CLIM-FO Climate Change & Forestry

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Food and Agriculture Organization of the United Nations

CONTENTS

I. IN THE PRESS

12 April 2012 - Forest Carbon Portal

Landmark indigenous carbon project earns validation

A first-of-its kind carbon project has earned dual validation under both the VCS and CCB, raising the bar for socially and environmentally sustainable forest carbon projects, preserving forest livelihoods and charting a course for other indigenous tribes in Brazil and around the world.

11 April 2012 - CIFOR

Woodfuel causes deforestation in Congo Basin yet is potential renewable energy source

Woodfuel overexploitation resulting from high dependency on the resource in Africa's Congo Basin is causing degradation and deforestation near areas with high demand yet it remains a potential renewable energy supply, a study notes

10 April 2012 - UNEP

More Support Needed for Climate Change Adaptation in Africa, says Workshop

Around 120 representatives from some 20 African countries, NGOs, UN Agencies and other organizations have together stressed the need for greater support for climate change adaptation efforts in Africa, following a workshop held at the headquarters of the UN Environment Programnme (UNEP).

5 April 2012 - Mongabay

Brazil can eliminate deforestation by 2020, says governor of giant Amazon state

Long seen as a pariah for its high rate of deforestation, the world is starting to look to the Brazilian state of Pará for ideas to protect rainforests.

2 April 2012 - UNU

Workshop: indigenous knowledge for climate change mitigation

On 26-28 March, indigenous experts, climate scientists and representatives of United Nations bodies met in Cairns, Australia, for a three-day workshop on "Climate Change Mitigation with Local Communities and Indigenous Peoples: Practices, Lessons Learned and Prospects".

28 March 2012 - Nature

Farm focus for saving trees. Round-table talks aim to slow climate warming by transforming agriculture

The principle is seductively simple: to reduce carbon emissions, leave tropical forests standing. But a widely heralded approach in which rich nations would pay poorer ones to keep their forests intact has proved trickier to deploy than many had hoped. Now a consortium of scientists, environmentalists and industries is expanding the focus from preserving forests to tackling the main driver of deforestation: agriculture.

27 March 2012 - The New York Times

A Clearer Picture of Tropical Carbon

Tropical forests, alongside boreal forests and wetlands, are prime ecosystems for storing carbon. Now, researchers have created a new high-resolution map of carbon storage in tropical forests that could play an important role in effective forest management.

23 March 2012 - IISD

GEF approves first's two projects under the SFM/REDD+ window

The Global Environment Facility (GEF) has approved its first two projects, in Togo and Azerbaijan, under the sustainable forest management (SFM) and reducing emissions from deforestation and forest degradation in developing countries, as well as conservation, sustainable management of forests, and enhancement of carbon stocks (REDD+) window approved as a result of the GEF's fifth replenishment.

19 March 2012 IISD

FAO LAC Forestry Commission Discusses Climate Change, Forest Management

The 27th meeting of the UN Food and Agriculture Organization's (FAO) Latin American and Caribbean Forestry Commission (LACFC) has developed recommendations to FAO about forest genetic resources, climate change, sustainable forest management (SFM) and priorities for the draft work programme of FAO's Committee on Forestry (COFO).

15 March 2012 - CIFOR

Well-managed logging concession areas could boost REDD+ carbon stocks in Congo Basin

A new CIFOR project in the Congo Basin is hoping to bolster scientific evidence that proves sustainable timber production in forests logged by private companies and local communities could increase carbon stocks needed to reduce greenhouse gas emissions that contribute to global warming.

II. UNFCCC NEGOTIATIONS AND RELATED DISCUSSIONS

United Nations Framework Convention on Climate Change

No negotiations have taken place since the December 2011 issue. The next negotiations will take place in Bonn, Germany from 14 May to 25 May 2012. The following bodies and working groups will meet: the 36th sessions of the Subsidiary Body for Implementation (SBI) and the Subsidiary Body for Scientific and Technological Advice (SBSTA), the 15th session of the AWG-LCA, the 17th session of the AWG-KP and the first session of the Ad Hoc Working Group on the Durban Platform for Enhanced Action.

Detailed information on agenda items at the Bonn meetings of relevance is available on FAO's forests and climate change website (**http://www.fao.org/forestry/climatechange/en**). The information is taken from the UNFCCC Secretariat Notes providing annotated agendas of the Bonn meetings of the various bodies. The following information highlights only key points.

The Bonn meetings will continue to address **REDD+** issues, both through discussions in SBSTA and in AWG-LCA.

SBSTA (Agenda Item 4) will:

- Continue its work on methodological guidance relating to modalities for measuring, reporting and verifying and for national forest monitoring systems and on how to address drivers of deforestation and forest degradation, taking into consideration Parties and accredited observers views as contained in document *FCCC/SBSTA/2012/MISC.1*.
- Consider the timing of the presentation of the summary of information on how all safeguards are being addressed and respected and to consider the need for further guidance on this matter;
- Develop guidance for a process, to be established by the COP, that enables technical assessment of the proposed forest reference emission levels and/or forest reference levels when submitted or updated by Parties.

AWG-LCA (Agenda Item 3(b)iii) will:

- Address the issue of modalities and procedures for financing results-based actions (in REDD+), Views submitted by Parties are contained in document *FCCC/AWGLCA/2012/MISC.3*

Other forest issues to be discussed by SBSTA (Agenda Item 11) are as follows:

- Inclusion of reforestation of lands with forest in exhaustion as afforestation and reforestation clean development mechanism project activities
- Land use, land-use change and forestry under Article 3, paragraphs 3 and 4, of the Kyoto Protocol and under the clean development mechanism

Other things to watch in the Bonn meetings include:

- Discussion of nationally appropriate mitigation actions (NAMAs) by developing countries (AWG-LCA agenda item 3(b)ii and SBI item 5.
- Discussions on adaptation (SBSTA item 3(c) and AWG-LCA items 8 and 9
- Discussions on agriculture (SBSTA item 9)
- Progress in reaching agreement on the parameters of the second commitment period of the Kyoto Protocol (AWG-KP) and regarding development of the legal instrument under the Convention intended to enter into force by 2020 (ADB).

Between now and COP18 in Doha in November 2012, the following will take place:

30 August-5 September, Bangkok: Additional official meetings of the Ad Hoc Working Groups (LCA, KP and ADB).

Parties and accredited observers are invited to submit their views to UNFCCC on various issues, as decided by UNFCCC and listed in the UNFCCC document
http://unfccc.int/files/parties_and_observers/notifications/application/pdf/message_to_parties__submission_of_views__jan_2012_corr.pdf

III. EVENTS & MEETINGS

Upcoming events

24th International Climate Policy PhD Workshop

3-4 May 2012, Freiburg, Germany

The ICP workshops series is organised twice per year under the auspices of the European Ph.D. Network on International Climate Policy (ICP). It aims to offer doctoral candidates the opportunity to present their research ideas and results, receive feedback, and exchange information and assistance in an informal setting. Contributions of Ph.D. students from all disciplines working on topics relevant to climate policy are invited. Participation is free of charge, but participants are expected to cover their travel and accommodation expenses. We seek to bring together 30-40 Ph.D. students, who present and discuss their work. Each presentation will be followed by comments of a fellow Ph.D. candidate and a discussion of the paper. There will be a small number of places available for participants without own presentation. However, active involvement is required. Each participant may be asked to serve as a discussant for a presentation in a related field. Deadline for submission of abstract is 29 January 2012. **More**

Tackling Climate Change: The Contribution of Forest Scientific Knowledge

21-24 May 2012, Tours, France

This international conference will focus on the current state of knowledge on climate change impacts on forest ecosystems, services and activities. It will highlight methods and challenges to mitigate or tackle climate change impacts, both before they arise and once they have occurred. It will show how emerging science can address the issues facing forest managers. **More**

Adaptation Futures – 2012 International Conference on Climate Adaptation

29-31 May 2012, Arizona, USA

The conference focuses on adaptation to climate variability and change. The conference will bring together researchers, policy makers, and practitioners from developed and developing countries to share insights into the challenges and opportunities that adaptation presents. It will showcase cutting-edge research from around the world, focusing on themes of equity and risk, learning, capacity building, methodology, and adaptation finance and investment. It will explore practical adaptation policies and approaches, and share strategies for decision making from the international to the local scale. **More**

Rio + 20. United Nations Conference on Sustainable Development

20-22 June 2012, Rio de Janeiro, Brazil

The objective of the Conference is to secure renewed political commitment for sustainable development, assess the progress to date and the remaining gaps in the implementation of the outcomes of the major summits on sustainable development, and address new and emerging challenges. The Conference will focus on two themes: i) green economy in the context of sustainable development and ii) the institutional framework for sustainable development. **More**

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**

The World Clean Technology Summit (WCTS)

26-28 September 2012, Kampala, Uganda

The World Clean Technology Summit will bring together world leaders in renewable energy, Forestry, exhibitors, investors, scientists and clean technology providers from around the world to engage, interact with each other, exchange business contacts, forge partnerships, and pave a way forward for a sustainable future. **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. Deadline for submission of abstracts is 15 May 2012.

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**

North American Forest Commission (NAFC)

8-9 May 2012, Quebec, Canada

Established in 1958, the North American Forest Commission (NAFC) is one of six Regional Forestry Commissions established by FAO to provide a policy and technical forum for countries to discuss and address forest issues on a regional basis. It meets every two years. NAFC also supports research and sustainable natural resource management activities through working groups. FAO encourages wide participation of government officials from forestry and other sectors as well as representatives of international, regional and subregional organizations that deal with forest-related issues in the region, including NGOs, and the private sector. **More**

IV. RESEARCH ARTICLES

Socioeconomic factors affecting farmers' awareness of clean development mechanism projects: case of smallholder forest carbon projects

Ayuya, O. I.; Lagat, J. K.; Mironga, J. M.; Mutai, B. K

Current Research Journal of Social Sciences. 2011. 3: 3, 213-218

The objective of the study was to identify the socio-economic and institutional factors which influence the level of awareness of Clean Development Mechanism (CDM) projects and in so doing to highlight the policy implications for the stakeholders when designing clean development mechanism projects among smallholder farmers. Findings shows that 23% of the farmers were correctly aware of the project and the results of the ordered logit model indicate that age, gender, education level, group membership, existence of tree farming and contact with extension services was found to influence awareness level of smallholder forest Carbon projects. To assist the community to adapt to climate change and produce sufficiently on a sustainable basis and achieve the desired food security under climate change challenges, the study recommends policies to increase awareness of such agro-environmental initiatives and that of extension providers should distinguish their clientele anchored on vital demographic characteristics such as age and gender. If the probability of younger farmers to be aware this initiative is higher, extension communications should be directed to such age group, particularly during initial stages project information dissemination.

Securing landscape resilience to tropical cyclones in Australia's Wet Tropics under a changing climate: lessons from Cyclones Larry (and Yasi)

Turton, S. M.

Geographical Research. 2012. 50: 1, 15-30.

Tropical cyclones are part of the ecosystem dynamics of rainforests in the Wet Tropics of Australia, and intact forest areas show remarkable ability to recover from cyclonic disturbance. However, forest remnants, littoral rainforests, and riparian vegetation have been shown to be particularly susceptible to cyclonic winds and post-disturbance weed invasion with consequences for their long-term conservation values. I evaluate the frequency and intensity of tropical cyclones impacting the Wet Tropics region since records began in 1858. The recent Category 4 cyclones featured in this study, Larry and Yasi, had return intervals of about one in 70 years. I then discuss the natural resource management (NRM) lessons from Cyclone Larry and put forward practical recommendations on how authorities should deal with natural resources in the clean-up and recovery phases. I argue that natural resources must be treated as valuable commodities by including their protection and rehabilitation in the same way that human livelihoods, infrastructure and industry are covered in disaster management planning. This requires NRM issues to be included in disaster response policy and legislation, together with ensuring that structures are in place to mitigate the effects of cyclones on natural resources. There is a general consensus that tropical cyclone intensity will increase under climate change while frequency will decrease slightly. This has profound implications for the long-term sustainability of ecosystems in the Wet Tropics. There is a real risk of a phase shift to vegetation types dominated by disturbance species, including weeds, at the expense of cyclone intolerant species. It is therefore important that we begin to build more cyclone resilient landscapes to reduce the vulnerability of our remaining rainforest habitats and primary production systems. Securing landscape resilience requires greater NRM investment in key areas, including landscape connectivity, river repair, protecting coastal assets and cyclone resilient farms. While climate change poses a long-term threat to the rainforests of the region, we need to focus on more immediate pressures affecting our remaining biodiversity, notably clearing of native habitat, habitat fragmentation and degradation, and biosecurity issues.

Biodiversity and Climate Change Adaptation in Australia: Strategy and Research Developments

Booth, T.H.

ADVANCES IN CLIMATE CHANGE RESEARCH 3(1): 12-21

Many countries are developing national strategies and action plans aimed at minimising the negative impacts of climate change on biodiversity. The purpose of this paper is to provide a brief overview not only of strategies and plans that have been developed in Australia, but also of research that has been carried out in Australia by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Climate Adaptation Flagship to assist the development of future strategies and plans. Major points are summarised from key policy documents such as the National Biodiversity and Climate Change Action Plan 2004-2007, and Australia's Biodiversity Conservation Strategy 2010-2030, as well as the 2009 report on Australia's Biodiversity and Climate Change". Within the first three years of its existence, the Natural Ecosystems theme in CSIRO Climate Adaptation Flagship has carried out studies analysing impacts and identifying potential adaptations across the whole of

Australia's vast terrestrial and marine environments. Techniques used in these studies could be applied easily in other countries and could assist the development of more effective national strategies and adaptation action plans for the conservation of biodiversity under climate change.

The struggle over Asia's forests: an overview of forest conflict and potential implications for REDD+

Yasmi, Y., Kelley, L., Murdiyarso, D., Patel, T.

International Forestry Review 14 (1): 99-109.

The management of Asia's forests affects diverse stakeholders and interests, inevitably resulting in conflict. This study focuses on conflicts between local communities and outsiders: the underlying causes, conflict management approaches, and eventual outcomes. Field data was collected through interviews and focus group discussions in seven community-outsider conflict cases across five countries. While many direct conflict triggers were observed, at least three underlying and interrelated factors enabled conflict: contested statutory and customary tenure, exclusionary conservation and economic development policies, and poor coordination between land use planning agencies. The range of observed conflict management techniques (negotiation, mediation, coercion, avoidance) reflected varying power relationships and political contexts. The techniques' success in all cases was relatively low due to the complexity of addressing tenure and exclusion issues. The results underline the need to involve local people in the design of the evolving REDD+ mechanism, as well as to ensure their rights and benefits.

Reducing emissions from deforestation and forest degradation (REDD+): game changer or just another quick fix?

Venter, O.; Koh LianPin

Annals of the New York Academy of Sciences. 2012. 1249: 137-150

Reducing emissions from deforestation and forest degradation (REDD+) provides financial compensation to land owners who avoid converting standing forests to other land uses. In this paper, we review the main opportunities and challenges for REDD+ implementation, including expectations for REDD+ to deliver on multiple environmental and societal co benefits. We also highlight a recent case study, the Norway-Indonesia REDD+ agreement and discuss how it might be a harbinger of outcomes in other forest-rich nations seeking REDD+ funds. Looking forward, we critically examine the fundamental assumptions of REDD+ as a solution for the atmospheric build up of greenhouse gas emissions and tropical deforestation. We conclude that REDD+ is currently the most promising mechanism driving the conservation of tropical forests. Yet, to emerge as a true game changer, REDD+ must still demonstrate that it can access low transaction cost and high volume carbon markets or funds, while also providing or complimenting a suite of nonmonetary incentives to encourage a developing nation's transition from forest losing to forest gaining, and align with, not undermine, a globally cohesive attempt to mitigate anthropogenic climate change.

Benefits and costs of improved cookstoves: assessing the implications of variability in health, forest and climate impacts

Jeuland, M. A.; Pattanayak, S. K

PLoS ONE. 2012. 7: 2

Current attention to improved cook stoves (ICS) focuses on the "triple benefits" they provide, in improved health and time savings for households, in preservation of forests and associated ecosystem services, and in reducing emissions that contribute to global climate change. Despite the purported economic benefits of such technologies, however, progress in achieving large-scale adoption and use has been remarkably slow. This paper uses Monte Carlo simulation analysis to evaluate the claim that households will always reap positive and large benefits from the use of such technologies. Our analysis allows for better understanding of the variability in economic costs and benefits of ICS use in developing countries, which depend on unknown combinations of numerous uncertain parameters. The model results suggest that the private net benefits of ICS will sometimes be negative, and in many instances highly so. Moreover, carbon financing and social subsidies may help enhance incentives to adopt, but will not always be appropriate. The costs and benefits of these technologies are most affected by their relative fuel costs, time and fuel use efficiencies, the incidence and cost-of-illness of acute respiratory illness, and the cost of household cooking time. Combining these results with the fact that households often find these technologies to be inconvenient or culturally inappropriate leads us to understand why uptake has been disappointing. Given the current attention to the scale up of ICS, this analysis is timely and important for highlighting some of the challenges for global efforts to promote ICS.

Complex response of the forest nitrogen cycle to climate change

Bernal, S.; Hedin, L. O.; Likens, G. E.; Gerber, S.; Buso, D. C.

Proceedings of the National Academy of Sciences of the United States of America. 2012. 109: 9, 3406-3411

Climate exerts a powerful influence on biological processes, but the effects of climate change on ecosystem nutrient flux and cycling are poorly resolved. Although rare, long-term records offer a unique opportunity to disentangle effects of climate from other anthropogenic influences. Here, we examine the longest and most complete record of watershed nutrient and climate dynamics available worldwide, which was collected at the Hubbard Brook Experimental Forest in the northeastern United States. We used empirical analyses and model calculations to distinguish between effects of climate change and past perturbations on the forest nitrogen (N) cycle. We find that climate alone cannot explain the occurrence of a dramatic >90% drop in watershed nitrate export over the past 46 y, despite longer growing seasons and higher soil temperatures. The strongest climate influence was an increase in soil temperature accompanied by a shift in paths of soil water flow within the watershed, but this effect explained, at best, only ~40% of the nitrate decline. In contrast, at least 50-60% of the observed change in the N export could be explained by the long-lasting effect of forest cutting in the early 1900s on the N cycle of the soil and vegetation pools. Our analysis shows that historic events can obscure the influence of modern day stresses on the N cycle, even when analyses have the advantage of being informed by 0.5-century-long datasets. These findings raise fundamental questions about interpretations of long-term trends as a baseline for understanding how climate change influences complex ecosystems.

No pay, no care? A case study exploring motivations for participation in payments for ecosystem services in Uganda

Fisher, J.

Oryx. 2012. 46: 1, 45-54.

A key question in the literature on payments for ecosystem services (PES) is how payments incentivize conservation action and, in particular, how they interact with other motivations, including motivations for environmental stewardship. Related to this question are concerns about the temporal sustainability of PES: what happens when payments cease and whether a 'no pay, no care' environmental ethic is fostered. I present empirical research from a case study in western Uganda, where forest-adjacent communities are paid in exchange for planting trees on private lands, for carbon sequestration. The study demonstrates the range of values people have for trees in the landscape and the range of motivations for participating in PES schemes. However, the analysis shows that payments are clearly the main motivation for involvement, except in one area where people are more motivated by aesthetic and existence values for trees. Given the widespread importance of money in motivating involvement, I investigate the profitability of participation over time. This profitability analysis, in combination with qualitative data on perceptions of, and plans for, the future, contributes to understanding the temporal sustainability of PES. I draw on various strands of evidence to argue that the way participants prioritize payments may constitute a threat to the long-term maintenance of PES activities, particularly in situations such as in this case study, in which there is a mismatch between payments and contract length.

Conserve or convert? Pan-tropical modeling of REDD-bioenergy competition

Persson, U. M.

Biological Conservation. 2012. 146: 1, 81-88

The land competition between tropical bioenergy plantations and payments for forest carbon conservation (e.g., through an international scheme for Reduced emissions from deforestation and forest degradation, REDD+) is modeled using spatially explicit data on biofuel feedstock (oil palm and sugar cane) suitability and forest biomass carbon stocks. The results show that a price on the (avoided) carbon emissions from deforestation at the same level as those from fossil fuel use makes clearing for high yielding bioenergy crops unprofitable on about 60% of the tropical evergreen forest area. For the remaining 40% deforestation remains the most profitable option. Continued profitability of forest clearing is most pronounced for oil palm bioenergy systems in Latin America and Africa, with REDD+ making deforestation for sugar cane plantations unprofitable on 97% of evergreen forest land. Results are shown to be relatively robust to assumptions regarding potential yields and to the addition of a 'biodiversity premium' on land use change emissions. While REDD+ may play an important role in stemming biodiversity loss and reducing carbon emissions from tropical deforestation in the near future, in the longer run reliance on a system that values forests solely for their carbon retention capacities poses a serious risk. It is imperative that the institutions and policies currently being established as part of REDD+ readiness activities are resilient to future changes in the incentive structures facing tropical forest countries due to, e.g., climate policy induced demand for biofuels.

Long-distance gene flow and adaptation of forest trees to rapid climate change

Kremer, A.; Ronce, O.; Robledo-Arnuncio, J. J.; Guillaume, F.; Bohrer, G.; Nathan, R.; Bridle, J. R.; Gomulkiewicz, R.; Klein, E. K.; Ritland, K.; Kuparinen, A.; Gerber, S.; Schueler, S

Ecology Letters. 2012. 15: 4, 378-392

Forest trees are the dominant species in many parts of the world and predicting how they might respond to climate change is a vital global concern. Trees are capable of long-distance gene flow, which can promote adaptive evolution in novel environments by increasing genetic variation for fitness. It is unclear, however, if this can compensate for maladaptive effects of gene flow and for the long-generation times of trees. We critically review data on the extent of long-distance gene flow and summarise theory that allows us to predict evolutionary responses of trees to climate change. Estimates of long-distance gene flow based both on direct observations and on genetic methods provide evidence that genes can move over spatial scales larger than habitat shifts predicted under climate change within one generation. Both theoretical and empirical data suggest that the positive effects of gene flow on adaptation may dominate in many instances. The balance of positive to negative consequences of gene flow may, however, differ for leading edge, core and rear sections of forest distributions. We propose future experimental and theoretical research that would better integrate dispersal biology with evolutionary quantitative genetics and improve predictions of tree responses to climate change.

Harnessing the climate commons: an agent-based modelling approach to making reducing emission from deforestation and degradation (REDD) + work

Purnomo, H., Suyamto, H., Harini Irawati, R.

Mitigation and Adaptation Strategies for Global Change. DOI: 10.1007/s11027-012-9370-x

Humans have created a worldwide tragedy through free access to the global common atmosphere. The Conference of the Parties (COP) on climate change increased political commitment to reduce emission from deforestation and degradation and to enhance carbon stocks (REDD+). However, government sectors, political actors, business groups, civil societies, tree growers and other interest groups at different levels may support or reject REDD+. The paper used Arena-Actor-Institution concept to understand REDD+and provides agent-based modeling approach to harnessing its processes. The model explores: (a) how providers are likely to decrease or increase carbon stocks on their landscapes under 'business as usual' institutions; (b) how they are likely to negotiate with potential buyers with regards to the involvement of brokers (governments or nongovernmental organizations); and (c) how altruism and collaboration can affect the affectivity of REDD+. The model was developed as a spatially explicit model to consider the complexity of REDD+target landscapes. The simulation results are examined against the 3E+criteria, i.e. effectiveness in carbon emission reduction, cost efficiency and equity among involved stakeholders and co-benefit of other activities. This study took the Jambi landscape in Indonesia as a case. The results explain how REDD+agreement areas increase with higher carbon prices, e.g. US25 or US25orUS35. However, the simulation also shows that even with low carbon prices GHG emissions will decrease if the altruism degree and collective actions of the actors increases. The paper describes institutional arrangements which would help to harness the global commons of climate change.

Land cover change in the Bolivian Amazon and its implications for REDD+ and endemic biodiversity

Sangermano, F., Toledano, J., Eastman, J.R.

Landscape Ecology 27 (4): 571-584

Tropical deforestation is a major contributor to green house gas emissions in developing countries. Incentive mechanisms, such as reducing emissions from deforestation and forest degradation (REDD), are currently being considered as a possible emissions reduction and offset solution. Although REDD has expanded its scope to include co-benefits such as sustainable management of forests and biodiversity conservation (known as REDD+), current carbon-base methodologies do not specifically target projects for the parallel protection of these co-benefits. This study demonstrates the incorporation of both carbon and biodiversity benefits within REDD+ in the Bolivian Amazon, through the analysis of land cover change and future change scenario modeling to the year 2050. Current protected areas within the Bolivian Amazon were evaluated for REDD+ project potential by identifying concordant patterns of carbon content, species biodiversity and deforestation vulnerability. Biodiversity-based versus carbon-based protection schemes were evaluated and protected areas were prioritized using irreplaceability-vulnerability plots. Deforestation projection scenarios to the year 2050 varied depending on the historical period analyzed, producing low, intermediate and high deforestation scenarios. All scenarios showed increasing deforestation pressure in the northern region of Bolivia along with high levels of biodiversity loss. Expected reductions in the carbon pool ranged from 8 to 48%, for the low and high demand

scenarios respectively. Some protected areas presented large numbers of endemic species, high concentrations of carbon and high deforestation vulnerability, demonstrating the potential for win–win REDD+ projects in Bolivia.

Forest fragmentation, climate change and understory fire regimes on the Amazonian landscapes of the Xingu headwaters

Soares-Filho, B., Silverstrini, R., Nepstad, D., Brando, P., Rodrigues, H., Alencar, A., Coe, M., Locks, C., Lima, L., Hissa, L., Stickler, C.

Landscape Ecology 27: 585-598

Understory fire modeling is a key tool to investigate the cornerstone concept of landscape ecology, i.e. how ecological processes relate to landscape structure and dynamics. Within this context, we developed FISC—a model that simulates fire ignition and spread and its effects on the forest carbon balance. FISC is dynamically coupled to a land-use change model to simulate fire regimes on the Amazonian landscapes of the Xingu Headwaters under deforestation, climate change, and land-use management scenarios. FISC incorporates a stochastic cellular automata approach to simulate fire spread across agricultural and forested lands. CARLUC, nested in FISC, simulates fuel dynamics, forest regrowth, and carbon emissions. Simulations of fire regimes under modelled scenarios revealed that the major current and future driver of understory fires is forest fragmentation rather than climate change. Fire intensity proved closely related to the landscape structure of the remaining forest. While climate change may increase the percentage of forest burned outside protected areas by 30% over the next four decades, deforestation alone may double it. Nevertheless, a scenario of forest recovery and better land-use management would abate fire intensity by 18% even in the face of climate change. Over this time period, the total carbon balance of the Xingu's forests varies from an average net sink of 1.6 ton ha−1 year−1 in the absence of climate change, fire and deforestation to a source of −0.1 ton ha−1 year−1 in a scenario that incorporates these three processes.

A universal airborne LiDAR approach for tropical forest carbon mapping

Asner, G.P., Mascaro, J., Muller-Landau, H.C., Vieilledent, G., Vaudry, R., Rasamoelina, M., S.H, Jefferson,. Van Breugel, M.

Oesologia 168: 1147-1160

Airborne light detection and ranging (LiDAR) is fast turning the corner from demonstration technology to a key tool for assessing carbon stocks in tropical forests. With its ability to penetrate tropical forest canopies and detect three-dimensional forest structure, LiDAR may prove to be a major component of international strategies to measure and account for carbon emissions from and uptake by tropical forests. To date, however, basic ecological information such as height–diameter allometry and stand-level wood density have not been mechanistically incorporated into methods for mapping forest carbon at regional and global scales. A better incorporation of these structural patterns in forests may reduce the considerable time needed to calibrate airborne data with ground-based forest inventory plots, which presently necessitate exhaustive measurements of tree diameters and heights, as well as tree identifications for wood density estimation. Here, we develop a new approach that can facilitate rapid LiDAR calibration with minimal field data. Throughout four tropical regions (Panama, Peru, Madagascar, and Hawaii), we were able to predict aboveground carbon density estimated in field inventory plots using a single universal LiDAR model ($r^2 = 0.80$, RMSE = 27.6 Mg C ha−1). This model is comparable in predictive power to locally calibrated models, but relies on limited inputs of basal area and wood density information for a given region, rather than on traditional plot inventories. With this approach, we propose to radically decrease the time required to calibrate airborne LiDAR data and thus increase the output of high-resolution carbon maps, supporting tropical forest conservation and climate mitigation policy.

An assessment of the impact of climate adaptation measures to reduce flood risk on ecosystem services

Verburg, P.H., Koomen, E., Hilferink, M., Pérez-Soba, M., Lesschen, J.P.

Landscape Ecology 17 (4): 473-486

Measures of climate change adaptation often involve modification of land use and land use planning practices. Such changes in land use affect the provision of various ecosystem goods and services. Therefore, it is likely that adaptation measures may result in synergies and trade-offs between a range of ecosystems goods and services. An integrative land use modelling approach is presented to assess such impacts for the European Union. A reference scenario accounts for current trends in global drivers and includes a number of important policy developments that correspond to on-going changes in European policies. The reference scenario is compared to a policy scenario in which a range of measures is implemented to regulate flood risk and protect soils under conditions of climate change. The impacts of the simulated land use dynamics are assessed for four

key indicators of ecosystem service provision: flood risk, carbon sequestration, habitat connectivity and biodiversity. The results indicate a large spatial variation in the consequences of the adaptation measures on the provisioning of ecosystem services. Synergies are frequently observed at the location of the measures itself, whereas trade-offs are found at other locations. Reducing land use intensity in specific parts of the catchment may lead to increased pressure in other regions, resulting in trade-offs. Consequently, when aggregating the results to larger spatial scales the positive and negative impacts may be off-set, indicating the need for detailed spatial assessments. The modelled results indicate that for a careful planning and evaluation of adaptation measures it is needed to consider the trade-offs accounting for the negative effects of a measure at locations distant from the actual measure. Integrated land use modelling can help land use planning in such complex trade-off evaluation by providing evidence on synergies and trade-offs between ecosystem services, different policy fields and societal demands.

Capacity development of local communities for project sustainability in afforestation/reforestation clean development mechanism

Yamanoshita, M.Y. & Amano, M.

Mitigation and Adaptation Strategies for Global Change 17 (4): 425-440

It has been recognized that the involvement of local community is essential to ensure the sustainability of A/R CDM (afforestation/reforestation clean development mechanism) project. This study verifies if the risks of non-permanence and leakage are addressed in a registered small scale A/R CDM project in Vietnam. Workshops, interviews, and a questionnaire survey of local villagers revealed that the project has caused a shortage of land for conventional activities such as grazing, fuel wood collection and shifting cultivation, and consequently posed the risks of project non-permanence and leakage. It is suggested that participation of all stakeholders in the community to the A/R CDM project beyond existing land tenure and adequate carbon benefit sharing according to the level of contribution to the project are required to reduce the risk of non permanence. To ensure the participation, the community should have capability such as consensus building and collective action. Leakage would be minimized if the community has alternative measures to the conventional activities before starting the project. We argue that it is necessary to first develop a community's capabilities in the readiness phase of any A/R CDM project in order to reduce the risks for the project sustainability, and that new sources of funding are needed for this purpose.

The Prospects for Payment for Ecosystem Services (PES) in Vietnam: A Look at Three Payment Schemes

To, P.X., Dressler, W.H., Mahanty, S., Pham, T.T., Zingerli, C.

Human Ecology 40 (2): 237-249

Global conservation discourses and practices increasingly rely on market-based solutions to fulfill the dual objective of forest conservation and economic development. Although varied, these interventions are premised on the assumption that natural resources are most effectively managed and preserved while benefiting livelihoods if the market-incentives of a liberalised economy are correctly in place. By examining three nationally supported payment for ecosystem service (PES) schemes in Vietnam we show how insecure land tenure, high transaction costs and high opportunity costs can undermine the long-term benefits of PES programmes for local households and, hence, potentially threaten their livelihood viability. In many cases, the income from PES programmes does not reach the poor because of political and economic constraints. Local elite capture of PES benefits through the monopolization of access to forestland and existing state forestry management are identified as key problems. We argue that as PES schemes create a market for ecosystem services, such markets must be understood not simply as bald economic exchanges between 'rational actors' but rather as exchanges embedded in particular socio-political and historical contexts to support the sustainable use of forest resources and local livelihoods in Vietnam.

Individual tree biomass equations or biomass expansion factors for assessment of carbon stock changes in living biomass - a comparative study

Petersson, H.; Holm, S.; Stahl, G.; Alger, D.; Fridman, J.; Lehtonen, A.; Lundstrom, A.; Makipaa, R.
Forest Ecology and Management. 2012. 270: 78-84

Signatory countries to the United Nations Framework Convention on Climate Change (UNFCCC) and its supplementary Kyoto Protocol (KP) are obliged to report greenhouse gas emissions and removals. Changes in the carbon stock of living biomass should be reported using either the default or stock change methods of the Intergovernmental Panel on Climate Change (IPCC) under the Land Use, Land-Use Change and Forestry sector. Traditionally, volume estimates are used as a forestry measures. Changes in living biomass may be assessed by first estimating the change in the volume of stem wood and then converting this volume to whole tree biomass using biomass expansion factors (BEFs). However, this conversion is often non-trivial because the proportion of stem wood increases with tree size at the expense of branches, foliage, stump and roots. Therefore, BEFs

typically vary over time and their use may result in biased estimates. The objective of this study was to evaluate differences between biomass estimates obtained using biomass equations and BEFs with particular focus on uncertainty analysis. Assuming that the development of tree fractions in different ways can be handled by individual biomass equations, BEFs for standing stock were shown to overestimate the biomass sink capacity (Sweden). Although estimates for BEFs derived for changes in stock were found to be unbiased, the estimated BEFs varied substantially over time (0.85-1.22 ton CO₂/m³). However, to some extent this variation may be due to random sampling errors rather than actual changes. The highest accuracy was obtained for estimates based on biomass equations for different tree fractions, applied to data from the Swedish National Forest Inventory using a permanent sample design (estimated change in stock 1990-2005: 420 million tons CO₂, with a standard error amounting to 26.7 million tons CO₂) Many countries have adopted such a design combined with the stock change method for reporting carbon stock changes under the UNFCCC/KP.

The relative importance of land use and climatic change in Alpine catchments

Wolf, A.; Lazzarotto, P.; Bugmann, H

Climatic Change. 2012. 111: 2, 279-300

Carbon storage and catchment hydrology are influenced both by land use changes and climatic changes, but there are few studies addressing both responses under both driving forces. We investigated the relative importance of climate change vs. land use change for four Alpine catchments using the LPJ-GUESS model. Two scenarios of grassland management were calibrated based on the more detailed model PROGRASS. The simulations until 2100 show that only reforestation could lead to an increase of carbon storage under climatic change, whereby a cessation of carbon accumulation occurred in all catchments after 2050. The initial increase in carbon storage was attributable mainly to forest re-growth on abandoned land, whereas the stagnation and decline in the second half of the century was mainly driven by climate change. If land was used more intensively, i.e. as grassland, litter input to the soil decreased due to harvesting, resulting in a decline of soil carbon storage (1.2-2.9 kg C m⁻²) that was larger than the climate induced change (0.8-1.4 kg C m⁻²). Land use change influenced transpiration both directly and in interaction with climate change. The response of forested catchments diverged with climatic change (11-40 mm increase in AET), reflecting the differences in forest age, topography and water holding capacity within and between catchments. For grass-dominated catchments, however, transpiration responded in a similar manner to climate change (light management: 23-32 mm AET decrease, heavy management: 29-44 mm AET decrease), likely because grassroots are concentrated in the uppermost soil layers. Both the water and the carbon cycle were more strongly influenced by land use compared to climatic changes, as land use had not only a direct effect on carbon storage and transpiration, but also an indirect effect by modifying the climate change response of transpiration and carbon flux in the catchments. For the carbon cycle, climate change led to a cessation of the catchment response (sink/source strength is limited), whereas for the water cycle, the effect of land use change remains evident throughout the simulation period (changes in evapotranspiration do not attenuate). Thus we conclude that management will have a large potential to influence the carbon and water cycle, which needs to be considered in management planning as well as in climate and hydrological modelling.

Climate change and tropical biodiversity: a new focus

Brodie, J.; Post, E.; Laurance, W. F

Trends in Ecology & Evolution. 2012. 27: 3, 145-150

Considerable efforts are focused on the consequences of climate change for tropical rainforests. However, potentially the greatest threats to tropical biodiversity (synergistic interactions between climatic changes and human land use) remain understudied. Key concerns are that aridification could increase the accessibility of previously non-arable or remote lands, elevate fire impacts and exacerbate ecological effects of habitat disturbance. The growing climatic change literature often fails to appreciate that, in coming decades, climate-land use interactions might be at least as important as abiotic changes per se for the fate of tropical biodiversity. In this review, we argue that protected area expansion along key ecological gradients, regulation of human-lit fires, strategic forest-carbon financing and re-evaluations of agricultural and biofuel subsidies could ameliorate some of these synergistic threats.

REDD+ readiness implications for Sri Lanka in terms of reducing deforestation

Mattsson, E., Persson, U.M., Ostwald, M., Nissanka, S.P.

Journal of Environmental Management 100: 29-40

Any system to compensate countries for reduced emissions from deforestation and forest degradation (REDD+) requires a historical reference level against which future performance can be measured. Here we examine the possibilities Sri Lanka, a small forest country with limited data on forest carbon stocks, has to get ready for REDD+. We construct a historical reference level using available forest inventory data combined with updated

2008 and 2009 in situ carbon density data for Sri Lankan forests. Furthermore, we use a combination of qualitative and quantitative data to attribute the clearing of Sri Lankan forests in the latest years for which national forest inventory data are available, 1992–1996, to various proximate drivers and to estimate the opportunity cost of forest conservation. We estimate that baseline deforestation emissions in Sri Lanka amounted to 17 MtCO2 yr−1 in the 1992–1996 period, but conclude that it is challenging for Sri Lanka to produce a robust and accurate reference level due to the lack of nationally based inventories. We find that the majority of forest clearing (87%) is due to small-scale, rainfed farming, with the two other major drivers being rice and tea cultivation. Further, Sri Lankan revenues from REDD+ participation could be substantial, but they are sensitive to REDD+ policy transaction cost, highly uncertain timber revenues, and particularly the carbon price paid for emission reductions. The latter needs to be higher than $5–10/tCO2 if there are to be substantial incentives for Sri Lanka to participate in REDD+. There is, however, a large gap in the knowledge of deforestation drivers that needs to be filled if Sri Lanka is to formulate an effective policy response to forest degradation in REDD+. For successful REDD+ implementation in Sri Lanka to happen, technological assistance, readiness assistance, and continued political momentum are crucial.

V. PUBLICATIONS, REPORTS AND OTHER MEDIA

Climate Change, Forests and You. Grassroots Capacity Building for REDD+ in the Asia-Pacific Region

RECOFTC

This publication serves as a resource for community level facilitators to provide explanations about the basics of climate change and the role of forests. It aims to raise the awareness of grassroots stakeholders for Reducing Emissions from Deforestation and Forest Degradation (REDD+). We have selected the following questions because they are frequently asked by grassroots communities, and local level facilitators should be able to answer them in the simplest way in order to deliver a consistent message throughout the project areas and countries. **The publication**

Achieving food security in the face of climate change. Final report from the Commission on Sustainable Agriculture and Climate Change

CCAFS

This report seeks to elevate discussion of the interconnected dimensions of sustainable agriculture, food security and climate change, and to communicate the importance of investments in self-sustaining rural development, as well as in new tools and information systems to support governance of sustainable agriculture and the food system. In addition, it emphasizes the need for a revitalized global architecture for agreeing and delivering essential investments in sustainable agriculture and food systems; an architecture that incorporates lessons learned about the importance of 'bottom-up' approaches with strong connections to global policy development. This means striving to move beyond 'silos' and building linkages among policy processes. **The report**

Managing the risks of extreme events and disasters to advance climate change adaptation. Special report of the Intergovernmental Panel on Climate Change.

IPCC, WMO, UNEP

This volume, Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation, is a Special Report of the Intergovernmental Panel on Climate Change (IPCC). The report is a collaborative effort of Working Group I (WGI) and Working Group II (WGII). The IPCC leadership team for this report also has responsibility for the IPCC Fifth Assessment Report (AR5), scheduled for completion in 2013 and 2014. The Special Report brings together scientific communities with expertise in three very different aspects of managing risks of extreme weather and climate events. For this report, specialists in disaster recovery, disaster risk management, and disaster risk reduction, a community mostly new to the IPCC, joined forces with experts in the areas of the physical science basis of climate change (WGI) and climate change impacts, adaptation, and vulnerability (WGII). Over the course of the two-plus years invested in assessing information and writing the report, scientists from these three communities forged shared goals and products. Extreme weather and climate events have figured prominently in past IPCC assessments. Extremes can contribute to disasters, but disaster risk is influenced by more than just the physical hazards. Disaster risk emerges from the interaction of weather or climate events, the physical contributors to disaster risk, with exposure and vulnerability, the contributors to risk from the human side. The combination of severe consequences, rarity, and human as well as physical determinants makes disasters difficult to study. Only over the last few years has the science of these events, their impacts, and options for dealing with them become mature enough to support a

comprehensive assessment. This report provides a careful assessment of scientific, technical, and socioeconomic knowledge as of May 2011, the cut-off date for literature included. The Special Report introduced some important innovations to the IPCC. One was the integration, in a single Special Report, of skills and perspectives across the disciplines covered by WGI, WGII, and the disaster risk management community. A second important innovation was the report's emphasis on adaptation and disaster risk management. A third innovation was a plan for an ambitious outreach effort. Underlying these innovations and all aspects of the report is a strong commitment to assessing science in a way that is relevant to policy but not policy prescriptive. **The report**

Forest Day 5. Shaping the global agenda for forests and climate change. From Policy to Practice. Donor Report.

CPF & Department of Agriculture, Forestry and Fisheries, Republic of South Africa

After a resurrection in global opinion of the United Nations Framework Convention on Climate Change's (UNFCCC) ability to unite nations on an international climate agreement in Cancún in 2010, the 17th Conference of Parties (COP) in Durban moved the agenda further with an agreement on a second commitment period under the Kyoto protocol beyond 2012. The 190 countries comprising the conference also made headway on the design of the Green Climate Fund to finance climate initiatives for developing countries. Parties reached agreements on Reducing Emissions through Deforestation and Forest Degradation (REDD+), on guidance for safeguards and national reference levels, and on the challenging issue of REDD+ financing, where countries agreed to consider private sector and market-based funding mechanisms. **The report**

Role of Policy and Institutions in Local Adaptation to Climate Change: Case studies on responses to too much and too little water in the Hindu Kush Himalayas

International Centre for Integrated Mountain Development, ICIMOD

Climate change impacts in the Hindu Kush Himalayan (HKH) region are particularly severe owing to the large amount of the population depending on climate-sensitive livelihoods such as agriculture. This publication is a result of ICIMODs collaboration with the Stockholm Environment Institute (SEI), the International Institute for Environment and Development (IIED), and national partners in China, India, Nepal, and Pakistan since 2008 to document, assess, and over the long term strengthen local strategies for adaptation to flood and drought in and downstream from mountain catchments. While policy and research generally assume that adaptation will occur largely through government-led technical interventions, in practice local households and communities are adapting autonomously, through actions that are independent of structured programmes and policy. The study focuses on how policies and institutions can strengthen community adaptation strategies, specifically to climate-related water stress and floods. Building on the findings of an earlier study, Local Responses to Too Much and Too Little Water in the Greater Himalayan Region (ICIMOD 2009), it examines four key themes: small-scale water management and the role of local institutions; agro-forestry diversification and intensification; infrastructural mitigation measures, including embankments to adapt to floods; and livelihood diversification, including migration. The findings of this study will provide key pointers for future policy development. **The report**

Slowing Climate Change through Better Farming. Early Results of the "RT-REDD consortium"

Amazon Environmental Research Institute

Most of the world's tropical forests and carbon emissions from deforestation are in nations or states that are developing REDD+ programs to slow deforestation as their farmers prepare to certify their farms under one of the agricultural commodity roundtables. These parallel processes could become self-reinforcing, slowing deforestation, lowering greenhouse gas emissions, while improving the sustainability and social benefits of agricultural systems. But they are currently disconnected. **The report**

ASIA-PACIFIC Forests and Forestry to 2020. Asia-Pacific Forest Policy Briefs.

FAO

Eight Asia-Pacific forest policy briefs have been produced by the second Asia-Pacific Forestry Sector Outlook Study. The policy briefs cover the following topics: forests for a greener future, back to basics: field-level forestry, the forest biodiversity challenge, reinventing forest policies and institutions, learning for the future: forestry training and education, better governance, better forestry, making forests work for the poor, forests and gender in a changing environment. **To download the policy briefs or obtain more information**

Why New Zealand's consultation process is important for REDD+ countries

EDF (Environmental Defense Fund)

As the first country to implement a national level emissions trading system (ETS) that also includes a forestry

component as part of its climate change strategy and meets New Zealand's obligations under the Kyoto Protocol, NZ's experience in developing this system warrants close attention. In particular, NZ's consultation with its Indigenous Peoples for the creation of their ETS is an important example that can provide valuable lessons for countries such as Colombia, Chile, and other countries as they begin constructing their own climate policies. In fact, NZ's experience may be particularly useful to countries pursuing national strategies to reduce emissions from deforestation and forest degradation (REDD+). **The report**

Integrating Community and Ecosystem-Based Approaches in Climate Change Adaptation Responses

ELAN (Ecosystems and Livelihoods adaptation network)

This paper is the result of extensive discussions led by adaptation professionals coming from different backgrounds and facilitated by the Ecosystem and Livelihoods Adaptation Network (ELAN).ii ELAN is an innovative alliance between two conservation organisations (International Union for the Conservation of Nature [IUCN] and WWF) and two development organisations (CARE International and the International Institute for Environment and Development [IIED]). The objective of ELAN is to establish a global network to develop, evaluate, synthesize and share successful strategies for adapting to climate change, build capacity for such strategies to be assessed and implemented at national and sub-national levels, and advance policies and knowledge sharing platforms that will facilitate the scaling up of effective strategies. **The report**

VI. JOBS

Senior Expert in Forest Inventories and REDD+

Coalition for Rainforest Nations - deadline for application is 13th of May 2012

Coalition for Rainforest Nations is seeking a senior expert to be involved in their project "Capacity Development for REDD+ , establishing National GHG inventory systems". he incumbent will work under the technical guidance of the CD-REDD II project leader based in Rome, Italy, and shall be under the overall supervision of the RNCA Executive Director, based in NY, US. **More**

TECHNICAL EXPERTS – REDD+ AND CLIMATE CHANGE ADAPTATION – CENTRAL and SOUTH AMERICA

Tetra Tech ARD - deadline for application is 31st of May 2012

Tetra Tech ARD is currently accepting expressions of interest from qualified regional and local technical experts for anticipated USAID-funded climate change adaptation and REDD+ projects in Latin America and the Caribbean. The anticipated projects will focus on policy and implementation of efforts to reduce emissions from deforestation and forest degradation (REDD+), as well as efforts to build the resilience of vulnerable populations to adapt to the impacts of climate change that will be felt in a variety of sectors, including agriculture, fisheries and infrastructure; as well as geographies, such as coastal zones, river basins, and mountainous areas. **More**

TECHNICAL EXPERTS – REDD+ AND CLIMATE CHANGE ADAPTATION – South East Asia

Tetra Tech ARD – deadline for application is 31st of May 2012

Tetra Tech ARD is currently accepting expressions of interest from qualified regional and local technical experts for anticipated USAID-funded climate change adaptation and REDD+ projects in South East Asia. The anticipated projects will focus on policy and implementation of efforts to reduce emissions from deforestation and forest degradation (REDD+), as well as efforts to build the resilience of vulnerable populations to adapt to the impacts of climate change that will be felt in a variety of sectors, including agriculture, fisheries and infrastructure; as well as geographies, such as coastal zones, river basins, and mountainous areas. More

Technical Specialist – Climate Program

Rainforest Alliance - open for application until suitable application is found

The Technical Specialist will be responsible for technical project coordination, verification systems and tools development, training, and supporting the growth of Rainforest Alliance's Climate Program. S/he will be expected to effectively provide scientific and technical rigor to Rainforest Alliance validation/verification of carbon sequestration and emissions reductions projects according to internationally accepted standards, focusing primarily on forestry, agroforestry, and agriculture, but monitoring all technical work across divisions. This position will work with Climate Program staff, as well as technical and managerial staff from the Sustainable Forestry, Agriculture, and Tourism Divisions, to develop the organization's activities to address climate change. The Technical Specialist will represent the Climate Program to businesses, NGOs, project developers, carbon credit and offset service providers, investors, and corporations. **More**

VII. ANNOUNCEMENTS

The Global Forest Resources Assessment 2010 (FRA 2010) – CD-ROM released

FAO

The FRA 2010 CD-ROM has been released. The CD contains the key findings, main report of the Global Forest Resources Assessment 2010. It also contains all country reports, result tables in Excel format and terms and definitions. It is a multi-lingual CD (Arabic, Chinese, English, French, Russian, and Spanish). **More**

Call for Public Inputs: Options for a Fundraising Strategy and Campaign

Adaptation Fund

The secretariat of the Adaptation Fund Board is pleased to invite individuals, organizations and all entities involved and interested in climate finance, adaptation, innovative finance, development finance, corporate social responsibility and related topics, to provide inputs to support the development of innovative mechanisms to mobilize public and private funds for adaptation. **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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