ecosystem C in a 25-year-old stand to 44 % in a 65-year-old stand, subsequently falling to 41 % in a 105-year-old stand, while the contribution of mineral soil C decreased from 64 % of the total ecosystem C in 25-year-old stand to 38 % in a 65-year-old stand, subsequently increasing to 41 % in a 105-year-old stand. The C stock of the total ecosystem and its aboveground tree, tree root, forest floor, and mineral soil components continuously increased with stand ageing, whereas the C stock of the understory showed a declining trend and contributed little to the total site C pool.

Protecting forests, biodiversity, and the climate: predicting policy impact to improve policy choice

Pfaff, A.; Robalino, J.

Oxford Review of Economic Policy; 2012. 28: 1, 164-179

Policies must balance forest conservation's local costs with its benefits - local to global - in terms of biodiversity, the mitigation of climate change, and other eco-services such as water quality. The trade-offs with development vary across forest locations. We argue that considering location in three ways helps to predict policy impact and improve policy choice: (i) policy impacts vary by location because baseline deforestation varies with characteristics (market distances, slopes, soils, etc.) of locations in a landscape; (ii) different mixes of political-economic pressures drive the location of different policies; and (iii) policies can trigger 'second-order' or 'spillover' effects likely to differ by location. We provide empirical evidence that suggests the importance of all three considerations, by reviewing high-quality evaluations of the impact of conservation and development on forest. Impacts of well-enforced conservation rise with private clearing pressure, supporting (i). Protection types (e.g. federal/state) differ in locations and thus in impacts, supporting (ii). Differences in development process explain different signs for spillovers, supporting (iii).

REDD policy impacts on indigenous property rights regimes on Palawan Island, the Philippines

Dressler, W.; McDermott, M.; Smith, W.; Pulhin, J.

Human Ecology; 2012. 40: 5, 679-691

Several Southeast Asian states have been working feverishly to design and implement REDD policy frameworks to fulfil their commitment to global climate change mitigation. In doing so, state agencies will be challenged to design REDD plus policies that value and conserve forest carbon in ways that align with national policies and local priorities for managing forest landscapes defined by complex property rights regimes. However, as with other market-based policies, the expeditious delivery of REDD could bypass critical analysis of potential interactions with national tenure regimes, customary property rights, and local livelihoods. Drawing on the case of Palawan Island - a forested frontier island in the Philippines - we examine how nascent REDD policies can articulate with state sanctioned tenure, customary tenure, and forest uses in changing livelihood contexts. This paper draws on research among Tagbanua and Pala'wan people to illustrate how complex and changing tenure structures, commodity markets and livelihood dynamics may influence how REDD plus interventions affect indigenous customary lands and forest use. We argue that the ability of indigenous forest users to maintain stored carbon and improve livelihoods is contingent upon the 'socio-material' form of carbon - a commodity defined in relation to the resources and social processes of which it is part

The creation and dissolution of private property in forest carbon: a case study from Papua New Guinea

Filer, C.; Wood, M

Human Ecology; 2012. 40: 5, 665-677

This paper shows how the prospect of a forest carbon market in Papua New Guinea added a new element of instability to national forest policy and property processes that were already moving in contradictory directions. In particular we examine attempts by foreign investors to forge voluntary carbon agreements with customary landowners after the Bali climate change conference of 2007, and the mobilization of state institutions to counter these 'private dealings'. We highlight the connection between the ways that these processes played out at both national and local scales, with a focus on the highly contentious Kamula Doso forest area in Western Province. We conclude with some observations on the way that the constitutional protection of customary land rights inhibits the formalization of marketable rights in forest resources, including forest carbon, and creates an inconclusive circularity in the operation of forest policy and property processes at different levels of social and political organization.

The social life of forest carbon: property and politics in the production of a new commodity

Mahanty, S.; Milne, S.; Dressler, W.; Filer, C.;

Human Ecology; 2012. 40: 5, 661-664

Interventions to conserve carbon stored in forests are central to the emerging global climate change regime.

Widely referred to as REDD+, these interventions engage local resource holders in contracts to restrict their use of land and forests in exchange for conditional benefits, effectively creating a market for forest carbon - a new and intangible commodity. Delving into the social and material implications of this, three case studies (Papua New Guinea, Philippines, Cambodia) examine property relations in the early stages of forest carbon production in different tenure contexts. The case studies reveal that: (a) the risk of local exclusion from forest and lands under REDD+ is real, but is mediated by dynamic negotiations over knowledge and property; (b) the relationship between forest carbon and underlying property relations around land and forests is recursive and mutually constitutive; and (c) due to ongoing and entrenched property contests in REDD+ locations, there remains an unstable foundation for forest carbon markets.

Climate change adaptive capacity of the Canadian forest sector

Johnston, M.; Hessel, H

Forest Policy and Economics; 2012. 24: 29-34

Canada's forests will be affected by climate change to a greater degree than many other regions. The ability of the Canadian forest sector to successfully adapt to climate change, i.e. its adaptive capacity, was assessed through a series of group discussions and interviews with a variety of forestry stakeholders across Canada. The assessment was oriented to the following determinants of adaptive capacity: (1) The range of available technological options for adaptation that would be considered in response to a perceived climate-related stress; (2) The availability of resources; (3) The structure and functionality of critical institutions to understand the allocation of decision-making authority, institutional flexibility, and the decision criteria that would be employed; (4) Human and social capital, including the distribution of educational achievement, differential access to personal security and robust property rights; (5) The system's (and individuals') access to risk-spreading processes (both formal and informal); (6) Decision-makers' ability to manage information, the processes by which these decision-makers determine which information is credible, and the credibility of the decision-makers themselves. Forest managers were generally optimistic about their ability to identify and implement adaptation options at the forest management unit level. However, institutional barriers were seen to be a major impediment; managers identified tenure reform and a more flexible regulatory environment as essential for the innovation that will be required by climate change. Other factors limiting adaptive capacity include lack of financial resources and low levels of investment in the forest sector, lack of specialized science capacity in climate change impacts and the long-term nature of planning required by long-lived forest species. Several non-governmental institutions may support increased adaptive capacity including forest certification systems, Criteria and Indicators of Sustainable Forest Management, Canada's model forest program and others. However, these institutions will need to be modified in order to support forest managers in planning for climate change.

Significance of carbon stock uncertainties on emission reductions from deforestation and forest degradation in developing countries

Pelletier, J.; Kirby, K. R.; Potvin, C

Forest Policy and Economics; 2012. 24: 3-11

A historical agreement was reached in Bali under the United Nations Framework Convention on Climate Change, encouraging countries to initiate actions to reduce emissions from deforestation and forest degradation in developing countries (REDD). In this context, we use a Panama-based example to show the impacts of the current levels of uncertainty in forest carbon density estimates on GHG baseline estimation and estimations of emission reductions. Using five aboveground tree carbon stock estimates for Moist Tropical forest in a simulation study, we found a difference in terms of annual CO₂ emissions of more than 100% between the lowest and the highest estimates. We analyze the economic significance to show that when comparing the income generated for the different forest carbon density estimates to the cost of 10% reduced deforestation, the break-even point differs from US\$6.74 to US\$16.58 per ton of CO₂e between the highest and the lowest estimate. We argue that for a country such as Panama, improving the quality of forest carbon stock estimates would make economic sense since the highest forest carbon density estimates were developed nationally while the lowest estimate is the global default value. REDD could result in a huge incentive for forest protection and improved forest management, in consequence, we highlight that progress on the incorporation of uncertainty analysis and on the mitigation of the main sources of error in forest carbon density estimates merit further methodological guidance.

Traditional shifting agriculture: tracking forest carbon stock and biodiversity through time in western Panama

Pelletier, J.; Codjia, C.; Potvin, C

Global Change Biology; 2012. 18: 12, 3581-3595

Reducing emissions from deforestation and forest degradation (REDD+) requires developing countries to

quantify greenhouse gas emissions and removals from forests in a manner that is robust, transparent, and as accurate as possible. Although shifting cultivation is a dominant practice in several developing countries, there is still very limited information available on how to monitor this land-use practice for REDD+ as little is known about the areas of shifting cultivation or the net carbon balance. In this study, we propose and test a methodology to monitor the effect of the shifting cultivation on above-ground carbon stocks. We combine multiyear remote sensing information, taken from a 12-year period, with an in-depth community forest carbon stock inventory in Palo Seco Forest Reserve, western Panama. Using remote sensing, we were able to separate four forest classes expressing different forest-use intensity and time-since-intervention, which demonstrate expected trends in above-ground carbon stocks. The addition of different interventions observed over time is shown to be a good predictor, with remote sensing variables explaining 64.2% of the variation in forest carbon stocks in cultivated landscapes. Multitemporal and multispectral medium-resolution satellite imagery is shown to be adequate for tracking land-use dynamics of the agriculture-fallow cycle. The results also indicate that, over time, shifting cultivation has a transitory effect on forest carbon stocks in the study area. This is due to the rapid recovery of forest carbon stocks, which results in limited net emissions. Finally, community participation yielded important additional benefits to measuring carbon stocks, including transparency and the valorization of local knowledge for biodiversity monitoring. Our study provides important inputs regarding shifting cultivation, which should be taken into consideration when national forest monitoring systems are created, given the context of REDD+ safeguards.

The Yasso07 soil carbon model - testing against repeated soil carbon inventory

Rantakari, M.; Lehtonen, A.; Linkosalo, T.; Tuomi, M.; Tamminen, P.; Heikkinen, J.; Liski, J.; Makipaa, R.; Ilvesniemi, H.; Sievanen, R.

Forest Ecology and Management; 2012. 286: 137-147

Forest soils store large amounts of carbon (C), and releases of C from this pool may significantly increase the CO₂ concentration in the atmosphere. Organic matter decomposition in soils has been shown to strongly depend on temperature and soil moisture and is, therefore, susceptible to the climate change. Reliable methods are needed to monitor and predict the changes in soil C stocks. In this study, we tested the Yasso07 soil C model by comparing the model predictions to repeated soil C measurements of organic layer and, furthermore, to the estimates of two other C models, namely Yasso and ROMUL. In the model simulations, we used the litter input time series derived from forest biomass estimates based on the national forest inventories. Both the repeated empirical measurements and Yasso07 simulations indicated upland forest soils to be small sinks of C in Southern Finland. The Yasso07 model was able to predict both soil C stock and C accumulation within the error limits of the measured values. Yasso07 and the earlier version, Yasso, predicted very similar soil C stocks close to the measured values, but slightly underestimated C accumulation. The annual soil C changes predicted by the Yasso07 and ROMUL models were reasonably close to each other, even though the models are based on a very different basic structure. However, the differences in the model predictions were at the highest in years with the highest precipitation, indicating that there are still uncertainties in predicting the effects of soil moisture on the soil C stock changes.

REDD+ and community-controlled forests in low-income countries: any hope for a linkage?

Bluffstone, R.; Robinson, E. J. Z.; Guthiga, P

Environment for Development Discussion Paper - Resources for the Future (RFF); 2012. 12-11

Deforestation and forest degradation are estimated to account for between 12 percent and 20 percent of annual greenhouse gas emissions. These activities, largely in the developing world, released about 5.8 Gt per year in the 1990s, which was more than all forms of transport combined. The idea behind REDD+ is that payments for sequestering carbon can tip the economic balance away from loss of forests and in the process yield climate benefits. Recent analysis has suggested that developing country carbon sequestration can effectively compete with other climate investments as part of a cost-effective climate policy. This paper focuses on opportunities and complications associated with bringing community-controlled forests into REDD+. About 25 percent of developing country forests are community controlled; therefore, it is difficult to envision a successful REDD+ program without coming to terms with community controlled forests. It is widely agreed that REDD+ offers opportunities to bring value to developing country forests, but there are also concerns related to insecure and poorly defined community forest tenure, informed by often long histories of government unwillingness to meaningfully devolve ownership rights to communities. Further, because communities are complicated systems, there is also concern that REDD+ could destabilize existing well-functioning community forestry systems.

Food-carbon trade-offs between agriculture and reforestation land uses under alternate marketbased policies

Paterson, S.; Bryan, B. A

Ecology and Society; 2012. 17: 3, Art. 21

Understanding the effects of payments on the adoption of reforestation in agricultural areas and the associated food-carbon trade-offs is necessary to inform climate change policy. Economic viability of reforestation under payment per hectare and payment per tonne schemes for carbon sequestration was assessed in a region in southern Australia supporting 6.1 Mha of rain-fed agriculture. The results show that under the median scenario, a carbon price of 27 A\$/tCO₂-e could make one-third of the study area (nearly 2 Mha) more profitable for reforestation than agriculture, and at 58 A\$/tCO₂-e all of the study area could become more profitable. The results were sensitive to variation in carbon risk factor, establishment costs, and discount rates. Pareto-optimal land allocation could realize one-third of the potential carbon sequestration from reforestation (16.35 MtCO₂-e/yr at a carbon risk factor of 0.8) with a loss of less than one-tenth (107.89 A\$/yr) of the agricultural production. Both payment schemes resulted in efficiencies within 1% of the Pareto-optimum. Understanding food-carbon trade-offs and policy efficiencies can inform carbon policy design.

Deforestation and the limited contribution of forests to rural livelihoods in West Africa: evidence from Burkina Faso and Ghana

Pouliot, M.; Treue, T.; Obiri, B. D.; Ouedraogo, B.
Ambio; 2012. 41: 7, 738-750

Forest degradation in West Africa is generally thought to have negative consequences on rural livelihoods but there is little overview of its effects in the region because the importance of forests to rural livelihoods has never been adequately quantified. Based on data from 1014 rural households across Burkina Faso and Ghana this paper attempts to fill this knowledge gap. We demonstrate that agricultural lands and the non-forest environment including parklands are considerably more valuable to poor as well as more well-off rural households than forests. Furthermore, product types supplied by the non-forest environment are almost identical with those from forests. Accordingly, forest clearance/degradation is profitable for and, hence, probably performed by rural people at large. We attribute rural people's high reliance on non-forest versus forest resources to the two countries' restrictive and inequitable forest policies which must be reformed to promote effective forest conservation, e.g., to mitigate climate change.

Carbon and nitrogen stock and fluxes in coastal Atlantic Forest of southeast Brazil: potential impacts of climate change on biogeochemical functioning

Villela, D. M.; Mattos, E. A. de; Pinto, A. S.; Vieira, S. A.; Martinelli, L. A
Brazilian Journal of Biology; 2012. 72: 3 (Suppl.), 633-642

The Atlantic Forest is one of the most important biomes of Brazil. Originally covering approximately 1.5 million of km², today this area has been reduced to 12% of its original size. Climate changes may alter the structure and the functioning of this tropical forest. Here we explore how increases in temperature and changes in precipitation distribution could affect dynamics of carbon and nitrogen in coastal Atlantic Forest of the southeast region of Brazil. The main conclusion of this article is that the coastal Atlantic Forest has high stocks of carbon and nitrogen above ground, and especially, below ground. An increase in temperature may transform these forests from important carbon sinks to carbon sources by increasing loss of carbon and nitrogen to the atmosphere. However, this conclusion should be viewed with caution because it is based on limited information. Therefore, more studies are urgently needed to enable us to make more accurate predictions.

Planting trees through the clean development mechanism: a critical assessment

Corbera, E.; Friedli, C
Ephemera; 2012. 12: 1/2, 206-241

The Kyoto Protocol's Clean Development Mechanism (CDM) allowed developing countries to promote Afforestation and Reforestation (A/R) activities as a means to sell carbon emissions reductions to individuals, companies and governments in developed countries. Five years after the official registration of the first CDM A/R project, very little is known about the design and implementation of these activities. This is somewhat surprising if one takes into account the current move towards the establishment of an international framework for reducing emissions from deforestation, degradation and increasing carbon stocks through forest management (REDD+), which may likely include forest enrichment activities. This paper reviews the literature on carbon forestry and examines a subsample of Project Design Documents (PDDs) from existing CDM A/R projects in order to highlight the projects' potential positive and negative outcomes. Our analysis reveals that CDM A/R activities often rely on inaccurate carbon accounting methods that deem their actual mitigation benefits rather uncertain. Socio-economic assessments are non-existent or lack detail, casting doubt on projects' contribution to local and socially transformative development. And, finally, projects also lack rigorous information on benefit sharing and in doing so they mask who will benefit most from carbon trading. The discussion contrasts these findings with emerging empirical and critical literature, and we raise a word of caution on the future impacts of forest enrichment activities under REDD+.

A colonial mechanism to enclose lands: A critical review of two REDD+-focused special issues

Cabello, J.; Gilbertson, T

Ephemera; 2012. 12: 1/2, 162-180.

This review essay critiques two REDD+-focused special issue journals: *Environmental Science and Policy*, 'Governing and Implementing REDD+', and *Forests* (2, 2011). This is an effort to address the varying assumptions from the academic journals - that REDD+ can be fixed with more governance, finance and/or community engagement - through a critique of the wider neoliberal climate regime, issues of 'governance' as an unproblematised category, and by exploring, from de-colonialist and environmental justice perspectives, the issues of real participation and sustainability. We conclude that REDD+ is framed within an epistemological understanding of forests and lands which supports the domination of nature by humans for economic profit, regardless of financial input, governance and/or participation from communities, and therefore will not be a successful means of climate mitigation or forest protection. In addition, the essay stresses the goal that any climate change policy should include: keeping fossil fuels in the ground, and devising just and effective ways to protect the environment, lands, forests and peoples. Finally, emphasizing that deforestation is a complex socio-political and economic event, the article strongly voices other knowledges opposing REDD+ projects, which are largely marginalized in these discussions, especially those from Indigenous Peoples and forest-dependent communities.

Carbon, nitrogen, organic phosphorus, microbial biomass and N mineralization in soils under cacao agroforestry systems in Bahia, Brazil

Zaia, F. C.; Gama-Rodrigues, A. C.; Gama-Rodrigues, E. F.; Moco, M. K. S.; Fontes, A. G.; Machado, R. C. R.; Baligar, V. C.;

Agroforestry Systems; 2012. 86: 2, 197-212

Large amounts of plant litter deposited in cacao agroforestry systems play a key role in nutrient cycling. Organic matter, nitrogen and phosphorus cycling and microbial biomass were investigated in cacao agroforestry systems on Latosols and Cambisols in Bahia, Brazil. The objective of this study was to characterize the microbial C and N, mineralizable N and organic P in two soil orders under three types of cacao agroforestry systems and an adjacent natural forest in Bahia, Brazil and also to evaluate the relationship between P fractions, microbial biomass and mineralized N with other soil attributes. Overall, the average stocks of organic C, total N and total organic P across all systems for 0-50 cm soil depth were 89,072, 8,838 and 790 kg ha⁻¹, respectively. At this soil depth the average stock of labile organic P was 55.5 kg ha⁻¹. For 0-10 cm soil depth, there were large amounts of microbial biomass C (mean of 286 kg ha⁻¹), microbial biomass N (mean of 168 kg ha⁻¹) and mineralizable N (mean of 79 kg ha⁻¹). Organic P (total and labile) was negatively related to organic C, reflecting that the dynamics of organic P in these cacao agroforestry systems are not directly associated with organic C dynamics in soils, in contrast to the dynamics of N. Furthermore, the amounts of soil microbial biomass, mineralizable N, and organic P could be relevant for cacao nutrition, considering the low amount of N and P exported in cacao seeds.

Carbon stocks in coffee agroforests and mixed dry tropical forests in the western highlands of Guatemala

Schmitt-Harsh, M.; Evans, T. P.; Castellanos, E.; Randolph, J. C

Agroforestry Systems; 2012. 86: 2, 141-157

Tree removal in Latin American coffee agroforestry systems has been widespread due to complex and interacting factors that include fluctuating international markets, government-supported agricultural policies, and climate change. Despite shade tree removal and land conversion risks, there is currently no widespread policy incentive encouraging the maintenance of shade trees for the benefit of carbon sequestration. In facilitation of such incentives, an understanding of the capacity of coffee agroforests to store carbon relative to tropical forests must be developed. Drawing on ecological inventories conducted in 2007 and 2010 in the Lake Atitlan region of Guatemala, this research examines the carbon pools of smallholder coffee agroforests (CAFs) as they compare to a mixed dry forest (MDF) system. Data from 61 plots, covering a total area of 2.24 ha, was used to assess the aboveground, coarse root, and soil carbon reservoirs of the two land-use systems. Results of this research demonstrate the total carbon stocks of CAFs to range from 74.0 to 259.0 Megagrams (Mg) C ha⁻¹ with a mean of 127.6±6.6 (SE) Mg C ha⁻¹. The average carbon stocks of CAFs was significantly lower than estimated for the MDF (198.7±32.1 Mg C ha⁻¹); however, individual tree and soil pools were not significantly different suggesting that agroforest shade trees play an important role in facilitating carbon sequestration and soil conservation. This research demonstrates the need for conservation-based initiatives which recognize the carbon sequestration benefits of coffee agroforests alongside natural forest systems.

Comparison of methods for measuring and assessing carbon stocks and carbon stock changes in terrestrial carbon pools. How do the accuracy and precision of current methods compare? A systematic review protocol

Petrokofsky, G.; Kanamaru, H.; Achard, F.; Goetz, S. J.; Joosten, H.; Holmgren, P.; Lehtonen, A.; Menton, M.; Pullin, A. S.; Wattenbach, M.

Environmental Evidence; 2012. 1: 6

Background: Climate change and high rates of global carbon emissions have focussed attention on the need for high-quality monitoring systems to assess how much carbon is present in terrestrial systems and how these change over time. The choice of system to adopt should be guided by good science. There is a growing body of scientific and technical information on groundbased and remote sensing methods of carbon measurement. The adequacy and comparability of these different systems have not been fully evaluated. Methods: A systematic review will compare methods of assessing carbon stocks and carbon stock changes in key land use categories, including, forest land, cropland, grassland, and wetlands, in terrestrial carbon pools that can be accounted for under the Kyoto protocol (above-ground biomass, below-ground biomass, deadwood, litter and soil carbon). Assessing carbon in harvested wood products will not be considered in this review. Discussion: Developing effective mitigation strategies to reduce carbon emissions and equitable adaptation strategies to cope with increasing global temperatures will rely on robust scientific information that is free from biases imposed by national and commercial interests. A systematic review of the methods used for assessing carbon stocks and carbon stock changes will contribute to the transparent analysis of complex and often contradictory science.

Tropical forests: Tightening up on tree carbon estimates

Goodman, R.C., Phillips, O.L., Baker, T.R.

Nature 491, 527.

During a recent fieldwork campaign with a logging operation in the southwestern Amazon, we weighed a single shihuahuaco tree (*Dipteryx micrantha*) at 76.1 tonnes dry mass, making it the most massive tropical tree ever recorded. Yet its diameter (158 centimetres) and its height (44 metres) were unexceptional. Marked variations in the biomass and species identity of large trees have significant implications for carbon accounting and the future of tropical forests.

V. PUBLICATIONS, REPORTS AND OTHER MEDIA

FAO, Forests and Climate Change. Working with countries to mitigate and adapt to climate change through sustainable forest management.

FAO

This publication summarizes the work that FAO is undertaking, with its partners, to assist countries to mitigate and adapt to climate change as it relates to forests, trees and the people who depend on them. It is organized in four of the five main areas of FAO's integrated approach to Sustainable Forest Management:

i) Monitoring and assessment, ii) Management planning and practices, iii) Policy and governance, iv) Forest products, services and industry. The fifth main area of work, Intersectoral cooperation and coordination, cuts across the other four areas. [The publication](#)

Understanding Relationships between Biodiversity, Carbon, Forests and People: The Key to Achieving REDD+ Objectives. A Global Assessment Report Prepared by the Global Forest Expert Panel on Biodiversity, Forest Management and REDD+

IUFRO

The likelihood of REDD+ activities delivering positive climate mitigation results and social and environmental co-benefits, will hinge on key choices made by decision-makers (policy-makers, investors, planners, land managers and other relevant stakeholders), since the management of forest stands and forest landscapes for net positive carbon benefits will have implications for biodiversity and ecosystem services other than carbon sequestration. These choices, which will inevitably involve trade-offs among land uses and forest-based ecosystem services, and among stakeholders at all levels, need to be understood and integrated into REDD+ decision-making, planning and management processes. They concern, for example, the selection and design of the most appropriate REDD+ activities to be implemented, the scale at which to implement them, objectives of the investors, and the balance between local and international impacts (particularly as they relate to land use and food security). If they are to lead to desired outcomes, these choices should be informed by the best available knowledge regarding the likely impacts (ecological and socio-economic) of REDD+ actions. [More](#)

Socio-economic conditions in REDD+ pilot areas. A synthesis of five baseline surveys

IIED

This overarching report is structured as follows: section 2 describes the pilot areas studied, section 3 gives an overview of household characteristics and livelihoods, section 4 discusses tenure systems and forest management, section 5 looks at perceptions of climate change and demands concerning REDD+, while the final section offers concluding remarks and reflections on the implications for REDD+. Since this is a synthesis report, it only touches on the key features of each country and pilot. [The publication](#)

The Ongo Community Forest REDD+ pilot Project, Uganda: A socioeconomic baseline survey

IIED

This report aims to synthesise information on current socioeconomic conditions within the villages that are to be involved in the Ecotrust Pro-Poor REDD+ pilot project in the Masindi district of western Uganda. Results from this research provide a baseline of the socioeconomic conditions of households in these villages that can be compared with follow-up surveys to be conducted after the REDD pilot has been in operation for some time. This comparison will help determine the impacts of the REDD+ pilot on poverty reduction and sustainable development. This study forms a key component of the project 'poverty and sustainable development impacts of REDD architecture: options for equity, growth and the environment', led by the International Institute for Environment and Development (IIED) and the Norwegian University of Life Sciences (UMB). Results from Uganda will later be combined with research from other countries (Vietnam, Brazil, Ghana and Tanzania) to compare the impacts across countries. [The publication](#)

The Lam Dong REDD+ pilot area, Viet Nam: A socioeconomic baseline survey

IIED

The Netherlands Development Organisation (SNV) began exploring REDD+ opportunities in the central highlands province of Lam Dong in 2009. Presented in this report is preliminary work conducted, which has included carrying out socio-economic surveys in 2010 across three of the four communes involved in the REDD+ project area, with an additional 'control' commune added to the study. In total, 280 households were surveyed with the intention of creating a robust baseline of socioeconomic data against which follow-up surveys in the future can measure the socio-economic impacts of REDD+. The baseline results also provide an interesting insight into the shape that REDD+ activities may take going forward. [The publication](#)

Summary of the manual for building tree volume and biomass allometric equations. From field measurement to prediction

FAO & CIRAD

The manual for building tree volume and biomass allometric equations 1 is designed for students, researchers and engineers who wish to acquire the knowledge and methodology to establish allometric equations to assess the volume, biomass or mineral mass of trees. The manual provides numerous examples and detailed technical advice, so there are few prerequisites for users. The aim of this synthesis is to highlight and explain the manual's main steps. [The publication](#)

Community Forestry Adaptation Roadmaps in Asia - 2020

RECOFTC

There is a vast and unrecognized opportunity for Community Forestry to strengthen national resilience to climate change through diversifying rural livelihoods, increasing food security, leveraging social capital and knowledge, advancing disaster risk reduction and regulating microclimates. However maximizing the role for Community Forestry in climate change is an area where clear guidance and recommendations are lacking. To address this gap RECOFTC has developed a set of Community Forestry Adaptation Roadmaps to the year 2020 for a selection of Asian countries, with funding support from our core donors: Norad, SDC, SIDA and the Royal Thai Government. This Policy Brief provides a concise overview of the Roadmap project, with key findings and recommendations, along with sample 'Roadmaps' to 2020 for selected countries. The full set of five country Roadmaps (Cambodia, Lao PDR, Nepal, Thailand and Vietnam) will be launched in early 2013. [The publication](#)

Turn Down the Heat. Why a 4°C Warmer World Must be Avoided

The World Bank

This report provides a snapshot of recent scientific literature and new analyses of likely impacts and risks that would be associated with a 4° Celsius warming within this century. It is a rigorous attempt to outline a range of risks, focusing on developing countries and especially the poor. A 4°C world would be one of unprecedented heat waves, severe drought, and major floods in many regions, with serious impacts on ecosystems and

associated services. But with action, a 4°C world can be avoided and we can likely hold warming below 2°C. [The report](#)

The little forest finance book. 14 catalysts to scale up forest-friendly finance.

Global Canopy Programme.

The Little Forest Finance Book's overarching aim is to catalyse an increase in the finance flowing towards forest-friendly development. It was launched on 16 October 2012 at the 11th Conference of the Parties to the UN Convention on Biological Diversity, in Hyderabad, India. The book is a reference for decision makers and project stakeholders within governments, NGOs, the private sector, and forest communities who want to understand where forest finance can be raised, how it can best be managed, and the types of activities that it enables. It seeks to demystify the forest finance landscape, and presents a clear framework of realistic and widely applicable options for decision makers to catalyse further action and debate in this field. It is grounded in reality rather than theory, and draws on numerous case studies to indicate emerging ideas, best practice, and innovative ways of thinking about forest finance for the future. As a non-partisan analysis, the Little Forest Finance Book does not favour one proposal over another. We do hope, however, that our work will aid understanding and encourage collaborative dialogue on this vitally important area of research. [The publication](#)

Building resilience for adaptation to climate change in the agriculture sector. Proceedings of a Joint FAO/OECD Workshop

FAO & OECD

The joint workshop on Building resilience for adaptation to climate change in the agriculture sector was organized by FAO and OECD, and was held from 23 to 24 April 2012, at FAO headquarters in Rome. This workshop was a follow-up of the Joint OECD-INEA-FAO Workshop on Agriculture and Adaptation to Climate Change, which was held in June 2010. One of the conclusions of that 2010 Workshop was that, as climate change brings new uncertainties, adds new risks and changes already existing risks, one of the most effective ways for agriculture to adapt to climate change could be to increase its resilience. This is why this workshop started from the various types of risks to which agriculture is prone, considered the impact that climate change is expected to have on them, and discussed various risk management strategies, depending on types of risks, and the country and region in question. This two-day workshop consisted of four sessions including setting the scene, types of risks and risk management, case studies and, finally, tools, policies and institutions. [The publication](#)

Capacity development in national forest monitoring. Experiences and progress for REDD+

CIFOR

The aim of this report is to summarise the main contributions and findings of the meeting. Part 1 presents country experiences in improving national forest monitoring, with contributions from Guyana, India, Indonesia, Vietnam and Mexico. Part 2 summarises experiences and lessons learned from donor organisations, namely the Government of Norway's International Forest and Climate Initiative and the World Bank's Forest Carbon Partnership Facility. In Part 3, we discuss some of the central - and at times controversial - issues for national forest monitoring and REDD+: conservativeness, benefit distribution and a stepwise framework for REDD+ reference levels. Workshop attendees were also surveyed to identify the success and enabling factors for continuous improvements in national forest monitoring (for REDD+) in non-Annex I countries; some findings are presented in Part 3. This report will be presented in a side meeting at COP 18 in Doha, Qatar (26 November - 7 December 2012). [The publication](#)

Community Forest Monitoring for the Carbon Market: Opportunities Under REDD

Earthscan

Recent developments in international policy on Reduced Emissions from Deforestation in Developing countries (REDD) open the way for crediting of carbon saved by rural communities through management of the forests in their vicinity. Since the annual changes in forest carbon stock under this kind of management are relatively small and often under the canopy, they cannot easily be assessed using remote sensing, so ground-level data collection is likely to be essential over large areas of forests. The potential role of communities in measuring, monitoring and reporting carbon stock changes in their forests has been explicitly mentioned in UNFCCC documentation on methodology for REDD+, the extended form of REDD that includes forest enhancement, sustainable forest management and forest conservation. This book presents practical methods by which communities can do it. These methods were developed and tested with communities in villages in Africa and Asia under a six-year research programme. The reliability of the data gathered by the community is shown to be equivalent to that of professional forest inventories while the costs are much lower. Involvement of local communities in collection of this data may be the most cost-effective solution for national REDD+ programmes.

Moreover, it could provide the basis for a transparent system for distribution of the financial rewards from REDD+ and the carbon market. The book first presents the policy context, concepts, methods and general results, which include estimates of typical carbon savings resulting from community management in different types of tropical forests. It also looks at the governance issues that may be involved and a variety of ways in which incentive schemes might be designed to encourage communities to participate. The second half of the book is devoted to case studies from the countries involved in the research. These provide both ideas and practical experience to enable agencies to engage with local communities to monitor carbon stock changes. The book can be purchased at amazon.com

V.I JOBS

Climate change Adaptation Specialist

IFAD - deadline for application is 31st of December 2012

Climate Change Adaptation Specialists will serve IFAD's Regional Divisions to help develop and oversee ASAP-supported investments in collaboration with the five Regional Climate and Environment Specialists (RCES). In doing so, they will provide access to relevant thematic expertise on climate change adaptation and enhance IFAD's ability to become a world-class service provider on climate change adaptation. [More](#)

VII. ANNOUNCEMENTS

Climate Finance Options

The World Bank & UNDP

This Climate Finance Options Platform, launched under the chapeau "Acting on Climate Change: The UN System Delivering As One", addresses information needs on the multitude of funds available for climate action in developing countries. Based on the UNFCCC framework, the service is composed of two complementary domains (the other is led by UNFCCC) both of which will help to catalyze financial and investment flows for more effective climate action. [More](#)

REDD+ Partnership Questionnaire responses available

REDD+ Partnership

The REDD+ Partnership wishes to announce that responses to the 2012 Questionnaire for financing, actions, and results, are now available on the voluntary REDD+ Database (VRD). [More](#)

Newly updated guide helps business make better choices on forest products

World Business Council for Sustainable Development & World Resource Institute

The World Business Council for Sustainable Development (WBCSD) and World Resources Institute (WRI) recently released the third edition of Sustainable Procurement of Wood and Paper-based Products, a guide and resource kit offering solutions to help businesses of all sizes buy forest products from sustainably managed forests and contribute to improved forest management. With this newest version, WRI and WBCSD continue to support better businesses' decisions by providing information to help them understand the origin, legality, ecological and social dimensions of the wood and paper-based products they purchase and use. The new edition incorporates the most up-to-date developments on the legality of forest products, new technological developments to control wood and paper supply chains and increase their transparency, and an expanded chapter on the social implications of forest products. The guide provides an overview of the 10 key issues underpinning procurement, including forest management; provides an overview of a selection of tools, initiatives and additional resources; and clarifies and explains the maze of terminology around sustainable forest products. The full guide and more is available [here](#)

CLIM-FO INFORMATION

The objective of CLIM-FO-L is to compile and distribute recent information about climate change and forestry. CLIM-FO-L is issued monthly.

Past issues of CLIM-FO-L are available on the website of *FAO Forest and Climate Change*:

<http://www.fao.org/forestry/climatechange/en/>

For technical help or questions contact CLIM-FO-Owner@fao.org

The Newsletter is compiled by Marc Dumas-Johansen and Susan Braatz.

We appreciate any comments or feedback.

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