

CLIM-FO Climate Change & Forestry





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I. IN THE PRESS

12 June 2012 - The Guardian

Why Rio failed in the past and how it can succeed this time

As world leaders prepare for the Rio+20 meeting in just over a week, now is a fitting moment to assess the true legacy of the original Earth Summit in 1992. In many respects, the summit was a watershed moment for the environment. It brought together a remarkable 172 countries, more than 100 of which were represented by their leaders, to start to address at the global level the unsustainable use of natural resources and man's impact on the environment.

12 June 2012 - The Washington Post

Saving the rainforest - and making money off of it

ONE OF THE GREATEST weapons against climate change sits on vast tracts of undeveloped Brazilian land. The country is home to nearly half of Earth's rainforests, gobbling up 2 billion tons of carbon dioxide every year — a third of the United States' 2010 greenhouse gas output. Maintaining, and expanding, what the Economist aptly termed "the world's lungs" will be essential to fighting global warming, not to mention preserving biological diversity and water systems.

11 June 2012 - The New York Times

Warming Will Unlock Carbon in Forests, Study Warns

Climate scientists have long been concerned about the possibility that warming temperatures will speed changes on the earth's surface that will in turn accelerate global warming. The best illustration of such a feedback loop involves the melting of sea ice in the Arctic. The ice reflects solar radiation back into space rather than absorbing it. When it melts, it leaves open water that absorbs the heat rather than reflecting it. The more warm water there is, the more ice melts, and so on.

8 June 2012 - CIFOR

CIFOR taps FAO expert as new Director General

As forest conservation and sustainable development take centre stage in the lead up to the United Nations Conference on Sustainable Development (known as Rio+20), the Center for International Forestry Research (CIFOR) announced today the appointment of leading forestry, climate change and food security expert Peter Holmgren as its new director general.

5 June 2012 - CPF Collaborative Partnerships on Forests

Eight new fact sheets highlight the key role of sustainable forest management in sustainable development

As the world celebrates World Environment Day and prepares to gather in Rio for the Rio+20 Conference, the Collaborative Partnership on Forests (CPF), a voluntary arrangement consisting of 14 international organizations, institutions and secretariats, releases eight fact sheets underlining the important role of forests and sustainable forest management (SFM) for human well-being, sustainable development and a green economy

4 June 2012 - IISD

UN-REDD Supports South-South Exchange on REDD+ Governance

The UN-REDD Programme has supported the first South-South exchange on participatory governance assessments (PGA) for REDD+ (reducing emissions from deforestation and forest degradation in developing countries, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks).

31 May 2012 - The New York Times

This Forest Is Our Forest

Twenty years ago, the world came together in Rio de Janeiro for a historic summit meeting to tackle the environmental issues that threaten the very sustainability and preservation of our planet. Now, as world leaders and thousands of other participants prepare for the Rio+20 Conference, we are facing an even more urgent set of environmental challenges.

28 May 2012 - IISD

FAO Drylands workshops Addresses Building Resilient Forest Landscapes

At an international workshop titled "Building forest landscapes resilient to global changes in drylands," participants discussed a restoration monitoring tool and shared experiences in forest restoration projects. They heard presentations on restoration efforts in the Mediterranean, Central Asia and sub-Saharan Africa

22 May 2012 - Reuters

Indonesia forest moratorium won't meet climate pledge - Norway

Indonesia's progress in reforming its forestry sector will not be sufficient to meet its pledge to reduce carbon emissions by 26 percent by 2020, Norway's environment minister said on Tuesday.

II. UNFCCC NEGOTIATIONS AND RELATED DISCUSSIONS

United Nations Framework Convention on Climate Change, Bonn Climate Change Conference, 14-25 May

UNFCCC met in Bonn, Germany from 14 May to 25 May. It was marked by the first meeting of the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ACP), a negotiation body established in December 2011 at COP17 (Durban, December 2011) to develop a new legal instrument ("a new protocol, another legal instrument or an agreed outcome with legal force") under the Convention, which is to be applicable to all Parties and to enter into force by 2020. The Subsidiary Body for Scientific and Technological Advice (SBSTA), the Subsidiary Body for Implementation (SBI), the Ad Hoc Working Group for Long-Term Cooperative Action under the Convention (AWG-LCA) and the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP) also met in Bonn.

The next negotiation session of UNFCCC, funds permitting, has tentatively been scheduled to take place from 30 August-5 September in Bangkok. This would be the last negotiation session before COP18, which is to be held in Doha from 26 November-7 December 2012.

Key decisions adopted at COP 17 in addition to the establishment of ADP, included agreement on a second commitment period under the Kyoto Protocol (KP2), which will begin in 2013, and extension of the AWG-LCA and AWG-KP until COP18. The Bonn session was therefore marked by two intertwined questions - how to end the AWG-LCA and how to start the ADP. These debates were closely tied to the adoption of the ADP agenda, which took two weeks of difficult negotiations. The agenda eventually adopted on the last day of the conference includes two work streams: (a) negotiating the new legal instrument to be effective by 2020 and (b) enhancing mitigation ambition (including both pre- and post-2020 mitigation ambition). The focus of AWG-KP was on issues that need to be finalized before the second commitment period of the Kyoto Protocol can begin, including matters related to quantified emission limitation and reduction objectives (QUELROs) which could be adopted as amendments to Annex B of the Kyoto Protocol, and carry-over of assigned amount units (AAUs). Discussions advanced work toward consensus of these issues, but several issues remain, including the length of the second commitment period and carry-over of surplus AAUs.

REDD+

Parties discussed a range of REDD+ issues in Bonn. Parties decided early in the Bonn session to prioritize work on National Forest Monitoring Systems (NFMS) and Measurement, Reporting and Verification (MRV) as well as on drivers of deforestation and forest degradation. The technical discussions on NFMS and MRV produced a lot of substantive text, albeit with many brackets, which is to be forwarded as draft negotiation text to SBSTA for continued discussions in Doha. A major point of discussion regarding drivers of deforestation and forest degradation was the scale at which drivers should be addressed - international versus national. It was agreed this issue would be taken up again in Doha, with a view to adopt a decision at COP 19.

There was limited time to discuss safeguards information systems (SIS) and reference emission levels/reference levels (RELs/RLs). Discussion of the need for further guidance on SIS as well as the timing and frequency of presentations of the summary of information on how the Cancun safeguards are being addressed and respected has been deferred to Doha, as has the development of guidance on the technical assessment of proposed RELs/RLs.

Modalities and procedures for financing results-based REDD+ actions were also discussed. Almost all Parties agree that private finance will be needed in addition to public finance to achieve significant REDD+ results, and therefore there is a role for both market and non-market sources of finance. A number of Parties stated the need for both a dedicated REDD+ window under the Green Climate Fund (GCF) as well as a new market mechanism. Several developing countries raised concerns over a funding gap Phases I and II of REDD+, once fast-start finance runs out at the end of the year. Some Parties called for equitable and proportionate access to financing across all of the five REDD+ options. A verbal report of the key points of the discussion was made to the Chair of the AWG-LCA, which is to be reflected in the report of the session. Nevertheless, as agreed in Durban, a technical paper on modalities and procedures for financing results-based REDD+ actions is being prepared by the UNFCCC Secretariat, and a workshop is being planned, to take place either in Bangkok or Doha. Parties further agreed to continue discussing this issue after COP18, despite the ending of the AWG-LCA track of negotiations, thereby transferring the discussion to another body of the Convention (SBI).

Land Use, Land-Use Change and Forestry (LULUCF)

In Durban, Parties agreed to initiate four work programmes related to LULUCF issues under the Kyoto Protocol: (1) exploration of a more comprehensive approach to LULUCF accounting for Annex I countries under the Kyoto Protocol; (2) recommendations for possible additional LULUCF activities under the Clean Development Mechanism (CDM); (3) consideration of alternative approaches to addressing the risk of non-permanence under CDM and (4) consideration of modalities and procedures for additionality. In Bonn, Parties agreed to a prioritization and staggered timing to address these four areas of work, with CFM issues of new activities and approaches to addressing non-permanence viewed as the most urgent. It was agreed that submissions would be invited on both the CDM issues as well as comprehensive accounting in autumn 2012.

Even though these LULUCF issues are part of the Kyoto Protocol, they have potential implications for REDD+, particularly in regards to reconciliation of accounting that would likely be required in those REDD+ countries with CDM projects.

Adaptation

There was limited negotiation time in AWG-LCA for adaptation issues. Parties however made progress on arrangements to support the formulation and implementation of National Adaptation Plans (NAPs). The discussion focused on support for Least Developed Countries (LDCs) and resulted in draft text, heavily bracketed, to be considered in Doha.

The draft text includes the facilitation of country-driven NAPs, streamlining the LDC Fund to support the NAP process and sharing of best practices in adaptation. Several LDCs highlighted the need for strengthening capacity to integrate adaptation into national development policies. Some Parties pushed for the LDC Fund to start supporting the NAP process by COP18. The conclusions of the Chair urge developed countries to mobilize financial support for the NAP process and sets the ambition on adopting a decision in Doha.

Mitigation

Parties discussed mitigation by developed and developing countries during two dedicated in-session workshops. It was agreed that this work would continue through workshops focusing specifically on the clarification of targets for developed countries and specific NAMAs for developing countries. Parties also started considering the development of general guidelines for MRV for NAMAs by developing countries and agreed to continue doing so with a view to agreeing on the next steps in Doha.

Agriculture

Following the Durban decision initiating an exchange of views on agriculture, Parties in Bonn engaged in a debate on the scope of the work. The position of the G77 and China was that this work should focus exclusively on building the adaptation capacity of the agricultural sectors. Several developed countries, supported the initiation of a technical work programme on agriculture that would address both adaptation and mitigation. This broader scope was not acceptable to most developing countries. Parties agreed to continue their consideration of agriculture in Doha.

III. EVENTS & MEETINGS

Upcoming events

Side events at Rio+20

Forests. The 8th roundtable at Rio+20. Integrating forests into the global agenda on sustainable development.

19 June 2012, Rio de Janeiro, Brazil

To ensure that forests remain high on the agenda in 2012, CIFOR will coordinate one of the most important conferences on forests alongside the Rio+20 summit, Forests: The 8th Roundtable at Rio+20. Distinguished panellists will discuss new research findings - and remaining knowledge gaps -- and their policy implications for integrating forests into the solutions to four key challenges to progress toward a green economy: Energy, food and income, water, and climate. More

The Landscape: Transformative Action thru Cross-Sectoral Coordination

19 June, 13.30-15, Rio de Janeiro, Brazil

Around the world there are extraordinary examples of integrated sustainable land management approaches that have improved the livelihoods of millions of people; from the transformation of the Loess Plateau in China to the hillside restoration across Rwanda. These are called a landscape approach, which incorporates economic, social and environmental actions required to achieve sustainability. Global leaders have not emphasized and operationalized enough the value of local wisdom, global expertise and the transformative power that emerges when sustainable economic growth and food systems are combined. Food security is one illustration of the critical need for cross-sectoral approaches to economic development. We cannot feed people without protecting forests or protect forests without feeding people. We cannot sustainably grow our economies without valuing our environment. We must bridge the gaps between agriculture, forests, water, land and energy, and between rhetoric and action. The event will focus on two sectors: agriculture and forests.

The future potential of European Mountain forests - Final Conference of the MANFRED project

28 June 2012, Rome, Italy

The Final Conference of the European Project Management Strategies to adapt Alpine Space Forests to Climate Change Risks (MANFRED) will be held on 28 June 2012, on the premises of the Food and Agriculture Organization (FAO) of the United Nations in Rome (Italy). The conference, titled "The future potential of European Mountain forests: challenges and solutions between Green Economy and Climate Change", will be organized by the MANFRED project partners in cooperation with the Mountain Partnership Secretariat. The event aims at exploring future scenarios for European mountain forests as linked to the challenges posed by climate change and the opportunities presented by a green economy. MANFRED, launched in the framework of the European Territorial Cooperation Programme "Alpine Space 2007-2013" to implement the Alpine Convention Protocol on "Mountain Forests", aims at defining adaptation strategies for the alpine forests, in light of the potential impacts and hazard factors connected to climate change. More information on the conference, including the programme and registration form, will be available soon on the MANFRED project website. More

First IUFRO-FORNESSA - Regional Congress

25-30 June 2012, Nairobi, Kenya

The Congress will provide a platform for African forest scientists, forest managers and policy makers and their colleagues from other parts of the world to share and exchange information and experiences on critical issues affecting forest and wildlife resources in Africa. The overall goal of the congress is to demonstrate how forest science is impacting on livelihoods, environmental management and development in Africa. The congress will highlight research that puts relevant information in the hands of forest communities, forest managers, policy makers, the private sector and civil society. More

International conference - Forest-water interactions with respect to air pollution and climate change

3-6 September 2012, Kahramanmaraş, Turkey.

Forest and water is one of the high priority areas of IUFRO. The forest-water interaction becomes a major concern in both local and global scales due to anthropogenic stressors like climate change and air pollution. Therefore, the management of forests towards water and carbon management and air pollution mitigation becomes a challenging issue and concern to be addressed. The aim of the conference is to provide a harmonization of forests, water cycle, climate change and air pollution issues. Presentations are welcome from various geographies on ecological, economical and social aspects of listed conference topics. More

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

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

Influence of carbon mapping and land change modelling on the prediction of carbon emissions from deforestation

Gutierrez-Velez, V.H. & Gilmore Pontius JR, R.

Environmental Conservation. doi:10.1017/\$0376892912000173

The implementation of an international programme for reducing carbon emissions from deforestation and degradation (REDD) can help to mitigate climate change and bring numerous benefits to environmental conservation. Information on land change modelling and carbon mapping can contribute to quantify future carbon emissions from deforestation. However limitations in data availability and technical capabilities may constitute an obstacle for countries interested in participating in the REDD programme. This paper evaluates the influence of quantity and allocation of mapped carbon stocks and expected deforestation on the prediction of carbon emissions from deforestation. The paper introduces the conceptual space where quantity and allocation are involved in predicting carbon emissions, and then uses the concepts to predict carbon emissions in the Brazilian Amazon, using previously published information about carbon mapping and deforestation modelling. Results showed that variation in quantity of carbon among carbon maps was the most influential component of uncertainty, followed by quantity of predicted deforestation. Spatial allocation of carbon within carbon maps was less influential than quantity of carbon in the maps. For most of the carbon maps, spatial allocation of deforestation had a minor but variable effect on the prediction of carbon emissions relative to the other components. The influence of spatial carbon allocation reaches its maximum when 50% of the initial forest area is deforested. The method can be applied to other case studies to evaluate the interacting effects of quantity and allocation of carbon with future deforestation on the prediction of carbon emissions from deforestation.

Understanding the relationship between aboveground biomass and ALOS PALSAR data in the forests of Guinea-Bissau (West Africa)

Carreiras, J.M.B., Vasconcelos, M.J., Lucas, R.M. Remote Sensing of Environment Vol. 121: 426-442

Guinea-Bissau is one of the poorest countries in the world with a large proportion of its population living in rural areas. While industry is limited, over 70% of the territory is covered by forests, which can potentially be used to attract investment through forest-based projects that promote reductions in carbon emissions and sustainable management. These can be leveraged by producing accurate maps of forest aboveground biomass (AGB) at national level and by developing cost-effective mapping methods that allow reliable future updating for management and engagement in international mechanisms such as the United Nations (UN) Collaborative Program on Reducing Emissions from Deforestation and Forest Degradation (REDD) in developing countries. Using data from Japan's Advanced Land Observing Satellite (ALOS) Phased Array L-band Synthetic Aperture Radar (PALSAR), this study compared a semi-empirical and machine learning algorithm, with the latter based on bagging stochastic gradient boosting (BagSGB), for retrieving the AGB of woody vegetation thereby supporting estimation of national carbon stocks. AGB was estimated by using measurements of tree size collected from 112 forest plots during two field campaigns (2007 and 2008) as input to published allometric equations. The BagSGB outperformed the semi-empirical algorithm, resulting in a coefficient of correlation (R) between observed and cross-validation predicted forest AGB values of 0.95 and in a root mean square error (RMSE) of 26.62 Mg ha- 1. Furthermore, the BagSGB model produced also a measure of forest AGB prediction variability (coefficient of variation) on a pixel-by-pixel basis, with values ranging from 7 to 250% (mean = 42%). An estimate of total forest AGB carbon stock of 96.93 Mt C was obtained in this study for Guinea-Bissau, with a mean forest AGB value of 65.17 Mg ha- 1. Although the mean error associated with this forest AGB map is still undesirably high, several issues were addressed. The heterogeneity of forest structural types, presence of palm

trees, and dimension and type of field plots were identified as potential source of uncertainty that must be tackled in future studies. This study represents a step forward regarding the information currently available for Guinea-Bissau.

Forest Cover Changes in Tropical South and Central America from 1990 to 2005 and Related Carbon Emissions and Removals

Eva, H.D., Achard, F., Beuchle, R., de Miranda, E., Carboni, S., Seliger, R., Vollmar, M., Holler, W.A., Oshiro, O.T., Arroyo, V.B., Gallego, J.

Remote Sens. 2012 4(5): 1369-1391

This paper outlines the methods and results for monitoring forest change and resulting carbon emissions for the 1990-2000 and 200-2005 periods carried out over tropical Central and South America. To produce our forest change estimates we used a systematic sample of medium resolution satellite data processed to forest change maps covering 1230 sites of 20 km by 20 km, each located at the degree confluence. Biomass data were spatially associated to each individual sample site so that annual carbon emissions could be estimated. For our study area we estimate that forest cover in the study area had fallen from 763 Mha (s.e. 10 Mha) in 1990 to 715 Mha (s.e. 10 Mha) in 2005. During the same period *other wooded land (i.e.*, non-forest woody vegetation) had fallen from 191 Mha (s.e. 5.5 Mha) to 184 Mha (s.e. 5.5 Mha). This equates to an annual gross loss of 3.74 Mha·y⁻¹ of forests (0.50% annually) between 1990 and 2000, rising to 4.40 Mha·y⁻¹ in the early 2000s (0.61% annually), with Brazil accounting for 69% of the total losses. The annual carbon emissions from the combined loss of forests and *other wooded land* were calculated to be 482 MtC·y⁻¹ (s.e. 29 MtC·y⁻¹) for the 1990s, and 583 MtC·y⁻¹ (s.e. 48 MtC·y⁻¹) for the 2000 to 2005 period. Our maximum estimate of sinks from forest regrowth in tropical South America is 92 MtC·y⁻¹. These estimates of gross emissions correspond well with the national estimates reported by Brazil, however, they are less than half of those reported in a recent study based on the FAO country statistics, highlighting the need for continued research in this area.

Market masquerades: uncovering the politics of community-level payments for environmental services in Cambodia

Milne, S.; Adams, B.

Development and Change; 2012. 43: 1, 133-158

A growing number of Payments for Environmental Services (PES) schemes are being implemented at the community level in developing countries, especially in the context of climate change mitigation efforts to Reduce Emissions from Deforestation and forest Degradation (REDD). In parallel, there is vigorous commentary about the implications of market-based or neoliberal conservation strategies, and their potential effects on communities that depend on natural resources. This article explores the political dimensions of community-level PES in Cambodia, where contracts for 'avoided deforestation' and 'biodiversity conservation' were implemented in five communities. The research examines three aspects of the community-level PES model that are inherently political: the engagement of communities as single homogeneous entities, capable of entering PES contracts; the simplification of land-use practices and resource rights; and the assumption that contracts are voluntary or reflect 'community choice'. These elements of PES work both discursively and practically to silence certain voices and claims, while privileging others. Therefore, the problematic nature of community-level PES is not that it is a market <i>per se</i>), but that it is a powerful intervention masquerading as a market. This process of 'market masquerades' emerges as a key element in the politics of neoliberal conservation in practice.

Climate change impacts on tree ranges: model intercomparison facilitates understanding and quantification of uncertainty

Cheaib, A.; Badeau, V.; Boe, J.; Chuine, I.; Delire, C.; Dufrene, E.; Francois, C.; Gritti, E. S.; Legay, M.; Page, C.; Thuiller, W.; Viovy, N.; Leadley, P

Ecology Letters; 2012. 15: 6, 533-544

Model-based projections of shifts in tree species range due to climate change are becoming an important decision support tool for forest management. However, poorly evaluated sources of uncertainty require more scrutiny before relying heavily on models for decision-making. We evaluated uncertainty arising from differences in model formulations of tree response to climate change based on a rigorous intercomparison of projections of tree distributions in France. We compared eight models ranging from niche-based to process-based models. On average, models project large range contractions of temperate tree species in lowlands due to climate change. There was substantial disagreement between models for temperate broadleaf deciduous tree species, but differences in the capacity of models to account for rising CO_2 impacts explained much of the disagreement. There was good quantitative agreement among models concerning the range contractions for Scots pine. For the dominant Mediterranean tree species, Holm oak, all models foresee substantial range expansion.

Aspects of forest carbon management in Australia - a discussion paper

Moroni, M. T

Forest Ecology and Management; 2012. 275: 111-116

In Australia, a pervasive response to increasing atmospheric greenhouse gasses and the exchange of these gasses between the atmosphere and forests has been to focus on storing carbon (C) in forested landscapes. However, the amount of C stored and able to be stored in the landscape, which is often called carbon carrying capacity, is commonly over-estimated and over-emphasised. This occurs, in part, due to a focus on the continent's most C-rich forests when discussing landscape C storage or carbon carrying capacity, and by failing to account for wildfires that will prevent all forests from becoming old and C-rich. These effects on forest age-class structure and thus C-stocks, in the Australian landscape currently tend to be overlooked at the policy level. Underemphasised is the widely recognised role of wood products in greenhouse gas mitigation, both as a C-stock and by providing society with low emission products. Improving atmospheric outcomes will only be achieved if variation in landscape C stocks is accurately described and the full role of forests in greenhouse gas mitigation including the role of wood products is explored and reflected in policy.

Harvesting in boreal forests and the biofuel carbon debt

Holtsmark, B.

Climatic Change; 2012. 112: 2, 415-428

Owing to the extensive critique of food-crop-based biofuels, attention has turned toward second-generation wood-based biofuels. A question is therefore whether timber taken from the vast boreal forests on an increasing scale should serve as a source of wood-based biofuels and whether this will be effective climate policy. In a typical boreal forest, it takes 70-120 years before a stand of trees is mature. When this time lag and the dynamics of boreal forests more generally are taken into account, it follows that a high level of harvest means that the carbon stock in the forest stabilizes at a lower level. Therefore, wood harvesting is not a carbon-neutral activity. Through model simulations, it is estimated that an increased harvest of a boreal forest will create a biofuel carbon debt that takes 190-340 years to repay. The length of the payback time is sensitive to the type of fossil fuels that wood energy replaces.

The impact of annual and seasonal rainfall patterns on growth and phenology of emergent tree species in Southeastern Amazonia, Brazil

Grogan, J.; Schulze, M

Biotropica; 2012. 44: 3, 331-340

Understanding tree growth in response to rainfall distribution is critical to predicting forest and species population responses to climate change. We investigated inter-annual and seasonal variation in stem diameter by three emergent tree species in a seasonally dry tropical forest in southeast Para, Brazil. Annual diameter growth rates by <i>Swietenia macrophylla</i> demonstrated strong positive correlation with annual rainfall totals during 1997-2009; <i>Hymenaea courbaril</i> growth rates demonstrated weak positive correlation, whereas <i>Parkia pendula</i> exhibited weak negative correlation. For both <i>Swietenia</i> and <i>Hymenaea</i>, annual diameter growth rates correlated positively and significantly with rainfall totals during the first 6 mo of the growing year (July to December). Vernier dendrometer bands monitored at 4-wk intervals during 3-5 yr confirmed strong seasonal effects on stem diameter expansion. Individuals of all three species expanded in unison during wet season months and were static or even contracted during dry season months. Stems of the deciduous <i>Swietenia</i> contracted as crowns were shed during the early dry season, expanded slightly as new crowns were flushed, and then contracted further during 3-5 wk flowering periods in the late dry season by newly mature crowns. The three species' physiographic distribution patterns at the study site may partially underlie observed differences in annual and seasonal growth. With most global circulation models predicting conditions becoming gradually drier in southeast Amazonia over the coming decades, species such as <i>Swietenia</i> that perform best on the 'wet end' of current conditions may experience reduced growth rates. However, population viability will not necessarily be threatened if life history and ecophysiological responses to changing conditions are compensatory.

Effects of climate change on the potential species richness of Mesoamerican forests

Golicher, D. J.; Cayuela, L.; Newton, A. C

Biotropica; 2012. 44: 3, 284-293

The realized species richness of tropical forests cannot yet be reliably mapped at a regional scale due to lack of systematically collected data. An estimate of the potential species richness (PSR), however, can be produced through the use of species distribution modelling. PSR is interpretable as a climatically determined upper limit to observed species richness. We mapped current PSR and future PSR under climate change scenarios for Mesoamerica by combining the spatial distributions of 2000 tree species as predicted by

generalized additive models built from herbaria records and climate layers. An explanatory regression tree was used to extract conditional rules describing the relationship between PSR and climate. The results were summarized by country, ecoregion and protected area status in order to investigate current and possible future variability in PSR in the context of regional biodiversity conservation. Length of the dry season was found to be the key determinant of PSR. Protected areas were found to have higher median PSR values than unprotected areas in most of the countries within the study area. Areas with exceptionally high PSR, however, remain unprotected throughout the region. Neither changes in realized species richness nor extinctions will necessarily follow changes in modelled PSR under climate change. However model output suggests that an increase in temperature of around 3 degrees C, combined with a 20 percent decrease in rainfall could lead to a widespread reduction of around 15 percent of current PSR, with values of up to 40 percent in some moist lower montane tropical forests. The modelled PSR of dry forest ecoregions was found to be relatively stable. Some cooler upper montane forests in northern Mesoamerica, where few species of tropical origin are currently found, may gain PSR if species are free to migrate.

Can REDD+ reconcile local priorities and needs with global mitigation benefits? Lessons from Angai Forest, Tanzania

Mustalahti, I.; Bolin, A.; Boyd, E.; Paavola, J. Ecology and Society; 2012. 17: 1

The scope of the reducing emissions from deforestation and forest degradation (REDD) mechanism has broadened REDD+to accommodate different country interests such as natural forests, protected areas, as well as forests under community-based management. In Tanzania the REDD+ mechanism is still under development and pilot projects are at an early stage. In this paper, we seek to understand how local priorities and needs could be met in REDD+implementation and how these expectations match with global mitigation benefits. We examine the local priorities and needs in the use of land and forest resources in the Angai Villages Land Forest Reserve (AVLFR) in the Liwale District of Lindi Region in Tanzania. Primary data was collected in two villages, Mihumo and Lilombe, using semistructured key informant interviews and participatory rural appraisal methods. In addition, the key informant interviews were conducted with other village, district, and national level actors, as well as international donors. Findings show that in the two communities REDD+ is seen as something new and is generating new expectations among communities. However, the Angai villagers highlight three key priorities that have yet to be integrated into the design of REDD+: water scarcity, rural development, and food security. At the local level improved forest governance and sustainable management of forest resources have been identified as one way to achieve livelihood diversification. Although the national goals of REDD+ include poverty reduction, these goals are not necessarily conducive to the goals of these communities. There exist both structural and cultural limits to the ability of the Angai villages to implement these goals and to improve forestry governance. Given the vulnerability to current and future climate variability and change it will be important to consider how the AVLFR will be managed and for whose benefit?

Opportunities and challenges for private sector entrepreneurship and investment in biodiversity, ecosystem services and nature conservation

Lambooy, T.; Levashova, Y

International Journal of Biodiversity Science, Ecosystem Services and Management; 2011. 7: 4, 301-318

Private companies and investors can profit from the enhancement of nature in general and from specific investments allocated to improve biodiversity and ecosystem services (BES). The question is: What is the incentive, from a private sector point of view, to invest in nature, and what are the barriers and opportunities? This article demonstrates that new markets and business models are developing which are based on BES, thereby offering investment opportunities and contributing to nature conservation at the same time. Emerging BES markets include (i) sustainable forestry; (ii) ecotourism; (iii) carbon sequestration through forestry, agricultural projects and REDD (Reducing Emissions through Deforestation and Forest Degradation); (iv) watershed management; and (v) nature conservation and restoration such as wetland banking and biodiversity offset programmes. This article gives an analysis of the various business models and the factors that support a proper functioning thereof, including the dependence on public regulation and the necessity to collaborate with local communities, authorities, NGOs or other stakeholders. In the analysis, barriers for attracting mainstream capital from institutional investors into 'BES business' are identified and addressed.

Are payments for environmental services (PES) an opportunity for relieving countries of the Congo Basin from poverty?

Nonga, F. N

Journal of Sustainable Development in Africa; 2011. 13: 3, 40-58

The payment for environmental services (PES) have attracted increasing interest as a new market mechanism that translate external, non market values of the environment into real financial incentives for local

populations and actors to provide environmental services. In this article, we try to evaluate the effectiveness of the PES of the forest in boosting the conservation of forest ecosystemic services and alleviating poverty in the Congo Basin. Many questions or worries exist, that limit the implementation of the PES in this sub-region. Our purpose is not to give answers to them. We are only interested on the organization of ES markets which mobilizes the beneficiaries and suppliers and on the price-fixing mechanisms. We start with a flashback on the socio-economic and environmental contexts and a discussion of PES definition. We proceed to the appreciate the capacity of the PES to lead to the socio-economic and environmental sustainability of the forest in the subregion. Lastly, we examine an effective logic of compensating suppliers who renounce applying usage rights on the forest environmental services. Three main services are concerned: carbon storage, biodiversity conservation, and protection of side basins. In order to cause the changes required for forest conservation and poverty alleviation, PES systems in the Congo Basin must at the same time satisfy both the effectiveness and equity criteria. For this purpose, it is necessary to fix the payments beyond the opportunity costs of renouncing access to and usage of the forest and to organize these payments within a framework of sustainable development leading to the improvement of living conditions of all the populations in the areas concerned

Carbon storage and sequestration by urban forests in Shenyang, China

Liu ChangFu; Li XiaoMa

Urban Forestry & Urban Greening; 2012. 11: 2, 121-128

Urban forests can play an important role in mitigating the impacts of climate change by reducing atmospheric carbon dioxide (CO₂). Quantification of carbon (C) storage and sequestration by urban forests is critical for the assessment of the actual and potential role of urban forests in reducing atmospheric CO₂. This paper provides a case study of the quantification of C storage and sequestration by urban forests in Shenyang, a heavily industrialized city in northeastern China. The C storage and sequestration were estimated by biomass equations, using field survey data and urban forests data derived from highresolution QuickBird images. The benefits of C storage and sequestration were estimated by monetary values, as well as the role of urban forests on offsetting C emissions from fossil fuel combustion. The results showed that the urban forests in areas within the third-ring road of Shenyang stored 337,000 t C (RMB92.02 million, or \$ 13.88 million), with a C sequestration rate of 29,000 t/yr (RMB7.88 million, or \$ 1.19 million). The C stored by urban forests equaled to 3.02% of the annual C emissions from fossil fuel combustion, and C sequestration could offset 0.26% of the annual C emissions in Shenyang. In addition, our results indicated that the C storage and sequestration rate varied among urban forest types with different species composition and age structure. These results can be used to help assess the actual and potential role of urban forests in reducing atmospheric CO₂ in Shenyang. In addition, they provide insights for decision-makers and the public to better understand the role of urban forests, and make better management plans for urban forests.

Lessons for REDDplus: a comparative analysis of the German discourse on forest functions and the global ecosystem services debate. (Special Issue: Emerging economic mechanisms for global forest governance

Buttoud, G.; Schaich, H.; Winkel, G.; Plieninger, T.; Bieling, C.; Konold, W.; Volz, K. R Forest Policy and Economics; 2012. 18: 4-12

This paper compares the historic German discourse on forest functions with the current international debate on ecosystem services and analyzes the factors that may have triggered or inhibited the development and the institutionalization of both underlying concepts and subordinate debates. Ultimately, this comparison aims at drawing conclusions for the present debate on the currently negotiated REDDplus mechanism which can be considered as a major effort to upscale payments for environmental services. Both discourses show some remarkable similarities - despite their diverging spatial foci, cultural backgrounds, and eras of origin. Similarities include the utilitarian concepts of nature used, the functions or services considered, and the ongoing challenge of valuing and monetizing them. However, there are also fundamental differences in regard to property rights and assumptions on the harmony of forest functions, respectively apparent and potential trade-offs between different ecosystem services for which the current discourse promotes market-based governance approaches as the mean of choice to balance competing interests of stakeholders. In terms of current policy debates as on REDDplus, the focus on one particular ecosystem service - here the mitigation of greenhouse gas emissions - shows significant analogies to the historic forest functions discourse in which timber production was seen as the main function that inherently ensures the delivery of all other functions. With regard to the considerable risks resulting for biodiversity and other ecosystem services from such a monofunctional focus we argue that any market-based approach to REDDplus should be accompanied by comprehensive international and national regulatory policies and foster the implementation of effective safeguards

Forest phenology and a warmer climate - growing season extension in relation to climatic provenance

Gunderson, C. A.; Edwards, N. T.; Walker, A. V.; O'Hara, K. H.; Campion, C. M.; Hanson, P. J Global Change Biology; 2012. 18: 6, 2008-2025

Predicting forest responses to warming climates relies on assumptions about niche and temperature sensitivity that remain largely untested. Observational studies have related current and historical temperatures to phenological shifts, but experimental evidence is sparse, particularly for autumn responses. A 4 year field experiment exposed four deciduous forest species from contrasting climates (<i>Liquidambar styraciflua</i>, <i>Quercus rubra</i>, <i>Populus grandidentata</i>, and <i>Betula alleghaniensis</i>) to air temperatures 2 and 4 degrees C above ambient controls, using temperature-controlled open top chambers. Impacts of yearround warming on bud burst (BB), senescence, and abscission were evaluated in relation to thermal provenance. Leaves emerged earlier in all species by an average of 4-9 days at +2 degrees C and 6-14 days at +4 degrees C. Magnitude of advance varied with species and year, but was larger for the first 2 degrees C increment than for the second. Effect of warming increased with early BB, favouring <i>Liquidambar</i>, but even BB of northern species advanced, despite temperatures exceeding those of the realized niche. Treatment differences in BB were inadequately explained by temperature sums alone. In autumn, chlorophyll was retained an average of 4 and 7 days longer in +2 and +4 degrees C treatments, respectively, and abscission delayed by 8 and 13 days. Growing seasons in the warmer atmospheres averaged 5-18 days (E2) and 6-28 days (E4) longer, according to species, with the least impact in <i>Quercus</i>. Results are compared with a 16 years record of canopy onset and offset in a nearby upland deciduous forest, where BB showed similar responsiveness to spring temperatures (2-4 days degrees C⁻¹). Offset dates in the stand tracked August-September temperatures, except when late summer drought caused premature senescence. The common garden-like experiment provides evidence that warming alone extends the growing season, at both ends, even if standlevel impacts may be complicated by variation in other environmental factors.

Biodiversity co-benefits of policies to reduce forest-carbon emissions

Phelps, J., Webb, E.L., Adams, W.M.

Nature Climate Change. DOI: 10.1038/NCLIMATE1462

Climate change and biodiversity loss are leading environmental crises that converge most critically in tropical forests. Policies for reducing emissions from deforestation and degradation are often portrayed as win-win solutions for forest-based climate change mitigation and biodiversity conservation. However, the win-win narrative has obscured necessary trade-offs and a range of alternative policy approaches, insulating policymakers from difficult, potentially unpopular decisions. We provide a typology that characterizes the five underlying policy approaches for linking forest-based climate change mitigation and biodiversity conservation and their related trade-offs. Such clarification will enable policymakers and stakeholders to better articulate their positions in the protracted and controversial biodiversity co-benefits debate that is at the centre of contemporary conservation efforts.

V. PUBLICATIONS, REPORTS AND OTHER MEDIA

Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security

FAC

In a landmark decision, on 11 May the Committee on World Food Security (CFS) endorsed the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security. The guidelines are a set of far-reaching global guidelines aimed at helping governments safeguard the rights of people to own or access land, forests and fisheries. The guidelines are based on an inclusive consultation process started by FAO in 2009 and then finalized through CFS-led intergovernmental negotiations that included participation of government officials, civil society organizations, private sector representatives, international organizations and academics. The purpose of these Voluntary Guidelines is to serve as a reference and to provide guidance to improve the governance of tenure of land, fisheries and forests with the overarching goal of achieving food security for all and to support the progressive realization of the right to adequate food in the context of national food security. These Guidelines are intended to contribute to the global and national efforts towards the eradication of hunger and poverty, based on the principles of sustainable development and with the recognition of the centrality of land to development, by promoting secure tenure rights and equitable access to land, fisheries and forests. The eradication of hunger and poverty, and the sustainable use of the environment, depend in large measure on how people, communities and others gain access to land, fisheries and forests. The livelihoods of many, particularly the rural poor, are based on secure and equitable access to and control over these resources. They

are the source of food and shelter; the basis for social, cultural and religious practices; and a central factor in economic growth. The guidelines

Towards the future we want. End hunger and make the transition to sustainable agricultural and food systems

FAO

Improving agricultural and food systems is essential for a world with healthier people and healthier ecosystems. Healthy and productive lives cannot be achieved unless "all people at all times have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life" (FAO, 1996). Healthy ecosystems must be resilient and productive, and provide the goods and services needed to meet current societal needs and desires without jeopardizing the options for future generations to benefit from the full range of goods and services provided by terrestrial, aquatic and marine ecosystems. There are very strong linkages between the conditions to achieve universal food security and nutrition, responsible environmental stewardship and greater fairness in food management. They intersect in agricultural and food systems at the global, national and local levels. This publication summarizes FAO's messages for the RIO+20 summit. The publication

Regional Policy Brief. REDD+ in Asia-Pacific: Are capacity building services meeting countries 'needs?

RECOFTC

Building capacity for implementing REDD+ is a key component of REDD+ readiness processes that have been underway for over three years. Backed by substantive funding from a large number of organizations, multilateral, bilateral donors, and government agencies, a multitude of organizations are conducting awareness raising and training activities in all REDD+ nations. The considerable increase in capacity building during a rather short period begs the question of whether the organizations providing such services have the competencies to provide REDD+ capacity building, and whether they are meeting country needs in getting ready for REDD+. Surprisingly, little is known about the competencies of the organizations, which include government agencies, NGOs, community groups, academic institutions, think-tanks, consultancies, legal firms, and media companies. To fill this knowledge gap, RECOFTC - The Center for People and Forests, with financial and advisory support from the Global UN-REDD Programme through the United Nations Environment Programme, assessed the strengths and weaknesses and identified the gaps in the capacity building services being provided against Asia-Pacific countries' REDD+ readiness needs. This brief provides an overview of the findings and recommendations. The policy brief

Forests and climate change after Durban

RECOFTC and FAO

Over the past two years, the Food and Agriculture Organization of the United Nations (FAO) and RECOFTC - The Center for People and Forests have brought together regional experts to reflect on the outcomes of the 15th and 16th Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC). The resulting booklets Forests and Climate Change After Copenhagen: An Asia-Pacific Perspective and Forests and Climate Change After Cancun: An Asia-Pacific Perspective were distributed widely and very well received. In February 2012, RECOFTC, FAO, and CoDe REDD, with support from GIZ-BMU, REDD-net, NORAD, ASFN, and SDC, brought together 13 climate change and forestry experts in Quezon City, Philippines, to discuss the implications on the forestry sector in the Asia-Pacific region of decisions taken at COP 17, held in Durban, South Africa, in November and December 2011. This booklet summarizes their responses to a set of 13 key questions raised at the workshop. The booklet

TFD Review. Giving REDD+ Life. Integrating REDD+ with Broader Development Goals. Summary and Recommendations from TFD's Multi-stakeholder Dialogue Initiative on REDD+ Readiness, 2009-2012

TFD

This report draws on The Forests Dialogue's REDD+ readiness dialogue series, which took place in six countries — Brazil, Ghana, Guatemala, Ecuador, Cambodia and Switzerland — between October 2009 and March 2011. The series involved 240 key stakeholders from more than 30 countries representing governments, businesses, communities, non-governmental organizations, resource owners and managers and academia. The report

Review of current tools and methods for REDD+ and REALU value chains

ASB and World Agroforestry Centre

In the context of the wider debate on reduction of carbon emissions from tropical deforestation and forest degradation, this report reviews current tools and methodologies for the planning of emissions reductions projects across all land uses in a REALU (Reducing Emissions from All Land Uses) value chain. This work supports Phase II of the REALU project, a joint effort of the ASB Partnership and several partner organizations. The overarching goal of this project is to develop, through action research, a set of approaches, methodologies and national capacity to implement effective landscape-based strategies for reducing emissions from deforestation and degradation (REDD+), within a context of sustainable rural development, national sovereignty, respect for indigenous rights, and integrity of a global Greenhouse Gas (GHG) accounting system.

Phase I of this project was based on research and reviews of key areas to enhance understanding of landscape approaches to REDD+ and the implications for ongoing UNFCCC negotiations. Phase II emphasizes demonstration landscapes, national level backstopping through UN-REDD and FCPF (Forest Carbon Partnership Facility) processes and the generation of comparative action research on global landscape approaches to reducing emissions, including but not limited to REDD+. The project is occurring in four countries: Cameroon, Indonesia, Peru and Vietnam. This report summarizes the results of a workshop conducted to review mainly current ICRAF tools developed to support REDD+ and REALU projects. The workshop took place in Amsterdam, Netherlands, on the 19th and 20th of April, 2011 at the Vrije Universiteit (IVM), with the generous support of the Government of Norway. The workshop was organized within Project Objective 1: backstop country level planning and implementation of whole-landscape approaches to REDD+ through the provision of methods, tools and relevant training at multiple levels within the framework of multi-lateral initiatives such as the Forest Carbon Partnership Facility (FCPF) and UN-REDD. The report

FNI Climate Policy Perspectives 4. Seeing the Forest for the Trees. Drivers & Barriers for REDD

Greater coordination amongst donor countries is required in order to secure environmental and social standards and to monitor the readiness of host countries to move from the preparatory phase of REDD to generating actual reductions in emissions. Clear and binding environmental and social safeguards must be implemented to ensure equal credible standards for all REDD actors. Alternatives to public financing of REDD are necessary to secure long-term effectiveness of the mechanism. Demand for REDD is dependent on internationally agreed compliance obligations to reduce greenhouse gas emissions; demands from individual national emissions trading systems may impair the environmental quality of emission reduction units. The report

REDD+ ToT Manual for National and Subnational-level Facilitators

RECOFTC

Among various options being suggested to reduce the impact of greenhouse gas emissions or climate change effects, reducing deforestation and forest degradation (REDD) is being suggested as one of the most economical methods. Forests, as we know, act both as a sink and source of CO2 emissions. The basic idea behind REDD is simple: countries (and communities) that are willing and able to reduce emissions from deforestation and degradation should be financially compensated for doing so. This facilitators training manual has been prepared as an attempt to address the growing needs of capacity building for REDD+ in Nepal. The major objectives of this manual are to create a human resource base, which can facilitate the training and capacity building of the forestry sector grassroots stakeholders, preparing them to contribute in the evolving process of REDD+ and ultimately make them able to get benefits from the mechanism. The manual

La préparation du mécanisme REDD+ au Mexique. Quelles perspectives environnementales pour les forêts tropicales ?

AFD

Environ 13 millions d'hectares de forêts disparaîtraient chaque année, et ce, principalement en zone tropicale. Alarmante à divers égards, cette dégradation impacte notamment le changement climatique de manière très significative. Pour infléchir cette situation, la communauté internationale travaille depuis plusieurs années à la construction d'un mécanisme de Réduction des émissions liées à la déforestation et à la dégradation des forêts (REDD+). Que peut-on dire aujourd'hui de ce mécanisme de réduction des émissions liées à la déforestation et à la dégradation des forêts (REDD+) au vu de la tournure prise par sa phase de préparation ? Quelles perspectives environnementales semble-t-il offrir aux forêts tropicales ? Telles sont les questions auxquelles s'intéresse cet ouvrage, en s'appuyant sur le cas spécifique du Mexique, qui fait partie des pays les plus activement engagés dans cette phase de préparation à REDD+. Le document

Tropical wetlands for climate change adaptation and mitigation

Tropical forested wetlands, especially peat swamp forests and mangroves, provide numerous environmental services and critical ecological functions, affecting both upland and oceanic ecosystems and the people who depend on them. These forests offer protection from storms and tsunamis, flood control, regulation of water quality, breeding and rearing habitats for many species of fish and shellfish, sources of wood and other forest products, and great biodiversity as habitats for many rare and endangered plant, animal and insect species. They are also a source of nutrients and energy for adjacent habitats including seagrass and coral reefs, and are also valued for aesthetics and ecotourism. Tropical wetlands have been used for centuries by indigenous people for wood, thatch, medicines, dyes, and fish and shellfish. Perhaps the least investigated, yet critically important ecosystem service of tropical wetlands, is providing a carbon sink. Because tropical wetlands have high rates of primary productivity as well as anaerobic soil conditions that limit decomposition, carbon stocks are among the highest of any forest type. The publication

IUFRO Annual Report 2011

IUFRO

The International Year of Forests was an excellent opportunity for IUFRO to increase the visibility of forest science and promote science-based knowledge to a wider audience in line with our strategic goals. IUFRO also put on track six new Task Forces dealing with the cross-cutting key thematic areas identified in the IUFRO Strategy. The work in the nine IUFRO Divisions as well as in Programmes, Projects and IUFRO-led Initiatives was also highly successful throughout the year. Find details about all these activities as well as facts and figures about the organization in the IUFRO Annual Report 2011. The report

Into Unknown Territory. The limits to adaptation and reality of loss and damage from climate impacts

Actionaid, CARE, GermanWatch, WWF

This paper contextualises issues around loss and damage as a result of climate change and demonstrates the urgent necessity for a range of approaches to address it through scaled up adaptation and mitigation measures. The paper

REDD+ and community forestry: Lessons Learned from an exchange of Brazilian experiences with Africa

The World Bank, Fundacao Amazonas Sustentavel, Forest Carbon Partnership Facility

This publication brings together information, analyses, and conclusions on issues relevant to the design and implementation of national REDD+ strategies. These findings do not represent the official position of any of the institutions or governments involved. This publication aims to promote a discussion on the role of community forest management as a strategic option to promote REDD+ goals, and, conversely, on ways REDD+ can foster community management of forests, both in theory and in practice. The publication

VI. JOBS

Researcher at the EFI headquarters, Joensuu, Finland

EFI - Deadline for Application is 30th of June 2012

European Forest Institute (EFI) is now seeking a (Post-Doc) Researcher for the Sustainability and Climate Change Research Programme at the EFI headquarters, Joensuu, Finland. More

HEAD TECHNICAL UN-REDD SECRETARIAT

UNEP - Deadline for Application is 6th of July 2012

The UN-REDD Programme is seeking a suitable candidate for the post of Head Technical, UN-REDD Programme Secretariat. More

VII. ANNOUNCEMENTS

MSc programme in Carbon Finance

University of Edinburgh Business School

This programme is the world's first MSc in Carbon Finance, dedicated to professionals in the carbon market and climate change investment field and focussed on the business opportunities and financial flows driven by society's response to climate change. The deadline for application is 2nd of July. More

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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