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I. IN THE PRESS

27 September 2012 - FAO

[New international forestry award. Activist from Nepal receives Wangari Maathai Award](#)

The first-ever Wangari Maathai Award has been given today to a forestry activist from Nepal to recognize his efforts to promote community forest management. The ceremony took place at the Committee on Forestry (COFO), at FAO headquarters in Rome.

26 September 2012 - CIFOR

[Follow the rain: tree biodiversity greatest in areas of high rainfall](#)

Policymakers seeking to conserve forests in southern India should focus on those that receive the highest levels of rainfall as these often harbor the greatest variety of plant species, says a new study by the Center for International Forestry Research

September 2012 - UN-REDD Programme

[Viet Nam Shares REDD+ Lessons with Myanmar and Cambodia](#)

Representatives from Cambodia and Myanmar, two countries near the beginning of their REDD+ readiness activities, gathered in Hanoi, Viet Nam July 30-August 3, 2012 in order to learn about experiences and lessons related to the REDD+ readiness process and the UN-REDD Programme, as well as measures to promote broad stakeholder participation.

25 September 2012 - Science Daily

[Agriculture Is the Direct Driver for Worldwide Deforestation](#)

A new synthesis on drivers of deforestation and forest degradation was published during the Bangkok climate change negotiations in September by researchers from Canada and from Wageningen University, Netherlands. The report stresses the importance of knowing what drives deforestation and forest degradation, in order to be able to design and monitor effective REDD+ policies to halt it.

24 September 2012 - AlertNet

[Climate change growing threat to food, biodiversity - officials](#)

Climate change is a major threat to the world's food supply and to biodiversity, and prompt action to deal with it is crucial, environmental experts said at the close of the World Conservation Congress

24 September 2012 - FAO

[Forests vital resource in sustainable development](#)

FAO Director-General José Graziano da Silva today stressed the important role of forestry in sustainable development when he opened a five-day meeting of FAO's Committee on Forestry (COFO).

21 September 2012 - Mongabay

[New forest map shows 6% of Amazon deforested between 2000 and 2010](#)

An update to one of the most comprehensive maps of the Amazon basin shows that forest cover across the world's largest rainforest declined by about six percent between 2000 and 2010. But the map also reveals hopeful signs that recognition of protected areas and native lands across the eight countries and one department that make up the Amazon is improving, with conservation and indigenous territories now covering nearly half of its land mass.

19 September 2012 - AlertNet

[Protecting mangroves cheaper than building coastal protection - official](#)

Keeping coastal mangrove forests intact or replanting them is cheaper than building man-made structure to protect coastlines threatened by climate change, according to the head of the International Union for Conservation for Nature (IUCN).

14 September 2012 - CIFOR

[East Kalimantan to trial new REDD+ safeguards system](#)

The Indonesian government plans to conduct a trial of a new system that will provide information on how to implement social safeguards in REDD+ projects in East Kalimantan in December 2012. The SIS REDD+ system is part of Indonesia's preparations to ensure that the forest protection compensation scheme follows international standards and is well accepted by the general public.

II. MULTILATERAL PROCESSES IN CLIMATE CHANGE

United Nations Framework Convention on Climate Change

Negotiations took place in Bangkok, Thailand 30th of August to 5th of September 2012 where the following bodies and working groups met: The Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol, The Ad Hoc Working Group on Long-term Cooperative Action under the Convention, the Ad Hoc Working Group on the Durban Platform for Enhanced Action. Click [here](#) to read about the results of the negotiations.

The 18th session of the Conference of the Parties to the UNFCCC and the 8th meeting of the Parties to the Kyoto Protocol will take place from Monday 26th November till Friday the 7th of December in Doha, Qatar. [More](#)

Parties and accredited observers are invited to submit their views to UNFCCC on various issues (incl. CDM and LULUCF), as decided by UNFCCC. Click [here](#) for the UNFCCC document. See also the first document noted under section V, for views submitted on financing options.

III. EVENTS & MEETINGS

Past events

Workshop on sharing lessons learnt on REDD+ Readiness preparation in Viet Nam

1 August 2012, Hanoi, Vietnam

The purpose of the workshop was to share lessons learnt on REDD+ Readiness Preparations in Viet Nam. [More](#)

Upcoming events

International Conference on Sustainable Forest Management Adapting to Climate Change

13-16 October 2012, Beijing, PR. China

In order to promote knowledge exchanges of the latest scientific findings in sustainable forest management and to strengthen international collaborations in implementing forest management adapting to climate change, Chinese Society of Forestry(CSF), International Union for Forest Research Organizations(IUFRO) and International Union for Conservation of Nature(IUCN) will co-sponsor the Second Forest Science Forum—International Conference on Sustainable Forest Management Adapting to Climate Change. The conference will be organized by the Chinese Society of Forestry and Beijing Forestry University in Beijing, during October 13-16, 2012. The conference calls for session proposals related to conference topics. [More](#)

Preparing the forest sector in Eastern Europe and Central Asia to meet global challenges

29 October - 2 November, 2012, Issyk-kul, Kyrgyzstan

The main objectives of the Regional Workshop are to: (1) review the progress made by target countries and international organizations towards the implementation of the Krtiny Declaration and update priorities of target countries; and (2) support target countries by exchanging experience in selected forest-related areas (forest resource assessment, forest and water, etc.), in the context of global challenges such as climate change mitigation and adaptation. [More](#)

Illegal logging and legality verification - the FLEGT / VPA as new modes of governance

6-7 December, 2012, Copenhagen, Denmark

In 2003 the EU adopted its Action Plan on Forest Law Enforcement, Governance and Trade (FLEGT). In order to promote the import to Europe of legal timber, the EU proceeded in 2005 to introduce Voluntary Partnership Agreements (VPAs) with countries that export tropical timber. As of March 2013, timber placed on the European market must be documented legal, and traders will be required to exercise due diligence to ensure that the timber they deal with is from legal sources. At this backdrop, this international academic conference

will discuss a number of theoretical and empirical issues related to the practice of illegal logging and trade in illegal tropical timber as well as measures to counteract such practices. Although main focus will be on the EU modalities, presentations on other related initiatives are welcome as well. [More](#)

IV. RESEARCH ARTICLES

Dead wood volume to dead wood carbon: the issue of conversion factors.

Wegler, K.; Dobbertin, M.; Jungling, E.; Kaufmann, E.; Thurig, E
European Journal of Forest Research; 2012. 131: 5, 1423-1438

Requirements for emission reporting under the Kyoto protocol demand an estimate of the dead wood carbon pool in forests. The volume of dead wood consists of coarse woody debris, smaller woody debris and dead roots. The measurement of dead wood volume was included in the most recent National Forest Inventory in Switzerland. To convert dead wood volume into carbon two conversion factors are required: (a) carbon (C) concentration and (b) wood density. So far internationally accepted default values for C concentration (50%) and for wood density (density of alive trees) were used as default values to estimate dead wood carbon, since local measurements were lacking. However, in a field study at 34 sites in Switzerland, the C concentration and density of CWD from *Picea abies* and *Fagus sylvatica* of four decay classes were measured recently. The results showed that C concentration in CWD differed significantly between species but did not change due to decay class. The density of CWD decreased significantly with an increase in decay class and it also differed between species. The decrease in CWD density was more pronounced for *F. sylvatica* than for *P. abies*. We assessed correlations between climate attributes and CWD density using regression analysis. The modeled densities and measured C concentrations were then expanded with the help of CWD volume data from the NFI3. Spruce CWD and thus spruce CWD carbon is much more abundant in Swiss forests than beech CWD carbon. The majority of spruce CWD is located in the Alps and Pre-Alps. The CWD volume from *P. abies* was 10 times higher than that from *F. sylvatica*. Thus, changes in conversion factors for *P. abies* CWD affected the overall estimate of dead wood carbon in Swiss forests much more than changes in conversion factors for *F. sylvatica* CWD. Current improvements in CWD conversion factors decreased the estimated amount of spruce CWD carbon by 23.1% and that of beech by 47.6%. The estimated amount of CWD carbon in Swiss forests is decreased by 31%. Since improved estimation methods are currently not applied to smaller woody debris and dead root material, the estimated amount of dead wood carbon is only reduced by 15%. Improving conversion factors for all dead wood fractions would presumably decrease the amount of dead wood carbon by additional 16%.

Temperature explains global variation in biomass among humid old-growth forests

Larjavaara, M.; Muller-Landau, H. C.;

Global Ecology and Biogeography; 2012. 21: 10, 998-1006.

Aim: To develop and test a simple climate-based ecophysiological model of above-ground biomass - an approach that can be applied directly to predicting the effects of climate change on forest carbon stores. Location: Humid lowland forests world-wide. Methods: We developed a new approach to modelling the aboveground biomass of old-growth forest (AGB_{max}) based on the influences of temperature on gross primary productivity (GPP) and what we call total maintenance cost (TMC), which includes autotrophic respiration as well as leaf, stem and other plant construction required to maintain biomass. We parameterized the models with measured carbon fluxes and tested them by comparing predicted AGB_{max} with measured AGB for another 109 old-growth sites. Results: Our models explained 57% of the variation in GPP across 95 sites and 79% of the variation in TMC across 17 sites. According to the best-fit models, the ratio of GPP to maintenance cost per unit biomass (MCB) peaks at 16.5 degrees C, indicating that this is the air temperature leading to the highest possible AGB_{max} when temperatures are constant. Seasonal temperature variation generally reduces predicted AGB_{max} , and thus maritime temperate climates are predicted to have the highest AGB_{max} . The shift in temperatures from temperate maritime to tropical climates increases MCB more than GPP, and thus decreases AGB_{max} . Overall, our model explains exactly 50% of the variation in AGB among humid lowland old-growth forests. Main conclusions: Temperature plays an important role in explaining global variation in biomass among humid lowland old-growth forests, a role that can be understood in terms of the dual effects of temperature on GPP and TMC. Our simple model captures these influences, and could be an important tool for predicting the effects of climate change on forest carbon stores.

The effectiveness of contrasting protected areas in preventing deforestation in Madre de Dios, Peru.

Vuohelainen, A. J.; Coad, L.; Marthews, T. R.; Malhi, Y.; Killeen, T. J

Environmental Management; 2012. 50: 4, 645-663

Accurate monitoring of the effectiveness of protected areas (PAs) in decreasing deforestation is increasingly important given the vital role of forest protection in climate change mitigation. Recent studies on PA effectiveness have used remote-sensing imagery to compare deforestation rates within PAs to surrounding areas. However, remote-sensing data used in isolation provides limited information on the factors contributing to effectiveness. We used landscape-modelling techniques to estimate the effectiveness of ten PAs in Madre de Dios, Peru. Factors influencing PA effectiveness were investigated using in situ key-informant interviews. Although all of the PAs studied had positive effectiveness scores, those with the highest scores were ecotourism and conservation concessions, where monitoring and surveillance activities and good relations with surrounding communities were reported as possible factors in decreasing deforestation rates. Native community areas had the lowest scores, with deforestation mainly driven by internal resource use and population growth. Weak local governance and immigration were identified as underlying factors decreasing the effectiveness of protection, whereas good relations with surrounding communities and monitoring activity increased effectiveness. The results highlight the need to combine remote sensing with in situ information on PA management because identification of drivers and deterrents of deforestation is vital for improving the effectiveness of protection.

Shifts in soil organic carbon for plantation and pasture establishment in native forests and grasslands of South America.

Eclesia, R. P.; Jobbagy, E. G.; Jackson, R. B.; Biganzoli, F.; Pineiro, G

Global Change Biology; 2012. 18: 10, 3237-3251

The replacement of native vegetation by pastures or tree plantations is increasing worldwide. Contradictory effects of these land use transitions on the direction of changes in soil organic carbon (SOC) stocks, quality, and vertical distribution have been reported, which could be explained by the characteristics of the new or prior vegetation, time since vegetation replacement, and environmental conditions. We used a series of paired-field experiments and a literature synthesis to evaluate how these factors affect SOC contents in transitions between tree- and grass-dominated (grazed) ecosystems in South America. Both our field and literature approaches showed that SOC changes (0-20 cm of depth) were independent of the initial native vegetation (forest, grassland, or savanna) but strongly dependent on the characteristics of the new vegetation (tree plantations or pastures), its age, and precipitation. Pasture establishment increased SOC contents across all our precipitation gradient and C gains were greater as pastures aged. In contrast, tree plantations increased SOC stocks in arid sites but decreased them in humid ones. However, SOC losses in humid sites were counterbalanced by the effect of plantation age, as plantations increased their SOC stocks as plantations aged. A multiple regression model including age and precipitation explained more than 50% ($p < 0.01$) of SOC changes observed after sowing pastures or planting trees. The only clear shift observed in the vertical distribution of SOC occurred when pastures replaced native forests, with SOC gains in the surface soil but losses at greater depths. The changes in SOC stocks occurred mainly in the silt+clay soil size fraction (MAOM), while SOC stocks in labile (POM) fraction remained relatively constant. Our results can be considered in designing strategies to increase SOC storage and soil fertility and highlight the importance of precipitation, soil depth, and age in determining SOC changes across a range of environments and land-use transitions.

Greenhouse Gas Balance of Native Forests in New South Wales, Australia

Acquino Ximenes, F de, George, B.H., Cowie, A., Williams, J., Kelly, G.

Forests 2012, 3, 653-683

To quantify the climate change impacts of forestry and forest management options, we must consider the entire forestry system: the carbon dynamics of the forest, the life cycle of harvested wood products, and the substitution benefit of using biomass and wood products compared to more greenhouse gas intensive options. This paper presents modelled estimates of the greenhouse gas balance of two key native forest areas managed for production in New South Wales for a period of 200 years, and compares it to the option of managing for conservation only. These two case studies show that forests managed for production provide the greatest ongoing greenhouse gas benefits, with long-term carbon storage in products, and product substitution benefits critical to the outcome. Thus native forests could play a significant part in climate change mitigation, particularly when sustainably managed for production of wood and non-wood products including biomass for bioenergy. The potential role of production forestry in mitigating climate change, though substantial, has been largely overlooked in recent Australian climate change policy.

Reducing REDD risks: affirmative policy on an uneven playing field

Ribot, J. & Larson, A.M.

In spite of reforms since the end of the colonial period and more recent discourses of participation and democracy, the forestry policy environment rarely supports the needs or aspirations of rural communities. Even when policies appear fair, the rural poor face severe biases in implementation. In addition, the poor must compete on an uneven playing field of class, ethnic and other social inequities and economic hurdles. With the development of the global forest (carbon) conservation strategy such as Reduced Emissions from Degradation and Deforestation (REDD), which is ushering in accelerated forest commodification, poor people living in forests risk further marginalisation, exclusion and rights abuses. This article examines how forestry policy and implementation maintain double standards on this uneven playing field in a manner that continues to exclude the rural poor from the natural wealth around them. Poverty is not just about being left out of economic growth. It is produced by the very policies that enable some to profit - today from timber, firewood and charcoal, tomorrow from carbon. For REDD interventions to support poverty alleviation, forestry policies must be radically reworked to counterbalance widespread regressive policies and structural asymmetries. To make forestry policy emancipatory, strong social protections or safeguards are still needed that require REDD and other interventions to support and work through local democratic institutions. Otherwise these policies will continue their regressive trends.

Multi-level governance and adaptive capacity in West Africa

Brockhaus, M., Djoudi, H., Kambire, H.

International Journal of the Commons Vol. 6, no 2: 200-232

In most regions in West Africa, livelihoods depend heavily on forest ecosystem goods and services, often in interplay with agricultural and livestock production systems. Numerous drivers of change are creating a range of fundamental economic, ecological, social and political challenges for the governance of forest commons. Climate change and its impacts on countries' and regions' development add a new dimension to an already challenging situation. Governance systems are challenged to set a frame for formulating, financing and implementing adaptation strategies at multiple layers, often in a context of ongoing institutional changes such as decentralisation. A deeper understanding of actors, institutions and networks is needed to overcome barriers in socioecological systems to adaptation and enable or enhance adaptive capacity. In this paper, we explore the relationship between governance and adaptive capacity, and characterise and assess the effects of a set of variables and indicators related to two core variables: Institutional flexibility, and individual and organisational understandings and perceptions. We present a comparative analysis with multiple methods based on a number of case studies undertaken at different levels in Burkina Faso and Mali. One of the key findings indicates the importance and influence of discourses and narratives, and how they affect adaptive capacity at different levels. Revealing the ideological character of discourses can help to enable adaptive capacity, as it would break the influence of the actors that employ these narratives to pursue their own interests.

Controlling illegal logging in domestic and international markets by harnessing multi-level governance opportunities

Kishor, N. & Lescuyer, G.

International Journal of the Commons Vol. 6, no 2: 255-270

Illegal logging is perceived to pose significant obstacles to the achievement of sustainable management of forests in the tropics. Equally importantly, it gives rise to or supports other undesirable outcomes - networks of corruption, generating significant volumes of "black" money and fuelling speculation, crime, or trafficking. However, illegal logging of tropical timber is not homogeneous and its characteristics depend, among others, on the supplying markets, at the national or the international scales. Available approaches to reduce illegal logging, at different levels of governance, in the producing and consuming countries are reviewed and their potential contribution is assessed.

Elevated methane concentrations in trees of an upland forest

Covey, K. R.; Wood, S. A.; Warren, R. J., II; Lee, X.; Bradford, M. A.

Geophysical Research Letters; 2012. 39: 15, L15705

There is intense debate about whether terrestrial vegetation contributes substantially to global methane emissions. Although trees may act as a conduit for methane release from soils to atmosphere, the debate centers on whether vegetation directly produces methane by an uncharacterized, abiotic mechanism. A second mechanism of direct methane production in plants occurs when methanogens - microorganisms in the domain Archaea - colonize the wood of living trees. In the debate this biotic mechanism has largely been ignored, yet conditions that promote anaerobic activity in living wood, and hence potentially methane production, are prevalent across forests. We find average, growing season, trunk-gas methane concentrations $>15,000 \mu\text{L}\cdot\text{L}^{-1}$ in common, temperate-forest species. In upland habitat (where soils are not a significant methane source), concentrations are 2.3-times greater than in lowland areas, and wood cores produce methane in anaerobic,

lab-assays. Emission rate estimates from our upland site are $52 \pm 9.5 \text{ ng CH}_4 \text{ m}^{-2} \text{ s}^{-1}$; rates that are of a similar magnitude to the soil methane sink in temperate forest, and equivalent in global warming potential to ~18% of the carbon likely sequestered by this forest. Microbial infection of one of the largest, biogenic sinks for carbon dioxide, living trees, might result in substantial, biogenic production of methane

Genetic data suggest a natural prehuman origin of open habitats in northern Madagascar and question the deforestation narrative in this region

Quemere, E.; Amelot, X.; Pierson, J.; Crouau-Roy, B.; Chikhi, L

Proceedings of the National Academy of Sciences of the United States of America; 2012. 109: 32, 13028-13033

The impact of climate change and anthropogenic deforestation on biodiversity is of growing concern worldwide. Disentangling how past anthropogenic and natural factors contributed to current biome distribution is thus a crucial issue to understand their complex interactions on wider time scales and to improve predictions and conservation strategies. This is particularly important in biodiversity hotspots, such as Madagascar, dominated by large open habitats whose origins are increasingly debated. Although a dominant narrative argues that Madagascar was originally entirely covered by woodlands, which were destroyed by humans, a number of recent studies have suggested that past climatic fluctuations played a major role in shaping current biome distributions well before humans arrived. Here, we address the question of the origin of open habitats in the Daraina region in northern Madagascar, using a multiproxy approach combining population genetics modeling and remote-sensing analyses. We show that (i) contrary to most regions of Madagascar, the forest cover in Daraina remained remarkably stable over the past 60 y, and (ii) the golden-crowned sifaka (*Propithecus tattersalli*), a forest-dwelling lemur, underwent a strong population contraction before the arrival of the first humans, hence excluding an anthropogenic cause. Prehuman Holocene droughts may have led to a significant increase of grasslands and a reduction in the species' habitat. This contradicts the prevailing narrative that land cover changes are necessarily anthropogenic in Madagascar but does not preclude the later role played by humans in other regions in which recent lemur bottlenecks have been observed.

Short-term impacts of soil preparation on greenhouse gas fluxes: a case study in nutrient-poor, clearcut peatland forest

Pearson, M.; Saarinen, M.; Minkkinen, K.; Silvan, N.; Laine, J

Forest Ecology and Management; 2012. 283: 10-26

Soil preparation to expedite stand establishment after clearcutting is an extensively applied measure in peatland forest regeneration sites particularly in Fennoscandinavia. Thus far, the impact of preparing peat soil on greenhouse gas fluxes is a chapter unwritten in GHG research on forestry-drained peatlands. Not only is such information vital in order to accurately estimate the GHG balance nationally, it may dictate the very methods used to regenerate forests on peat soils in the future. Over a 22-month period, we studied the impacts of mounding and scalping relative to the control on soil CO₂ (heterotrophic peat soil respiration, SR_p), CH₄, and N₂O fluxes along a moisture gradient in a nutrient-poor, clearcut forestry-drained peatland. First, we measured instantaneous gas fluxes ($\text{g m}^{-2} \text{ h}^{-1}$) of the microsite types (unprepared, mound, pit, scalp) within a given treatment plot (control, mounding, scalping) in order to estimate their annual rates ($\text{g m}^{-2} \text{ a}^{-1}$). Then, we estimated annual flux rates for each treatment comprehensively by considering the surface area-based distribution of microsite types in the corresponding treatment plot, and finally, the overall climatic impact of GHG emissions expressed in terms of CO₂ equivalents (100-year GWP) 2–3 years after clearcutting and soil preparation. Compared to the control microsites, instantaneous CO₂ emissions from scalps and pits were lower while those from mounds equivalent. However, increased CO₂ emissions from the unprepared microsites within prepared plots were observed in respect to those of the control. Comprehensively, the annual CO₂ emission rates differed little between treatments, ranging between 929 and 1078 $\text{g m}^{-2} \text{ a}^{-1}$. Hence, neither mounding nor scalping accelerated annual SR_p relative to the control treatment. Annual fluxes of CH₄ were dependent on the position of the water table. In our wet block, the mounding treatment led to the greatest annual CH₄ emissions (3.62 $\text{g m}^{-2} \text{ a}^{-1}$), followed by the control (2.14 $\text{g m}^{-2} \text{ a}^{-1}$) and scalping (1.05 $\text{g m}^{-2} \text{ a}^{-1}$); in the dry block, however, only the scalping treatment was a net, though minimal, source of CH₄ (0.80 $\text{g m}^{-2} \text{ a}^{-1}$) while the other two treatments effectively consumed CH₄ (mounding $-0.16 \text{ g m}^{-2} \text{ a}^{-1}$; control $-0.05 \text{ g m}^{-2} \text{ a}^{-1}$). Though annual N₂O emission levels were low (0.05–0.08 $\text{g m}^{-2} \text{ a}^{-1}$), both soil preparation treatments increased the flux of N₂O from peat soil compared to the control. When considering the fluxes of all three greenhouse gases, the cumulative impact of soil preparation (mounding or scalping) on the global warming potential of the nutrient-poor, clearcut peatland forest was negligible in respect to the control.

A statistical thinning model for initialising large-scale ecosystem models

Eastaugh, C. S.; Hasenauer, H

Scandinavian Journal of Forest Research; 2012. 27: 6, 567-577 Large-scale ecosystem models are important tools for carbon assessment at national scales. Many of these models are not initialised with known field data from any particular time, but simulate the growth of each stand from its estimated germination year up to the present or future. The models will overestimate current-year standing volume or biomass unless historic stand management (biomass removal due to thinning) is taken into account. The full management history of each stand is rarely known, and must be somehow estimated. One possibility is to build statistical thinning models based on data in a National Forest Inventory, which could then be integrated into the ecosystem models. If the harvesting model is constructed using only variables that are also used within the ecosystem model, then the management impacts can be included in the ecosystem model for the entire simulated life of the stand. In the case of most flux dynamics models, this precludes the use of the tree-level data that harvesting models have traditionally relied on. In this article, we develop a novel means to interrogate a subset of the Austrian National Forest Inventory based on deriving probability density functions for particular combinations of stand and site variables. We determine the parameters of a probabilistic model to estimate historic patterns of timber removals and validate it against inventory estimates. Our procedure can establish supportable estimates of historic management regimes suitable as input data for subsequent modelling of national-scale forest carbon stocks, sources and sinks.

Expected effects of climate change on forest disturbance regimes in British Columbia

Haughian, S. R.; Burton, P. J.; Taylor, S. W.; Curry, C. L

BC Journal of Ecosystems and Management; 2012. 13: 1, 16-39

In this article we summarize the changes to forest disturbance regimes and forest damage that are projected to emerge under a changing climate in British Columbia (BC). We focus on regionally-specific expectations so that land managers can take pro-active steps to avoid or adapt to future conditions. While some projections are based on extrapolations of recent multi-decadal trends, most are based on global climate models (GCMs) that utilize a range of scenarios for possible atmospheric greenhouse gas emission trajectories over the next century. Regardless of the models or emission scenarios used, it is universally expected that BC will experience warmer air temperatures. Projections for precipitation are more variable, ranging from slight decreases in some regions to substantial increases in others, which have different effects on disturbance projections. Forest fires are expected to be more frequent and more intense in the southern half of the province and in the Taiga Plains, but less important in other portions of the province. Forest insects and fungal pathogens are expected to more fully occupy the current range of their host tree species and expand ranges northward and to higher elevations along with their hosts. More frequent and more detrimental pest outbreaks are expected in some regions when several years of favourable weather align, which is more likely under current and projected climate trends. Wind damage, floods, and landslides can be expected to increase on terrain where they are already a risk factor. For many agents of tree mortality, an expansion or shifting of the seasonal window of activity is expected, but these changes vary among regions within BC. The prediction of future forest disturbance regimes is in its infancy, requiring a much more concerted effort in compiling both empirical and simulated data, but managers may wish to adjust plans accordingly where there is consensus among projections.

Carbon stock and sequestration potential of agroforestry systems in smallholder agroecosystems of sub-Saharan Africa: mechanisms for 'reducing emissions from deforestation and forest degradation' (REDD+).

Thangata, P. H.; Hildebrand, P. E

Agriculture, Ecosystems & Environment; 2012. 158: 172-183

The adoption of agroforestry technologies in the tropics stores high biomass for soil fertility replenishment and offers potential for carbon (C) storage. Household survey and biophysical data from central Malawi are modeled to test whether farm incentives would lead to more improved fallow adoption; and therefore an increase in carbon sequestered on farms. With data from 40 households representing 40 models, three C sequestration scenarios were simulated: (i) baseline scenario, (ii) agroforestry with a carbon credit incentive, and (iii) agroforestry with a carbon credit and a seed selling option. Results show that the baseline scenario would sequester on average 3.94 Mg C ha⁻¹. The overall annual mean amount of C sequestered is 103 Mg per year, of which 12% is from soil C. In the second scenario, the annual mean was 239 Mg C translating to 3.92 Mg C ha⁻¹, of which 62% is contribution from agroforestry. In the third scenario, the annual mean C was 393 Mg, translating to 4.17 Mg C ha⁻¹, of which agroforestry's contribution was 39%. Our results show that agroforestry can increase C sequestration on farms. We conclude that smallholder farmers can benefit from the REDD+

mechanism

The inventory of the carbon stocks in sub tropical forests of Pakistan for reporting under Kyoto Protocol

Nizami, S. M.

Journal of Forestry Research; 2012. 23: 3, 377-384

The United Nations Framework Convention on Climate Change (UNFCCC) requires reporting net carbon stock changes and anthropogenic greenhouse gas emissions, including those related to forests. This paper describes the status of carbon stocks in sub tropical forests of Pakistan. There are two major sub types in subtropical forests of Pakistan viz a viz Subtropical Chir Pine and Subtropical broadleaved forests. A network of sample plots was laid out in four selected site. Two sites were selected from sub tropical Chir Pine (*Pinus roxburghii*) forests and two from Subtropical broadleaved forests. Measurement and data acquisition protocols were developed specifically for the inventory carried out from 2005 to 2010. In total 261 plots (each of 1ha.) were established. Estimation of diameter, basal area, height, volume and biomass was carried out to estimate carbon stocks in each of the four carbon pools of above- and below-ground live biomass. Soil carbon stocks were also determined by doing soil sampling. In mature (~100 years old) pine forest stand at Ghoragali and Lehterar sites, a mean basal area of 30.38 and 26.11 m² ·ha⁻¹ represented mean volume of 243 and 197 m³ ·ha⁻¹ , respectively. The average biomass (t·ha⁻¹) was 237 in Ghoragali site and 186 t·ha⁻¹ in Lehterar site, which is equal to 128 and 100 t C ha⁻¹ including soil C. However, on average basis both the forests have 114.5± 2.26 t·ha⁻¹ of carbon stock which comprises of 92% in tree biomass and only 8% in the top soils. In mixed broadleaved evergreen forests a mean basal area (m² ·ha⁻¹) was 3.06 at Kherimurat with stem volume of 12.86 and 2.65 at Sohawa with stem volume of 11.40 m³ ·ha⁻¹ . The average upper and under storey biomass (t·ha⁻¹) was 50.93 in Kherimurat site and 40.43 t·ha⁻¹ in Sohawa site, which is equal to 31.18 and 24.36 t C ha⁻¹ including soil C stocks. This study provides a protocol and valuable baseline data for monitoring biomass and carbon stocks in Pakistan's managed and unmanaged sub-tropical forests.

Modeling susceptibility to deforestation of remaining ecosystems in North Central Mexico with logistic regression

Miranda-Aragon, L.; Trevino-Garza, E. J.; Jimenez-Perez, J.; Aguirre-Calderon, O. A.; Gonzalez-Tagle, M. A.; Pompa-Garcia, M.; Aguirre-Salado, C. A.

Journal of Forestry Research; 2012. 23: 3, 345-354

Determining underlying factors that foster deforestation and delineating forest areas by levels of susceptibility are of the main challenges when defining policies for forest management and planning at regional scale. The susceptibility to deforestation of remaining forest ecosystems (shrubland, temperate forest and rainforest) was conducted in the state of San Luis Potosi, located in north central Mexico. Spatial analysis techniques were used to detect the deforested areas in the study area during 1993-2007. Logistic regression was used to relate explanatory variables (such as social, investment, forest production, biophysical and proximity factors) with susceptibility to deforestation to construct predictive models with two focuses: general and by biogeographical zone. In all models, deforestation has positive correlation with distance to rainfed agriculture, and negative correlation with slope, distance to roads and distance to towns. Other variables were significant in some cases, but in others they had dual relationships, which varied in each biogeographical zone. The results show that the remaining rainforest of Huasteca region is highly susceptible to deforestation. Both approaches show that more than 70% of the current rainforest area has high and very high levels of susceptibility to deforestation. The values represent a serious concern with global warming whether tree carbon is released to atmosphere. However, after some considerations, encouraging forest environmental services appears to be the best alternative to achieve sustainable forest management.

Forest carbon offsets: challenges in measuring, monitoring and verifying

Sedjo, R.; Macauley, M

Environment: Science and Policy for Sustainable Development; 2012. 54: 4, 16-23

The measurement and monitoring challenges and the technology and its deployment in forest carbon offsets are discussed. The leakage and the need for global measurement and monitoring are highlighted.

Avoided deforestation in Brazilian Amazonia: simulating the effect of the Juma Sustainable Development Reserve

Yanai, A. M.; Fearnside, P. M.; Graca, P. M. L. de A.; Nogueira, E. M

Forest Ecology and Management; 2012. 282: 78-91

The Juma Sustainable Development Reserve, located in Brazil's state of Amazonas, was the first protected area in Brazil to be benefited by a Reducing Emissions from a Deforestation and Degradation (REDD) project.

However, the carbon benefits of REDD projects may be compromised by leakage, or displacement of deforestation to areas outside of the reserve. Through environmental modeling techniques it is possible to simulate scenarios that represent changes in land use and land cover and thus assess the possible trajectories and magnitude of deforestation. The aim of this study was to evaluate the effectiveness of the Juma reserve in reducing deforestation and to estimate projected carbon emission by 2050. The simulated scenarios were: (1) baseline scenario, without the creation of the Juma reserve; (2) scenario with leakage (SL) where the creation of the reserve would cause a spatial shift in deforestation, and (3) scenario with reduced leakage (SRL), where the amount of deforestation resulting from leakage is reduced. Considering the study area as a whole (Juma reserve +120-km buffer zone), there would be a 16.0% (14,695 km²) reduction in forest cover by 2050 in the baseline scenario, 15.9% (14,647 km²) in the SL and 15.4% (14,219 km²) in the SRL, as compared to what was present in 2008. The loss of forest cover within the limits of the Juma reserve by 2050 would be 18.9% (1052 km²) in the baseline scenario and 7.1% (395 km²) in the SL and SRL. From the simulated scenarios, the carbon stock in the total study area was estimated to be reduced from 1.63 Pg C (Pg = 10¹⁵ g = 1 billion tons) in 2008 to 1.37 Pg C in 2050 in the baseline scenario and in the SL and to 1.38 Pg C in the SRL. In the area of the Juma reserve, the carbon stock would be reduced from 0.10 Pg C in 2008 to 0.08 Pg C in 2050 (baseline) or 0.09 Pg C (SL and SRL). The Juma reserve was effective in reducing carbon emission by 2050, but the reduction would be substantially less than that calculated in the Juma REDD project. Leakage must be accounted for in REDD projects because the deforestation resulting from this effect could generate “hot air” (carbon credit with no additionality). Over longer time horizons the benefits of reserves are greater and leakage losses are recovered.

Carbon outcomes from fuels treatment and bioenergy production in a Sierra Nevada forest

Winford, E. M.; Gaither, J. C., Jr

Forest Ecology and Management; 2012. 282: 1-9

In temperate conifer forests of the Western USA, there is active debate whether fuels reduction treatments and bioenergy production result in decreased carbon emissions and increased carbon sequestration compared to a no-action alternative. To address this debate over net carbon stocks, we performed a carbon life-cycle analysis on data from a fuels reduction treatment in a temperate, dry conifer forest in the northern Sierra Nevada of California, USA. The analysis tracks the net ecosystem carbon balance over 50 years for two scenarios (1) fuels reduction treatment combined with bioenergy production, and (2) a baseline scenario of no action. The study includes above and belowground carbon stocks, removals from harvesting, emissions from harvesting and transporting the removed biomass, and disturbance by wildfire. We evaluate a range of fire rotations, from an historic short rotation to a modern long rotation. In this study, when the fire rotation is 31 years or less, fuels treatment and bioenergy result in a net increase in carbon stocks after 50 years compared to a baseline of no action. When fire rotations exceed 31 years the carbon balance shifts and the baseline scenario holds more carbon after 50 years than the fuels treatment. Over the 50- year period, future wildfire is the greatest source of emissions unless fire rotations are greater than 200 years, when emissions from the combustion of biomass for energy are greater. Emissions from mechanical treatments and transportation of the woody biomass are each less than 1% of total emissions. The results of this case study suggest that there is no single answer to whether fuels reduction treatments with bioenergy production create net carbon benefit. Managers will need to evaluate fuels treatments on a case-by-case or regional basis to determine net carbon outcomes. The life cycle approach presented here is a useful methodology for such determinations.

iREDD hedges against avoided deforestation's unholy trinity of leakage, permanence and additionality

Oosterzee, P. van; Blignaut, J.; Bradshaw, C. J. A.

Conservation Letters; 2012. 5: 4, 266-273

Workable financial mechanisms are essential to abate greenhouse gas emissions. Deforestation, which contributes a large proportion of total global emissions, must be avoided as an effective emissions-reduction tactic, and to alleviate biodiversity loss and poverty. However, incentives to reduce emissions from deforestation and forest degradation (REDD) have had mixed and suboptimal success because of opportunity costs and administrative and technical issues, in particular, leakage, permanence, and additionality. We show that these latter concepts can be ambiguous, potentially contrived and in some cases, generate perverse outcomes. Encumbering avoided-deforestation projects with these administrative shackles risks massive increases in global deforestation and a concomitant loss of biodiversity, ecosystem services and emissions-reduction opportunities. We offer a solution built on a proven insurance-based hedging principle, a concept we call iREDD, that could indirectly address specific technical and administrative challenges, whether real or contrived. Project specific iREDD insurance policies and premiums would be negotiated upfront using a simple assessment of risk based on governance quality, the integrity of management plans, liquidity, monitoring and evaluation frameworks, and political acceptability. iREDD acts as both an incentive for prudent forest management given the seller's potential financial windfall if forests are diligently managed, and guarantees not

to disenfranchise the buyer.

Application of wood ash accelerates soil respiration and tree growth on drained peatland

Moilanen, M.; Hytonen, J.; Leppala, M

European Journal of Soil Science; 2012. 63: 4, 467-475

Forested peatlands contain large pools of terrestrial carbon. As well as drainage, forest management such as fertilizer application can affect these pools. We studied the effect of wood ash (application rates 0, 5 and 15 t ha⁻¹) on the heterotrophic soil respiration (CO₂ efflux), cellulose decomposition, soil nutrients, biomass production and amount of C accumulated in a tree stand on a pine-dominated drained mire in central Finland. The ash was spread 13 years before the respiration measurements. The annual CO₂ efflux was statistically modelled using soil temperature as the driving variable. Wood ash application increased the amounts of mineral nutrients of peat substantially and increased soil pH in the uppermost 10 cm layer by 1.5-2 pH units. In the surface peat, the decomposition rate of cellulose in the ash plots was roughly double that in control plots. Annual CO₂ efflux was least on the unfertilized site, 238 g CO₂-C m⁻² year⁻¹. The use of wood ash nearly doubled CO₂ efflux to 420-475 g CO₂-C m⁻² year⁻¹ on plots fertilized with 5-15 t ha⁻¹ of ash, respectively. Furthermore, ash treatments resulted also in increased stand growth, and during the measurement year, the growing stand on ash plots accumulated carbon 11-12 times faster than the control plot. The difference between peat C emission and amount of C sequestered by trees on the ash plots was 43-58 g C m⁻², while on the control plot it was 204 g C m⁻². Our conclusion is that adding wood ash as a fertilizer increases more C sequestration in the tree stand than C efflux from the peat.

Silvicultural strategies for adapting planted forests to climate change: from theory to practice

Mason, W. L.; Petr, M.; Bathgate, S

Journal of Forest Science; 2012. 58: 6, 265-277

Adapting forests to climate change involves silvicultural measures such as use of a range of species and the fostering of mixed stands. We tested these in a Sitka spruce forest in southern Scotland, employing the Ecological Site Classification to match suitability of 24 species to six climatic and edaphic variables under values of accumulated temperature and moisture deficit projected for a medium emissions scenario for the present century. Both median and 90th percentile values were contrasted. In the first case there was a small change in species suitability with Sitka spruce, noble fir, downy birch, sycamore and aspen being the most suitable species. When the 90th percentile values were employed, the suitability of Sitka spruce and similar conifers had declined by the 2050's due to soil moisture deficits. The actual performance of a range of species in a long-term experiment on a similar, warmer site showed several productive conifers including Sitka spruce that maintained reasonable growth when planted in mixture. Mixed plots were developing into pure stands of the most productive species. Species diversification was the most practical adaptation measure for this forest and should concentrate on areas of the greatest risk like south-facing slopes with free-draining soils.

Carbon allocation in a Costa Rican dry forest derived from tree ring analysis

Worbes, M.; Raschke, N

Dendrochronologia; 2012. 30: 3, 231-238

The rising discussion on carbon balance of tropical forests often does not consider the sequestration potential of secondary dry forests, which are becoming an increasing importance due to land use change and reforestation. We have developed an easy applicable tool for the estimation of biomass increment of tropical secondary forest stands on the base of tree ring analysis. The existence of annual rings was shown by a combination of anatomical examination and radiocarbon estimations. With tree ring analysis, forest inventories and destructive sampling the above-ground biomass increment of secondary forest stands of age between 9 and 48 years in the dry forest region of Guanacaste, Costa Rica were estimated. The above-ground biomass increment of the tree layer varies between 2.4 and 3.2 Mg/ha yr in different stands. Lianas contribute with up to 23% additional production. Differences in productivity among the stands along a chronosequence were not significant. The measured carbon allocation potential of 1.7-2.1 Mg C/ha yr lies in the range of reported values from other tropical dry forests and old growth humid forests as well

Carbon storage, timber production, and biodiversity: comparing ecosystem services with multicriteria decision analysis

Schwenk, W. S.; Donovan, T. M.; Keeton, W. S.; Nunery, J. S

Ecological Applications; 2012. 22: 5, 1612-1627

Increasingly, land managers seek ways to manage forests for multiple ecosystem services and functions, yet considerable challenges exist in comparing disparate services and balancing trade-offs among them. We applied multi-criteria decision analysis (MCDA) and forest simulation models to simultaneously consider three

objectives: (1) storing carbon, (2) producing timber and wood products, and (3) sustaining biodiversity. We used the Forest Vegetation Simulator (FVS) applied to 42 northern hardwood sites to simulate forest development over 100 years and to estimate carbon storage and timber production. We estimated biodiversity implications with occupancy models for 51 terrestrial bird species that were linked to FVS outputs. We simulated four alternative management prescriptions that spanned a range of harvesting intensities and forest structure retention. We found that silvicultural approaches emphasizing less frequent harvesting and greater structural retention could be expected to achieve the greatest net carbon storage but also produce less timber. More intensive prescriptions would enhance biodiversity because positive responses of early successional species exceeded negative responses of late successional species within the heavily forested study area. The combinations of weights assigned to objectives had a large influence on which prescriptions were scored as optimal. Overall, we found that a diversity of silvicultural approaches is likely to be preferable to any single approach, emphasizing the need for landscape-scale management to provide a full range of ecosystem goods and services. Our analytical framework that combined MCDA with forest simulation modeling was a powerful tool in understanding tradeoffs among management objectives and how they can be simultaneously accommodated.

Vulnerability, forest-related sectors and climate change adaptation: The case of Cameroon

Sonwa, D.J., Somorin, O.A., Jum, C., Bele, M.Y., Nkem, J.N.

Forest Policy and Economics Vol. 23: 1-9.

In Cameroon and elsewhere in the Congo Basin, the majority of rural households and a large proportion of urban households depend on plant and animal products from the forests to meet their nutritional, energy, cultural and medicinal needs. This paper explores the likely impacts of climate-induced changes on the provisioning of forest ecosystem goods and services and its effect on the economic and social well-being of the society, including the national economy and the livelihoods of forest-dependent people. The analysis focuses on four identified vulnerable sectors – food (NTFPs), energy (fuelwood), health (medicinal plants) and water (freshwater) through a multi-stakeholder dialog at national and regional levels. We use a vulnerability assessment framework by combining the elements of exposure, sensitivity and adaptive capacity to conceptualize vulnerability in these sectors. The identified sectors in relation to the forest ecosystem are discussed in view of providing an understanding of the sector's potential adaptive capacities for policy intervention. Our analysis presents the possible implications of the vulnerability of these sectors for planning local and national adaptation strategies. Local and national adaptive capacities to respond to climate impacts in the forest sectors includes: reducing poverty, enhancing food security, water availability, combating land degradation and reducing loss of biological diversity.

A bottom-up approach to estimating costs elements of REDD+ pilot projects in Tanzania

Merger, E., Held, C., Tennigkeit, T., Blomley, T.

Carbon Balance and Management 2012, 7:9 - doi:10.1186/1750-0680-7-9

Several previous global REDD+ cost studies have been conducted, demonstrating that payments for maintaining forest carbon stocks have significant potential to be a cost-effective mechanism for climate change mitigation. These studies have mostly followed highly aggregated top-down approaches without estimating the full range of REDD+ costs elements, thus underestimating the actual costs of REDD+. Based on three REDD+ pilot projects in Tanzania, representing an area of 327,825 ha, this study explicitly adopts a bottom-up approach to data assessment. By estimating opportunity, implementation, transaction and institutional costs of REDD+ we develop a practical and replicable methodological framework to consistently assess REDD+ cost elements.

Based on historical land use change patterns, current region-specific economic conditions and carbon stocks, project-specific opportunity costs ranged between US\$ -7.8 and 28.8 tCO₂ for deforestation and forest degradation drivers such as agriculture, fuel wood production, unsustainable timber extraction and pasture expansion. The mean opportunity costs for the three projects ranged between US\$ 10.1 - 12.5 tCO₂. Implementation costs comprised between 89% and 95% of total project costs (excluding opportunity costs) ranging between US\$ 4.5 - 12.2 tCO₂ for a period of 30 years. Transaction costs for measurement, reporting, verification (MRV), and other carbon market related compliance costs comprised a minor share, between US\$ 0.21 - 1.46 tCO₂. Similarly, the institutional costs comprised around 1% of total REDD+ costs in a range of US\$ 0.06 - 0.11 tCO₂.

The use of bottom-up approaches to estimate REDD+ economics by considering regional variations in economic conditions and carbon stocks has been shown to be an appropriate approach to provide policy and decision-makers robust economic information on REDD+. The assessment of opportunity costs is a crucial first step to provide information on the economic baseline situation of deforestation and forest degradation agents and on the economic incentives required to halt unsustainable land use. Since performance based REDD+ carbon payments decrease over time (as deforestation rates drop and for each saved ha of forest payments occur once), investments in REDD+ implementation have a crucial role in triggering sustainable land use systems by

investing in the underlying assets and the generation of sustainable revenue streams to compensate for opportunity costs of land use change. With a potential increase in the land value due to effective REDD+ investments, expenditures in an enabling institutional environment for REDD+ policies are crucial to avoid higher deforestation pressure on natural forests.

V. PUBLICATIONS, REPORTS AND OTHER MEDIA

Forests solutions facts & trends forests, forest products, Carbon and energy

WBCSD Forest Solutions Group

Facts and Trends: Forests, forest products, carbon & energy is a new report developed by the WBCSD Forest Solutions Group and NCASI. The report is highlighting the key role forests and forest products play in furthering sustainable solutions in a resource constrained world. It also underlines their necessity for a future low-carbon and bio-based economy, as they can help to reduce society's greenhouse gas emissions. To meet growing demand for forest fiber, sustainable forest management is a key strategy and development opportunity, accommodating and leveraging the ample economic, social and ecological benefits of forests and forest products. Facts and Trends: Forests, forest products, carbon & energy aligns with the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, which noted that over the long term sustainable forest management strategies that maintain or increase forest carbon stocks, while sustaining yield of timber, fiber or energy will generate the largest sustained mitigation benefit. This report is a companion document to the November 2011 released The Sustainable Forest Products Industry, Carbon and Climate Change - Key Messages for Policy-Makers and provides an overview of simple facts and trends about forests, forest products, carbon and energy. [The report](#)

World Agroforestry Centre Annual report

Annual report from the period 2011-2012 available. [The report](#)

Helping smallholder farmers mitigate climate change. Policy brief 5.

CCAFS

This policy brief examines the benefits and costs of mitigation practices, financing opportunities, institutional arrangements and enabling conditions that could motivate mitigation. [The policy brief](#)

Climate Report n° 35 « Delivering REDD+ incentives to local stakeholders: lessons from forest carbon frameworks in developed countries

CDC Climat

Reducing CO₂ emissions from forests was slow to get off the ground as a subject of international climate negotiations, but it has picked up considerable momentum since 2005. In particular, agreement has been reached on the urgency to set up a global REDD+ mechanism. The mechanism aims to provide developing countries with incentives to reduce emissions from deforestation and forest degradation and to increase forest carbon stocks through appropriate forestry practices or through planting. Agreement has also been reached that REDD+ incentives should be result-based and ultimately awarded at the national level. Nevertheless, local initiatives are a useful mean of tackling deforestation. However, when carbon incentives depend on national performance, linking them to local initiatives is a technical and financial challenge. Technically, the national accounting framework must be able to track emissions-reduction initiatives at the sub-national level (regional, local or project level). Financially, investors are likely to be scared away if their reward depends on deforestation occurring outside the area of their investment. Ultimately, the issue of transferring national incentives coming from supranational agreements to the local level can be reduced to a political decision on risk sharing between the State and private stakeholders. Industrialized countries have already faced this issue during the first commitment period under the Kyoto protocol and they have often found it difficult to develop satisfactory solutions. Two notable exceptions are New Zealand, which included its forest sector in its emissions trading scheme, and Australia, which is developing a 'Carbon Farming Initiative' for forestry and agricultural offsets. This study draws lessons from a comparison of the treatment of the Land Use, Land Use Change and Forestry (LULUCF) sector in industrialized countries during the first Kyoto protocol commitment period and the current discussions and initiatives on the architecture of a future REDD+ mechanism. Two opposite alternatives are identified: a State guarantee that project developers are rewarded based on the success of their project no matter the national performance, as in New Zealand; and a carbon incentive for project developers which is scaled down in proportion of the national performance, as it has been discussed in France. Beyond the political decision concerning the risk sharing, three technical keys to a successful transfer

of carbon incentives to local actors are presented through the analysis of a number of case studies: (1) a consistent set of baselines; (2) a monitoring system which includes both emissions reductions and the causes behind them; and (3) a clear regulatory framework. The variety of approaches to including project reference baselines in the national reference level is analyzed based on experiences in the European Union, Guyana and Peru. Regarding monitoring, building on national GHG inventories from Annex 1 countries and Brazil's experience in monitoring deforestation could help leapfrog the technical challenges posed by Monitoring, Reporting and Verification (MRV) in REDD+. Lastly, the study explores the progress made by Colombia in setting up a national regulatory framework and by the state of Acre in Brazil in building an institutional framework for REDD+ at a regional level. [The publication](#)

The context of REDD+ in Mozambique. Drivers, agents and institutions

CIFOR

This study offers an overview of the REDD+ (Reducing Emissions from Deforestation and Forest Degradation in Developing Countries) context in Mozambique through a synthesis of current knowledge about the causes of forest carbon changes, a review of the legal and institutional context and a description of the current political process of REDD+. The objective is to gather data and relevant information and offer a preliminary analysis of the fundamental aspects that can help promote REDD+ policy with effectiveness, efficiency and equity. [The publication](#)

The context of REDD+ in Indonesia. Drivers, agents and institutions

CIFOR

This country profile reviews the drivers of deforestation and forest degradation, sets out the institutional, political and economic environment within which REDD+ is being implemented in Indonesia, and documents the process of national REDD+ policy development during the period 2007-2011. There are clearly contextual challenges that need to be addressed in order to create the enabling conditions for REDD+ and to improve the governance of Indonesia's forests more broadly. [The publication](#)

Greening the economy with climate-smart agriculture

FAO

This paper considers the intertwined challenges of food security and climate change, potential impacts of climate change on agriculture, and the impact of agriculture on climate. It further develops and illustrates with concrete examples the concepts of increasing resource efficiency and building resilience as guiding principles to address these challenges. It shows how changing practices in the field can drive sustainable economic development. [The publication](#)

Defining REDD+ Success: Expert workshop on safeguard information systems and private sector engagement. Nairobi, Kenya, April 2-3 2012.

ASB & IISD

REDD+1 is a highly technical and rapidly evolving subject with significant promise to produce multiple mitigation and sustainable development benefits. But there are uncertainties as to how REDD+ will evolve under the international climate regime. Identifying and analyzing lessons learned, contributing to innovative thinking and continuously seeking to improve processes will be critical to REDD+'s success moving forward. Two critical determinants of success need further consideration within the climate change negotiations: (1) developing and implementing REDD+ safeguard information systems (SIS) and (2) fostering effective private sector engagement in the REDD+ value chain. To explore these two determinants of success, a REDD+ expert meeting was held in Nairobi, Kenya, in April 2012, under the Building REDD+ Policy Capacity for Developing Country Negotiators and Land Managers2 project. IISD and the ASB delivered the workshop, with the support of the Government of Norway. 18 Experts from government, the private sector and civil society shared information and lessons learned. [The publication](#)

Drivers of deforestation and forest degradation. A synthesis report for REDD+ policymakers

Lexeme Consulting and Wageningen University

The long-term viability of REDD+ depends on altering business-as-usual activity in sectors currently driving greenhouse gas (GHG) emissions from forests. This synthesis report investigates activities (drivers) that lead to deforestation and forest degradation. It explores the relevance of drivers in REDD+ policy development and implementation, key interventions to address driver activity, the role of drivers for national forest monitoring and for developing REDD+ forest reference (emission) levels. It concludes with recommendations intended to support the on-going international climate negotiations, as well as country-level plans and interventions to affect drivers of deforestation and forest degradation. [The publication](#)

V.I JOBS

Senior Policy Researcher - Climate Change Mitigation Policy in Forestry, Land Use and Agriculture

(SEI) Stockholm Environment Institute - deadline for application is until position is filled

SEI seeks a senior-level researcher to build upon and expand SEI's climate change mitigation research in the forestry, land use and agriculture sectors. The position will be based in the SEI U.S. Centre office in Seattle, which focuses on climate change policy with a particular interest in the role of energy, land use, and consumption in mitigating global GHG emissions. [More](#)

Senior Manager, Climate Adaptation Policy/International Policy

Conservation International - Deadline for application is until suitable application is found

The Sr. Manager for Climate Adaptation Policy will work as part of the International Policy team and will focus primarily on issues related to CI's Climate Change Adaptation initiatives. He/she will also support coordination of CI's interdivisional Climate Policy Team and Core Team, which engage in climate policy more generally in areas including not only adaptation, but also REDD+, agriculture, climate finance, and mitigation. This person will be a leader within CI's multidisciplinary Climate Policy Team and will be responsible for leading the development of CI's institutional positions on topics of climate change adaptation policy in the international policy arena and guiding CI's engagement on climate change adaptation within the UNFCCC and other international policy fora. He/she will support regional and national programs in engaging their governments to influence these fora and achieve policy objectives. The Sr. Manager will work across CI divisions in HQ and in the field in order to achieve these objectives. The position will also represent CI to external organizations, including with national government representatives, and form partnerships to achieve climate change adaptation policy goals. [More](#)

VII. ANNOUNCEMENTS

No relevant announcements this month

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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