

# Rio Conventions' ECOSYSTEMS PAVILION

Linking biodiversity, climate change and sustainable land management

**Pavilion News Digest, 13 December, 2010**

## **The Rio Conventions' Ecosystems and Climate Change Pavilion at the Cancun Climate Conference**

**UNFCCC COP 16/CMP 6**

**29 November-10 December, 2010, Cancún Mexico**

*The Rio Conventions' Ecosystems and Climate Change Pavilion is a collaborative outreach activity involving the Rio Convention secretariats, with the Global Environment Facility and other important partners*

The setting for the Ecosystem Pavilion in Cancun couldn't have been more different than that in Nagoya. Next to the Caribbean Sea and the tropical forests of the Yucatan, as delegates engaged in the hard negotiations of the way forward for the climate process, the urban setting of Nagoya, and the last minute compromise outcomes that paved the way for biodiversity policy seemed even farther than half a planet away.

The discussions in Nagoya were filled with the sense that it was not only possible to find synergies, but also to work to create the frameworks and mechanisms for their implementation. The optimism was borne out with the Nagoya conclusions.

The environment in Cancun, while more guarded, and with lower expectations with regard to the final results, was still filled with the sense that participants were looking for opportunities to realise the sustainable development agenda. On the minds of delegates were issues such as the second commitment period, a decision on sustainable forest management - REDD and REDD+, adaptation and mitigation, financing mechanisms and Long-Term Cooperative Action.

Delegates from small-island developing states were emphatic on the need for action – they have no choice whether or not to adapt to the results of climate change. Indigenous and local communities reminded participants that any conversations about forest governance needed to start with the principles of the UN declaration on the rights of indigenous peoples.

The discussions at the Rio Conventions' Ecosystem Pavilion during the conference paralleled this – looking at the ways that biodiversity and sustainable land management policies, including ecosystem-based approaches, and overall sustainable land management strategies could generate contribute both to the adaptation and mitigation options, but perhaps more pointedly – how could biodiversity considerations add to the ability of REDD+ to deliver co-benefits, or multiple benefits as some speakers mentioned. How could indigenous and local communities also be more completely involved? How to mobilise the private sector and address the intricacies of finance? How could gender considerations be mainstreamed? New ecosystem-based approaches to mitigation were also discussed, including the idea of “Blue Carbon” – mitigation based on carbon storage in coastal wetlands and mangroves.

The Pavilion prepares itself for the next task – UNCCD COP 10 in Korea.

## Overview of the Ecosystems Pavilion activities in Cancun

### **Linking biodiversity, climate change and sustainable land management**

*Monday, 29 November 2010: Enhancing cooperation among the Rio Conventions: Launch of the Rio Conventions' Ecosystems and Climate Change Pavilion (Organisers: Secretariat of the Convention on Biological Diversity)*

The inaugural event for the Ecosystems Pavilion at the Cancun climate conference emphasized that there are tremendous opportunities to implement the three Rio Conventions in a mutually supportive manner. It is up to governments to seize these opportunities in the next ten years and advance the climate change, biodiversity and land degradation agendas.

“The CBD results demonstrate that multilateralism is the best option” said moderator Spencer Thomas of Grenada. Presenters used the session to outline the CBD and UNCCD decisions and relevance to the audience of climate change delegates.

The Vice-Minister of the Environment of Japan, Hideki Minamikawa, and Hyunju Lee, of the Korean Forest Service, reminded the audience that calls for collaboration between the Rio Conventions dates back to the 7<sup>th</sup> meeting of the Conference of the Parties to the Convention on Biological Diversity. Global Biodiversity Outlook 3 and The Economics of Ecosystems and Biodiversity (TEEB) have shown the need to address climate change and biodiversity in close coordination and with equal priority if the most severe impacts of each are to be avoided. For governments involved in the UNCCD

process, an integrated approach to Land Use, Land-use Change and Forestry (LULUCF) and REDD+ should include biodiversity, food security and rural development.

The moderator for the event, Spencer Thomas of Grenada, reminded the audience that at the technical level, collaboration between the secretariats and the national level already takes place. At the local level there is no difference between the three conventions. People do not care about acronyms, but their livelihoods and the planet.



*Friday, 3 December, 2010: Emerging scientific findings and ongoing dialogue with the research community (Organizer: International Council for Science)*

The research community is extremely important to the climate change agenda. Participants provided scientific updates on recent emissions and sinks of greenhouse gases and implications for future emissions pathways; on the socio-economic impacts of climate change with respect to human health; and on the socio-economic impacts of climate change with respect to food security and food systems.

Interest has been growing among delegates in the UNFCCC research dialogue as it continues to raise awareness of recent science. There is broad consensus that the dialogue is of great value, judging by the interest and enthusiasm coming from scientists. Deepening the dialogue requires widening the base of presenters, identifying key issues of interest ahead of the dialogue meetings, broadening the appeal, providing more regular news from the research community to the UNFCCC and vice versa and introducing more information about solutions.

Science is showing that increasingly, more developed countries are net importers of carbon embedded in products and services provided by developing countries. In other words, developed countries are partially outsourcing their emissions to developing countries.

In making the point that food security encompasses much more than just food production, Diana Liverman highlighted the complex nature of the food system-climate interactions. These interrelationships are not well addressed in international assessments (IPCC). A food systems approach for large-scale, interdisciplinary studies would allow analysis of multiple food system outcomes, providing a better understanding of the linkages between food security, ecosystems services and social welfare.

Progress in understanding the health risks of global change is resulting in better estimates of current risks, including on current vulnerabilities, the exposure-response relationships between weather / climate and health outcomes, estimating the current health burden attributable to climate change, the effectiveness and costs of adaptation actions

and projection of future health risks, including identifying needs for adaptation.



### **Key role of protected areas in climate change adaptation and mitigation strategies**

*Tuesday, 1 December, 2010: Protected Areas as a response to Climate Change (Organisers: Comision Nacional de Areas Naturales Protegidas (CONANP) and the IUCN World Commission on Protected Areas)*

Launching the Spanish version of 'Natural Solutions' report, Nik Lopoukhine and Kathy Mackinnon of the IUCN World Commission on Protected Areas highlighted the important opportunities protected areas provide for dealing with climate change.

Managing natural ecosystems as carbon sinks and resources for adaptation is increasingly recognised as a necessary, efficient and relatively cost-effective strategy. The world's protected area network already helps mitigate and adapt to climate change. Protected areas store 15 per cent of terrestrial carbon and supply ecosystem services for disaster reduction, water supply, food and public health, all of which enable community-based adaptation. The Government of Mexico has recognized these opportunities in its Climate

Change Strategy for Protected Areas which aims to increase the adaptive capacity of ecosystems - and the communities that live within them- in the face of climate change as well as contribute to the mitigation of greenhouse gases and enhancement of carbon stocks.

*Tuesday, 7 December: Climate change and species: challenges and opportunities. (Organisers: Comision Nacional de Areas Naturales Protegidas (CONANP) and CBD LifeWeb)*

The National Commission of Natural Protected Areas of Mexico (CONANP) is working to establish partnerships with national and international sectors to decrease the financial gap needed to protect vulnerable areas. 37 partners, including Petroleros Mexicanos, Nacional Financiera, Cementos Mexicanos, and the governments of Spain, Germany and Japan under the LifeWeb Initiative of the CBD are all involved. The work focuses on the conservation of species that are in the areas of greatest vulnerability to climate change. Among the priority species includes sea turtles, the Mexican wolf, jaguar, pronghorn antelope and bison.

A recent round table of financing brought approximately 30 international and national, public and private, donor agencies on board. This is testament, at least in part, to the growing awareness of the importance of ecosystems and the protected areas that serve to ensure their health and resiliency, to climate change mitigation and adaptation. The next meeting of this financing round table for ecosystem and protected area based solutions is planned to be held in February 2011, with the goal of developing a business plan,

The need for financing is urgent. The interaction between invasive alien species and climate change is making some ecosystems and some species even more vulnerable. This includes more than 2,800 islands and bays, most of which are located in northwestern Mexico.

The event highlighted the vulnerability with the release of the book: "Mexican Natural Wealth and its' at risk species." The authors of the photo book pointed out that climate change and invasive species are two of the most significant risks to the conservation of native species, and that the changes will most affect island ecosystems and coastal zones by altering the mechanisms of transport and increasing the introduction of invasive alien species.



### **Indigenous peoples and local communities – benefits and livelihoods**

*Friday, 3 December, 2010: Addressing climate change and REDD+: using indigenous peoples' traditional knowledge and practices' (Organiser: Tebtebba Foundation)*

Indigenous peoples perceive the environment as an integrated whole and are thus key actors for an ecosystem approach. Strong communities of indigenous peoples are associated with intact forest ecosystems. The

reasons for this are many. Indigenous peoples have perhaps the strongest interest and motivation to protect their forest. They are part of the forest and possess traditional knowledge in the management of natural resources that has been developed over thousands of years. Their customary laws for regulating these resources and their own institutions and structures, including collective and communal rights are strong.

REDD may happen anyway, regardless of the opinions and concerns of indigenous peoples, hence it is important for indigenous peoples to try to understand, raise awareness and train people in order to be able to make informed decisions. At the same time, the message to policy makers is that they need to respect the rights of indigenous peoples and those communities that will be directly affected by REDD programmes and also create schemes that allow communities to make informed decisions.



### **Forest biodiversity: mitigation and adaptation – the linked benefits provided by forests**

*Tuesday, 30 November 2010: REDD and biodiversity (Organisers: UN REDD, Secretariat of the Convention on Biological Diversity and the European Commission)*

Three key points: Forests provide multiple benefits; biodiversity underpins forest resilience; and there can be a correlation between biodiversity and long-term carbon stocks.

High biodiversity can be considered as a safeguard for investments in REDD+. Therefore it perhaps follows that we should not only aim to "do no harm" to biodiversity, but also try to "do better" to maintain and restore it. One could even go so far as to suggest that biodiversity is not merely a "co-benefit" but rather a "core-benefit" of REDD+.

In this regard, a programme to reduce emissions from avoided deforestation and degradation (REDD+) has the potential to deliver significant co-benefits for biodiversity, if the mechanism is designed and implemented appropriately.

Barney Dickson (UNEP-WCMC) highlighted that the success of REDD+ relies on the development of safeguards, but these require monitoring and guidance. Tools such as a carbon calculator been developed by UNEP-WCMC under the CBD's LifeWeb Initiative, which allows for an approximation of the carbon stock in ecosystems in a certain area, can be used to identify areas with high biodiversity value and high carbon stocks.

At the intergovernmental level, Tim Christophersen of the CBD secretariat discussed the many linkages between the UNFCCC agenda and the CBD programme of work for forest biodiversity. A number of relevant CBD COP decisions were adopted at COP9 (2008 in Bonn) and COP10 (2010 in Nagoya). The report of the Ad Hoc Technical Expert Group on Biodiversity and Climate

Change 2009 as well as Global Biodiversity Outlook 3 pointed out the need to better integrate these two agendas.

REDD activities need to be prioritised: first protect biodiversity, second restore forest and third enhance carbon through forest management. The full and effective participation of indigenous and local people is another essential element for a successful REDD+ mechanism.



*Wednesday, 1 December, 2010: Biodiversity and climate change: Regional view on REDD+ readiness and forest governance in Amazon basin (Organiser: Institute for Conservation and Sustainable Development of Amazonas (IDESAM))*

Diversity is both an opportunity and a challenge for implementing REDD in the Amazonian basin. Latin American countries in the basin are not only mega-diverse countries in terms of biodiversity, but they also have a huge cultural diversity. Add social and economic inequality to the mix and the result are particular policy challenges. REDD+ should promote economic development and poverty reduction, in a diverse context.

Latin America produces 7% of global emissions and 47% of land in Latin America is covered by forest - equivalent to the entire land surface of the EU. Annual deforestation equivalent to an area the size of Denmark, growth of farming lands, and land-use change all contribute to vulnerability. Countries have policies for sustainable use in place, but they are neither enforced, nor cross-cutting. Perverse incentives are also a problem.

A key issue for REDD+ will be the distribution of benefits and facilitating participation. There will be a need to engage different stakeholders into the design and implementation of REDD+ readiness and schemes. Benefits should be effective so they can foster activities that contribute to forest conservation and arrest deforestation. National regulations will need to be developed, taking into account the need to develop mechanisms to ensure the participation of multiple stakeholders.



*Thursday, 2 December, 2010: Delivering as One: Achievements and lessons learned from REDD+ readiness activities (Organisers: UNEP and UNFCCC)*

The reach of the sustainable development agenda is potentially so vast, that activities and coordination could extend beyond the Rio Conventions. In particular, it is important to look at the ways that the entire United Nations system could be involved in REDD readiness and therefore deliver on the promise of delivering as one.

Drawing on lessons learned from the reconstruction of Aceh in the wake of the tsunami, Heru Prasetyo, Indonesia, discussed potential ways to “deliver as one” on REDD+ activities in Indonesia. The case illustrated that success was heavily dependent on the ability of the national ministries themselves to self organise. The Indonesian government now “stands ready” to cooperate with UN organizations to deliver these lessons to REDD+ and is focusing on building strong institutions for finance and monitoring, reporting and verification, as well as a REDD+ agency that will report directly to the Indonesian President.

The experience of the World Bank suggests that it is important to create teams that take advantage of comparative strengths between agencies. There are challenges, in particular the development of common guidelines, but this should not be a barrier to a quick start. Representatives of the UN-REDD Programme, drew lessons from existing and emerging partnerships. The five-year strategy of the UN-REDD Programme responds to country needs, but success is based on coordinated action on the field.

The perspective of civil society organizations demonstrated that civil society organizations (CSOs) and Indigenous and Local Communities (ILCs) have been asked for comments by UN-REDD prior to policy board meetings, but that this required time and staff that CSOs may not have.



*Thursday, 2 December, 2010: REDD-Plus: Enhancing environmental services and private sector participation (Organiser: International Tropical Timber Organization (ITTO))*

There are considerable challenges involved in bringing both Sustainable Forest Management (SFM) as well involving the private sector into REDD+. The ability of REDD+ to contribute to enhanced environmental services is partly based on whether it incorporates the principles of Sustainable Forest Management. The flip side is – what do SFM activities contribute to climate change mitigation/adaptation? Since 90% of tropical forest is outside protected areas, it is central to involve the private sector.

The private sector is the main source of funding for forests in developing countries so it should be no surprise that 50% of the funding for REDD+ demonstration activities come from the private sector in partnership with NGOs.

Partners in REDD+ all have distinct roles: government has to provide enabling conditions while the private sector provides hard financing, technology, access to markets and management capacity. Finally, the participation of forest communities, indigenous people and smallholders is central to implementation.

For development agencies such as the Japan International Cooperation Agency (JICA) maximizing co-benefits is not less important than addressing climate change. However, REDD+ is not the only way of achieving multiple benefits - the positive and negative aspects need to be considered.

Maintaining a comprehensive, international approach is the challenge to any work on Sustainable Forest Management. Promoting a regional approach is one way to ensure this, with south-south cooperation another option.

Jan McAlpine of the United Nations Forum on Forests, reminded participants that we should not be too critical with those that are trying – perfection is the enemy of the good; in forests, the difficulty is that nobody takes risks; the challenge at hand requires taking risks and we will make mistakes. The enabling environment is more than governance, but also includes scope.

*Sunday 5 December 2010: FOREST DAY 4 (Organisers: Centre for International Forestry Research (CIFOR), the Mexican National Forestry Commission (CONAFOR), and members of the Collaborative Partnership on Forests (CPF).*

Forest Day 4 (FD4) brought together more than 1,500 of the world's leaders and experts, practitioners and policymakers, advocates and

investors, indigenous peoples, community representatives and the media to discuss and debate how to accelerate the integration of forests into climate mitigation and adaptation from local to global levels.

His Excellency President Felipe Calderon Hinojosa, in his opening speech at FD4, stated that “...it’s time for all of us to push, and push hard for the full incorporation of REDD+ into a long-term international climate change agreement.” In a passionate plea, the Mexican President also stressed “Either we change our way of life now, or climate change will change it for us.”

Keynote speeches emphasized the critical needs for both sound forestry and climate change science, and pro-active engagement with indigenous peoples and forest-dependent communities as the *de facto* and *de jure* custodians of land and forest resources to secure equitable outcomes. Speeches also drew delegates’ attention to the multiple benefits of forests and the International Year of Forests in 2011.

A special sub-pleenary on biodiversity provided an opportunity to link the biodiversity, climate change and land management agendas for forests. FD4 delegates noted that the conservation and sustainable use of biodiversity are not merely co-benefits for REDD but also prerequisites for its success. Biodiversity underpins forest resilience, health and productivity, and thus the permanence of forest carbon stocks. Countries such as Ecuador and Mexico harness their rich biodiversity as “carbon enhancer” for mitigation, and as vital “green infrastructure” for adaptation. Participants recognized the need to harness such synergies at all levels. The

new 2011-2020 Strategic Plan of the Convention on Biological Diversity (CBD), adopted in Nagoya, Japan, could support the aims of the UNFCCC. The Strategic Plan aims to bring 17 percent of land areas under protected area management, to halve the rate of deforestation, to bring all forests under sustainable management, and to restore 15 percent of degraded ecosystems. FD4 recognized that this will provide additional opportunities to secure biodiversity co-benefits, for example through the five-point REDD+ Partnership Work Program 2011-2012. More than 90 percent of those polled said that biodiversity safeguards are either “very important” or “essential” for the success of REDD+, and more than 95 percent said that it is important to monitor co-benefits.



### **Water, ecosystems and climate change**

*Monday, 6 December, 2010: Water, climate and development: Linking up development agendas and putting water security first (Global Water Partnership)*

Water should be placed at the heart of global policy responses to climate change. The global

coalition of stakeholders involved in water issues is working to promote progressive and integrated water and climate change policy at the international level.

Water security is a troubling and challenging dimension of a world faced by climate change. African countries require considerable support as they seek to adapt to changing water availability. Rapid urbanization in Asia and the growth of existing cities also places stress on water supplies. Healthy ecosystems are needed to build water resilience – watersheds and forest landscapes have the ability to protect water supplies at less cost. The involvement of stakeholders in any integrated water resource management could mean the difference between success and failure. Perspectives of local communities and of women need to be included to have a complete picture of where we need to go. The private sector also has an interest in water in the context of trade which creates serious challenges but also possibly opportunities for management strategies.

But water issues need to be better integrated at the level of international negotiations under the UNFCCC. The starting point would be the establishment of a work programme on water and climate under the UNFCCC to help develop recognition of the importance of water management for climate change adaptation through the group negotiations under the Ad-Hoc Working Group on Long-term Cooperative Action. Finance is also a key part of the solution – resources for climate change adaptation and mitigation managed through the UNFCCC should be guided by criteria that promote the sustainable management of water resources to build resilience of climate change.



### **Marine, coastal and island biodiversity**

*Wednesday, 1 December, 2010: Blue Carbon: Valuing CO2 Mitigation by coastal marine systems (Organisers: Conservation International, IUCN)*

The relationship between climate change mitigation and biodiversity conservation at the ecosystem level are well illustrated when considering a lesser-known source of persistent, stable carbon storage: Coastal and Marine Ecosystems. Salt-Marshes, Mangroves, and Sea grasses store 5-times the carbon per hectare that tropical rainforests sequester.

The climate community is very focused on terrestrial carbon. The development of REDD is watched with puzzlement from the perspective of those who follow oceans and coastal systems as the latter with their high carbon-sequestration rates, are removing carbon from the atmosphere and storing it in sediment for millennia.

The estimated US\$25 billion per year in ecosystem services provided by coastal ecosystems could form the basis for developing a REDD-like incentive agreement. Preliminary research on the economic valuation of wetlands and blue carbon schemes shows that these could possibly be more valuable than shrimp farming. Assuming a price of carbon of \$US20 per tonne and a discount rate of 10%,

mangroves provide US\$15-25,000 per hectare compared to approximately US\$8,000 for tropical forests. REDD+ can apply to mangrove forests and SBSTA's guidance on degradation drivers, methodologies, and monitoring, reporting and verification standards is also applicable to these coastal ecosystems. A REDD-like financial mechanism for soil-based carbon storage and sequestration could potentially synergize with REDD+.

At the same time, draining wetlands significantly decreases their climate sequestration capacity and can rapidly increase carbon emissions. When sediment is included, tidal wetlands can sequester more carbon than tropical and temperate forests. More research is needed to fully understand the amount of carbon absorbed and released into the water versus into the air.



*Thursday, 2 December, 2010: Pacific Island Countries - taking action on climate change (Organiser: Secretariat of the Pacific Regional Environment Programme (SPREP))*

In responding to climate change and creating adaptation strategies, island communities, such as the Cook Islands and Solomon Islands, are

addressing a number of cross cutting issues including water, food security, infrastructure, tourism, and business. Both face logistical and administrative challenges in preparing plans and national communications. The goal is to use different forums to ensure that priorities are aligned with other processes and promote synergies.

For Samoa, the national policy response to climate change includes a focus on renewable energies. National Action Plans on Adaptation (NAPA) with projects in the areas of water, forestry and health are in preparation. One project already underway integrates three sectors, meteorology, by providing better climate information and early warning systems, the agriculture sector, by making available maps on soil characteristics and the impact of climate change, and health, by enhancing vector control and increasing the capacity of public health workers to deliver climate health warnings.

The activities of the Secretariat of the Pacific Community (SPREP) cover forestry, energy, water, and disaster reduction. They also focus on activities related to food security such as the vulnerability of fisheries and aquaculture. One project includes the establishment of the climate ready crop collection and identifies climate resilient traits. Activities on REDD-readiness are also underway.

A representative of the University of South Pacific summed up saying that global warming impacts especially on oceans and therefore particularly pacific islands, as mangroves and coral reefs are threatened, the impact of salt water intrusion affects trees and drought and floods are already being experienced. People living on small island states may therefore be

the first having to relocate as a result of sea level rise. At COP 15 pledges were made, but they do not hold to achieve the 2 degree Celsius limit. COP 16 therefore needs to take stronger targets and provide for adequate and fairly governed climate finance. Activities on the national level must focus on disaster risk reduction and short term adaptation.



*Saturday, 4 December, 2010: Oceans Day at Cancun - "Oceans: Essential to Life, Essential to Climate (Organisers: Global Forum on Oceans, Coasts and Islands and the Secretaries of Environment and Natural Resources of the Mexican States of Campeche, Quintana Roo, and Yucatan, and the Secretariat of the Environment and Natural Resources (SEMARNAT), Mexico)*

The world's oceans play a central role in climate, akin to the Earth's lungs and circulatory system--generating oxygen, absorbing carbon dioxide and regulating climate and temperature. But, the oceans' ability to provide these life-sustaining services is now at risk from the impacts of climate change, such as ocean warming, sea level rise, and increased frequency and intensity of storms, among others. However, oceans have not yet figured on the agenda of the UNFCCC. Oceans Day at Cancún brought together

representatives from all sectors to emphasize the importance of considering oceans in the climate negotiations of the UNFCCC, and reiterate the urgent need for the international community to address the implications of climate change for oceans and coasts within and outside the UNFCCC.

Oceans Day panelists highlighted the severe vulnerabilities of coastal populations, and especially small-island developing states (SIDS). Panelists outlined the need for ecosystem-based adaptation approaches promoting the preservation and restoration of coastal ecosystems to increase the resilience of coastal areas to the impacts of climate change. They also noted, however, that many areas lack the necessary capacity to implement adequate adaptation measures and that there is an urgent need for technical and financial adaptation assistance for the world's most vulnerable coastal populations.

Oceans Day also addressed ocean acidification, due to rising levels of CO<sub>2</sub> in seawater, which is posing serious threats to marine ecosystems and the millions of people dependent upon them. Oceans Day panellists discussed the important role of oceans as carbon sinks and a valuable tool for climate change mitigation. Marine areas store and cycle over 90 per cent of the earth's CO<sub>2</sub>, while removing about 30 per cent of atmospheric CO<sub>2</sub>. However, the rapid destruction and degradation of marine and coastal ecosystems compromises the ability of these ecosystems to store carbon and can also release stored carbon dioxide, thereby becoming a source for greenhouse gas (GHG) emissions. Speakers noted the parallels between applying the concepts of REDD to carbon in oceans and that global climate

mitigation efforts could change economic incentives for coastal protection.

Oceans Day at Cancún also featured presentations from high-level representatives. Ambassador Ronald Jumeau, Permanent Representative of Seychelles to the United Nations, described the impacts of climate change that the Seychelles is already facing, stressing the urgency of reaching agreement at the UNFCCC. Mrs. Rejoice Mabudafhasi, Deputy Minister of Environmental Affairs, South Africa, underlined the importance of bringing the voice of traditional knowledge into climate change adaptation discussions and focusing on the co-benefits of ecosystem-based coastal adaptation.



*Monday, 6 December 2010: Oceans and climate: action plan for survival (Organisers: International Coastal and Ocean Organization (ICO) and the Zoological Society of London (ZSL))*

80% of the heat added to the climate system and nearly 50% of all CO<sub>2</sub> added to the atmosphere by burning fossil fuels over the past 250 years is absorbed by the oceans. The oceans of the world are warming and becoming more acidic as a result.

The actions that are needed to counter these trends are urgent and deep: Stringent and immediate reductions in CO<sub>2</sub>, to avoid dangerous levels of ocean acidification, as well as other effects. The UNFCCC process also needs to address and incorporate the notion of “blue carbon” – CO<sub>2</sub> stored in coastal ecosystems. Accelerated progress is needed on other mitigation in the oceans. Offshore wind-power, wave energy, and tidal power are possible technologies. There are also opportunities to reduce emissions from ships and to look at deep seabed carbon capture and storage. On the adaptation front, we need to prepare for legal economic social and humanitarian issues associated with displacement. In this regard we need to work with coastal countries to heighten awareness of both, the impacts and potentials of oceans in climate change

Coastal ecosystems are at great risks, not only are they a significant store of so-called “blue carbon” but also and many other ecosystem services. The pressure to convert these ecosystems for agriculture, aquaculture and other forms of development is intense. Mitigation efforts could change economic incentives for protection, payments for reducing conversion and restoration, REDD+, not yet in UNFCCC system.

Ocean acidification is a tremendous danger to life in the oceans. At current rate we soon reach levels of ocean acidity not seen for 44 million years. The biological impact of increasing acidity hits marine life that creates shells – it dissolves their shells. Because these creatures are the food source for other larger fish, including commercially viable ones like salmon, the entire food system is threatened.

The way forward is to research which commercial fisheries will be affected first, and which nations. An international measurements network looks at CO<sub>2</sub> as function of time and depth, available for all corals and high latitudes, coastal and the open ocean.

Legislators are becoming increasingly concerned with the impacts of climate change and are finding a way to become involved. Legislators and environmental scientists meet in the context of the GLOBE initiative, in an informal environment to share best practices and deepen understanding of underlying issues. GLOBE's Global Action Plan for Coral Reefs seeks to provide international legislators, policymakers and managers with a clear way forward to manage the threats to coral reefs posed by climate change. Three main themes address direct human pressures (legislation and policy development, implementation; sustainable management of fishing, watershed concerns, pollution, move towards greater coverage of marine protected areas) increase effective governance, management capacity and awareness-raising funding for these efforts

An Action Plan buys time for adaptation of coral reef ecosystems, only agreement to rapidly and dramatically cut emissions will save coral reef ecosystems.

*Tuesday, 7 December, 2010: Taking Action on Ocean Acidification: opportunities under UNFCCC (Organiser: IUCN)*

Ocean acidification is a direct consequence of increased human induced CO<sub>2</sub> emissions. Both climate change and ocean acidification are linked by this common driver and many common solutions. Oceans have increased in

acidity by 30 per cent since the industrial revolution and that they are predicted to become even more acidic. Ocean acidification significantly hinders the ability of shell-forming organisms to construct their shells, and can impact marine ecosystems and marine species distribution, notably fisheries, with negative implications for food security. Panelists also presented on efforts to develop regional and global networks and robots for monitoring the onset of ocean acidification.

In considering the question 'What is ocean acidification and what is it doing to our ocean and climate system?', key points raised include:

- Oceans will become more acidic – very high certainty. Over the last 200 yrs the oceans have taken up 25% of CO<sub>2</sub> emissions, essentially buffering climate change. But this is at a cost as surface oceans have become 30% more acidic, lowering the pH and carbonate ions ...by 2060 the oceans could become 120% more acidic.
- The impact on ocean food webs, ecosystems and food security could be serious – less certain.
- The only way of reducing the impact of global ocean acidification is a substantial and urgent reduction in CO<sub>2</sub> emissions – very high certainty.
- Mitigation will make a difference – ocean acidification argues for stabilizing CO<sub>2</sub> lower than 450 ppm.

*How is the IPCC addressing ocean acidification and what are other means to inform on ocean acidification? IPCC assessment reports on ocean acidification considered the biogeochemical and temperature effects of anthropogenic carbon on the oceans. The direct impacts of ocean acidification not fully assessed. The Fourth Assessment Report concluded the following:*

**AR4 SYR:** *While the effects of observed ocean acidification on the marine biosphere are as yet undocumented, the progressive acidification of oceans is expected to have negative impacts on marine shell-forming organisms and their dependent species*

**AR4 WG2 TS:** *Ocean acidification is an emerging issue with potential for major impacts in coastal areas, but there is little understanding of the details. It is an urgent topic for further research, especially programmes of observation and measurement*

The opportunities to address ocean acidification under the UNFCCC include:

- Including ocean acidification in a post-2012 Agreement and/or COP decision and as a priority theme under SBSTA
- Set effective targets and decide upon an effective indicator
- Focus on curtailing CO2 and avoid strategies that may exacerbate ocean acidification
- Incorporate ocean acidification into existing and new adaptation plans and into vulnerability assessment, information sharing and capacity-building activities

### **Ecosystem-based approaches for adaptation**

*Tuesday, 30 November, 2010: Working with nature: ecosystem-based approaches for adaptation (Organiser: SCBD and European Commission)*

Ecosystem-based approaches to adaptation are ready for use, easily accessible and bring multiple benefits at comparatively low cost. Given such benefits, these should be central to an overall adaptation and mitigation effort, and a complement to technological solutions.

Ecosystem-based adaptation is based on the principle of working with nature rather than against it. Techniques are many, including the maintenance and restoration of ecosystems that provide protection from the impacts of climate change. In the case of Europe, the development of green infrastructure (restoring floodplains to reduce flood risk, increasing green spaces, green roofs and green walls in the cities) saves energy and provides space for nature in urban settings. Developing and implementing green infrastructure is an investment rather than a cost - it provides employment and business opportunities.

For some countries, as Ambassador Ronny Jumeau stressed in a passionate speech, ecosystem-based approaches to adaptation are not a choice, but the only option. Ecosystems are the basis for the economic viability of the country. Climate change impacts are real and severe. In addition to the risks due to sea level rise, fiercer storms and loss of coral reefs, Seychelles is currently facing the hardest drought ever due to a combination of la Niña and climate change.

The Global Environment Facility is supporting community based adaptation e.g. restoration of mangroves through various funds including the Least Developed Countries Climate Fund (LDCF) and Special Climate Change Fund (SCCF).



## **Promoting synergies for sustainable development and poverty reduction**

*Friday, 3 December, 2010: Introducing global mechanisms for measurable, reportable, verifiable local climate action (Organiser: ICLEI Local Governments for Sustainability)*

In an event moderated by Counsellor Cathy Oke from Melbourne, key speakers from cities engaged in the global environmental agenda presented the reasons why local governments should be recognized in these negotiations and provided key examples that showcase the ways local governments are acting on the climate change agenda. The Governor of Quintana Roo, Félix González Canto welcomed participants and international partners including United Nations ISRD, UN-Habitat, OECD, and IADB expressed their support.

The panel discussion brought to the same table a mixture of actors: David Cadman, Counsellor of Vancouver and ICLEI President, Martha Delgado, Secretary for Environment of Mexico City and ICLEI Vice-President, Bo Asmus Kjeldgaard, Vice Mayor for Environment of Copenhagen, Ronan Dantec, Vice Mayor of Nantes and UCLG Climate Spokesperson, Patrick Hays, Mayor of North Little Rock, and Yuko Nishida from Tokyo.

David Cadman underlined that the same nations who recognized the importance of local action at the tenth meeting of the Conference of the Parties to the Convention on Biodiversity three weeks ago, in Nagoya, Japan with the adoption of the Plan of Action on Sub-national Governments, Cities and other Local Authorities and Biodiversity (2011-2020) should now do the same in the Climate COP in Cancún.

Participants also made reference to the recent Global Cities Covenant on Climate – the Mexico City Pact of 21 November. The Mexico City Pact - has been signed by 138 cities, amongst which are Bogotá, Johannesburg, Los Angeles, Buenos Aires, Rio de Janeiro, Sao Paulo, Paris, Istanbul, Barcelona, Nantes, Kyoto and Nagoya.

A key component of the Mexico City Pact is the carbon cities climate registry – cCCR. This registry will support the global credibility of local climate action by allowing transparency, accountability and comparability of climate actions, performance and commitments.



*Wednesday, 8 December: Cities and climate change: enhancing mitigation and adaptation action (Organiser: UN Habitat)*

Cities both contribute to climate change and are affected by its impacts. However, the degree to which any city's emissions contribute to climate change is not necessarily matched by the range and severity of impacts it will endure. At the same time, cities are increasingly adopting strategies that, if applied at scale, can significantly contribute to low carbon and more resilient societies.

Recognizing the urgency to accelerate implementation at the local level, the United Nations system is using a number of tools to support cities to act on mitigation and adaptation. Cities are also acting as evidenced by the commitments made at the "Mayors'

Climate Change World Summit” hosted by the Mayor of Mexico City on 21 November 2010.

Both adaptation and mitigation strategies in urban areas require new and improved infrastructure and basic services. This can be an opportunity to redress existing and expected deficiencies in housing, urban infrastructure and services and to create jobs and new opportunities to stimulate the urban economy.

Realising these benefits however requires a context-sensitive approach to urban and regional planning and economic development that takes the needs of the poor into account, linkages with rural areas, and the national context of urban growth. Predictable long-term financial and technological support will be required in many developing countries to strengthen the capacity of local authorities to participate in these strategies and to facilitate linkages within and across countries.

The UN system is working to assist in capacity development in this regards, and is providing assessment tools, and supporting data collection, as well as working to promote collaboration in the context of a low-carbon green economy. The strength of the UN contribution lies in the ability to bring together agencies and organizations from a variety of cross-cutting issue areas. This broad perspective can allow for the development of a holistic policy response.

### **Linking biodiversity, climate change and sustainable land management through finance**

*6 December, 2010: Funding the Future?  
Establishing a Fair Climate Fund in Cancun*

*(Organiser: Oxfam International)*

While the effects of climate change on ecosystems are well-known, what is less appreciated is the impact on the world’s poorest people. For example, Himalayan glacier melting threatens the viability of farming across large parts of south and east Asia; sea level rise is leading to salinity on the islands of the Pacific. Changes to weather patterns are making cattle rearing impossible for some communities who have raised animals for generations.

Along with emission reductions, developed countries need must deliver on their long-term climate finance commitments under the UNFCCC and Bali Action Plan. The effective use of long-term, new and additional, predictable and public climate finance provided by developed countries could be well served by the establishment of a fair global climate fund. Most existing funds have benefited only some developing countries, have emphasised mitigation over adaptation and offer little scope for the meaningful participation of affected communities, especially women.

A fair global climate fund could build resilience for the poorest communities to the impacts of climate change, protect their forests, and adopt low-carbon development pathways. Public finance is vital to meet these needs; carbon markets are not sufficient and in some cases, may not be appropriate. To be truly equitable and effective, the new fund must mark a clear shift in the management of global flows of climate finance that delivers for poor people.

The characteristics of such a fund are that it should:

- Be legitimate and effective, by acting under the authority of the Conference of the Parties of the UNFCCC, with a specific mandate to focus on climate change, with representation of developing countries, following the model of the adaptation fund;
- Be designed through a UNFCCC process involving individuals with a range of expertise, including a strong role for civil society;
- Create a one-stop-shop for climate finance;
- Fill the existing funding gap for adaptation, by pre-allocating at least 50% of climate finance to adaptation; and
- Improve access for developing countries and vulnerable communities, allowing direct access to resources, in addition to access through international implementing entities, as decided by the recipient country and ensuring vulnerable groups, especially women and indigenous communities, participate.



*Monday, 6 December, 2010: Financing real transformation? Designing an effective financial mechanism under the UNFCCC (Organiser: UNEP Finance Initiative)*

The discussions about financing for climate change solutions are characterized by a lack of understanding between finance and non-finance actors. Efforts are needed to bridge finance and environment, not merely in terms of overcoming jargon and lack of understanding by non finance people, but in the practical ways

that can ensure that a mechanism is developed which responds to the needs of mitigation and adaptation.

A financial mechanism for climate needs to find a way to encourage innovation in climate responses, particularly for countries such as Brazil. Global, international cooperation under the Kyoto Protocol should focus on climate-related innovations and capacity building; therefore, a global fund would be very important. Local investment has to occur and to bring innovation to different region of the world; creating a real balance; great problem to deal with in the future;

Financial engineering is needed and requires a bottom-up approach. People invest on risk and return. If the private sector should invest, the risk and return parameters need to be appropriate. Any mechanism needs to address transparency (make it clear what projects are doing), longevity (ensure that projects are sustained, and certainty (the project will be completed with bankable returns). Currently, in the developing world, risk is too high and so extremely high rates of return are expected from projects. Public money needs to be used to help reduce this risk. There are a number of tools for this including concession finance.



*Thursday, 9 December 2010: Gender and Climate Change Finance – Empowering Women to Lead in the New Green Economy. (Organiser: UNDP)*

Women have the potential to spearhead the development of the Green Economy. As innovators and change agents, women could propel new entrepreneurial ventures, advocacy achievements and many other initiatives that would move the green economy forward. Thirty percent of Chief Executive Officers in Europe are now women – a good first step.



Women, in their traditional roles have played an important role as natural resource custodians. This builds an important pool of capacity for natural resource management, which will be a strategic tool for addressing climate change mitigation, adaptation and green economy policies. Women also have a very important role in disaster risk management activities and are key to any dialogue.

Climate Change affects food security. Women need to be at the centre of the transition.

Women cannot be empowered in isolation. "SAFE" access to firewood and energy has a gender dimension and is designed to include woman as full stakeholders.

Communities don't have to wait for the negotiators – we need to start now and mobilise a community resilience fund created in Nicaragua has since spread to other parts of Latin America and Asia.

We have to ensure monitoring of the use and channelling of funds. This will require a more extensive and dedicated efforts at mainstreaming gender into national plans and programmes. Mainstreaming will promote the financial and policy frameworks that can encourage participation of women in the process.

In this process, women need to be informed and aware and mobilised and educated. At the same time, mainstreaming of gender requires that women and men work together.



## The Rio Conventions' Ecosystems and Climate Change Pavilion

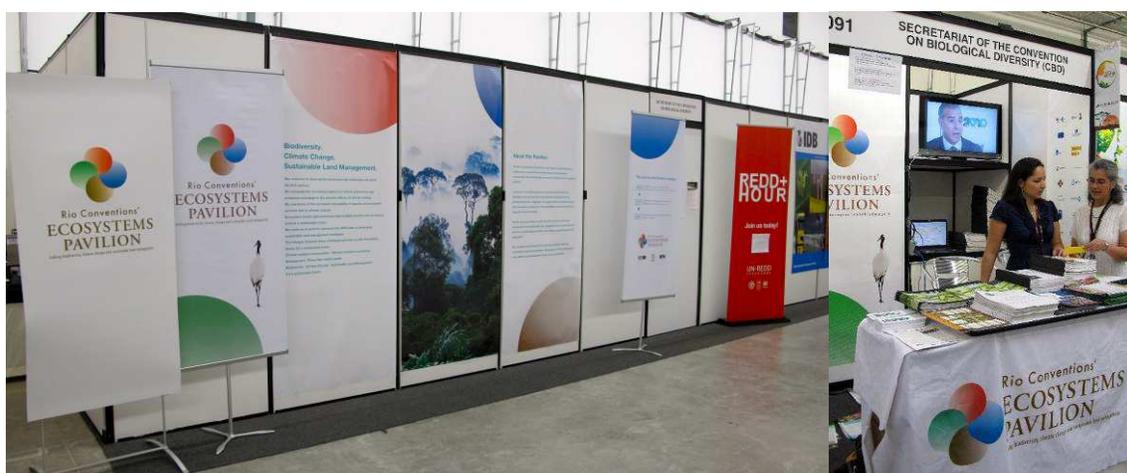
The Rio Conventions' Ecosystems and Climate Change Pavilion is a new collaborative outreach activity involving the Rio Convention secretariats, with the Global Environment Facility and 15 other important partners, including Parties, UN and non-government organisations, namely Japan, Mexico, the European Commission, Norway, The Netherlands, Spain, the Flemish Government, the Global Island Partnership, ICLEI – Local Governments for Sustainability, the Economics of Ecosystems and Biodiversity study (TEEB), IUCN World Commission on Protected Areas, Conservation International, UNDP, UNEP and the CBD's LifeWeb initiative.

Launched during the International Year of Biodiversity and held for the first time at the CBD COP10 in Nagoya, Japan, the Ecosystems Pavilion is a platform for raising awareness and sharing information about the latest practices and scientific findings on the co-benefits that can be realized through implementation of the three Rio Conventions. It provides a place for negotiators and other key decision makers, scientists, and practitioners to discuss the links between biodiversity, climate change and sustainable land management and to identify key areas for greater cooperation in the context of the Rio Conventions, particularly at the national and sub-national levels.

During the course of the biodiversity conference in Nagoya and the Climate change conference in Cancun, the Ecosystems Pavilion highlighted a number of specific themes and cross-cutting issues relevant to the Rio Conventions and their common objective to support sustainable development and the achievement of the Millennium Development Goals (MDGs). Key themes included ecosystem-based approaches to climate change; forest biodiversity and adaptation and mitigation; the role of oceans; indigenous peoples and communities, water, the role of protected areas, and financing.

Further information, including daily news digests, a summary of the key messages from the inaugural Pavilion in Nagoya, information about Pavilion activities at the Cancun Climate Conference, presentations, videos and other resources are available on the Ecosystems Pavilion website : [www.ecosystemspavilion.org](http://www.ecosystemspavilion.org)  
Visit the Facebook page at: [www.facebook.com/ecosystemspavilion](http://www.facebook.com/ecosystemspavilion) .

Next year, the Pavilion will be convened in October at the UNCCD COP 10 in Changwon, Republic of Korea and at the UNFCCC COP17 in South Africa. The Pavilion partners will also extend the momentum of these collaborative initiatives to the UN Conference on Sustainable Development in Brazil in 2012.



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