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## TROPICAL FORESTS AND CLIMATE CHANGE

Report of the international expert meeting on addressing climate change through sustainable management of tropical forests

**SEPTEMBER 2008**



**INTERNATIONAL TROPICAL TIMBER ORGANIZATION**



# **TROPICAL FORESTS AND CLIMATE CHANGE**

REPORT OF THE INTERNATIONAL EXPERT MEETING  
ON ADDRESSING CLIMATE CHANGE THROUGH  
SUSTAINABLE MANAGEMENT OF TROPICAL FORESTS

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ITTO Technical Series #30



INTERNATIONAL TROPICAL TIMBER ORGANIZATION

### **Tropical forests and climate change**

Report of the international expert meeting on addressing climate change through sustainable management of tropical forests

Yokohama, Japan

30 April–2 May 2008

#### **ITTO Technical Series #30**

The International Tropical Timber Organization (ITTO) is an intergovernmental organization promoting the conservation and sustainable management, use and trade of tropical forest resources. Its 60 members represent about 80% of the world's tropical forests and 90% of the global tropical timber trade. ITTO develops internationally agreed policy documents to promote sustainable forest management and forest conservation and assists tropical member countries to adapt such policies to local circumstances and to implement them in the field through projects. In addition, ITTO collects, analyses and disseminates data on the production and trade of tropical timber and funds projects and other actions aimed at developing industries at both community and industrial scales. All projects are funded by voluntary contributions, mostly from consumer member countries. Since it became operational in 1987, ITTO has funded more than 800 projects, pre-projects and activities valued at more than US\$300 million. The major donors are the governments of Japan, Switzerland, the United States and the European Union. ITTO contact details are given on the back cover.

Front cover: Cenepa River, Tambopata, Peru.  
(Photo: Conservation International)

Back cover: Kaen Krachan National Park buffer zone,  
Thailand-Myanmar border. (Photo: Gary B. Wetterberg)

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## FOREWORD

The implications of climate change for tropical forests are immense. At stake are the livelihoods of some of the world's poorest people and some of its most precious ecosystems. Addressing the challenges and opportunities posed by climate change for tropical forests is, therefore, imperative.

This report summarizes the deliberations of the International Expert Meeting on Addressing Climate Change through Sustainable Management of Tropical Forests, which met for three days in Yokohama, Japan, in May/June 2008. The meeting fully endorsed the potential role of sustainable forest management in the tropics in both mitigating climate change and helping communities adapt to it. It also generated realistic proposals for action for a range of international and national actors, including ITTO and its member countries and partners. The adoption and implementation of the meeting's recommendations will not only help in the development of forest-related strategies for climate change mitigation and adaptation, it will also strengthen the capacity of ITTO tropical member countries to tackle this critical issue.

The expert meeting was a small but important step towards harnessing in full the potential of the tropical forests sector in tackling climate change. We are now better equipped to advocate and promote forest-related approaches to climate change in relevant national and international forums, including in discussions regarding the second commitment period of the Kyoto Protocol or any post-Kyoto arrangement.

I thank and congratulate Madam Katharina Kümayer, the Chair of the International Tropical Timber Council, and Ambassador Kyoji Komachi for their able leadership during the meeting, and the presenters and facilitators for their hard work. Indeed, I thank all participants: the lively debate in which they engaged, and the conclusions they reached, will help all people interested in the role of tropical forests in climate change mitigation and adaptation to understand the issues and to chart a course towards a sustainable future.

**Emmanuel Ze Meka**  
ITTO Executive Director  
September 2008



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## ACRONYMS

ANAFOR	National Forestry Assistance Agency (Cameroon)
A/R	Afforestation/reforestation
BNDES	Brazilian Development Bank
CDM	Clean Development Mechanism
CERSGIS	Centre for Remote Sensing and Geographic Information Systems (Ghana)
CIFOR	Center for International Forestry Research
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> -e	Carbon dioxide equivalent
COMIFAC	Commission in Charge of the Forests of Central Africa [ <i>Commission en charge des Forêts d'Afrique Centrale</i> ]
COP	Conference of the Parties
CPF	Collaborative Partnership on Forests
CSAG	Civil Society Advisory Group
DNA	Designated National Authority
FAO	Food and Agriculture Organization of the United Nations
FCPF	Forest Carbon Partnership Facility
FRA	Forest Resources Assessment
GIS	Geographic information system
IPCC	Intergovernmental Panel on Climate Change
ITTO	International Tropical Timber Organization
ITTC	International Tropical Timber Council
JICA	Japan International Cooperation Agency
LULUCF	Land use, land use change and forestry
MAI	Mean annual increment
MW	Megawatt
NGO	Non-governmental organization
NTFP	Non-timber forest product
PES	Payments for ecosystem services
PNG	Papua New Guinea
REDD	Reduced emissions from deforestation and forest degradation
RIL	Reduced impact logging
R-PIN	Readiness plan idea note
SBSTA	Subsidiary Body for Scientific and Technological Advice
SFM	Sustainable forest management
TAG	Trade Advisory Group
TICAD	Tokyo International Conference for African Development
TROFCCA	Tropical Forest Climate Change Adaptation project
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

## CONCLUSIONS AND RECOMMENDATIONS

### Key messages

- Forest restoration and sustainable forest management are important measures for mitigating climate change. They also have many additional benefits, including biodiversity conservation, the provision of other ecosystem services, and the alleviation of poverty.
- Tropical forests and forest-dependent people are highly vulnerable to climate change. Measures to help the forests sector adapt to climate change are urgently required.
- Sustainable forest management can help increase the resilience of tropical forest ecosystems and forest-dependent people in the face of climate change.
- Bioenergy production from forestry and the substitution of fossil-fuel-intensive products by wood products could be important strategies for mitigating climate change.
- ITTO can play an important role in encouraging and assisting member countries to develop and implement forest-based climate change mitigation and adaptation initiatives.

The expert meeting on the role of sustainable tropical forest management in climate change mitigation and adaptation drew the following conclusions and made a total of 40 recommendations.

### Conclusions

#### *Mitigation*

Land use change, including deforestation, mostly in the tropics, accounts for about 20% of global greenhouse gas emissions. In most ITTO producer member countries, land use change constitutes by far the main source of emissions.

Forests and woodlands will play many roles in climate change mitigation through emissions reductions, carbon sequestration, and carbon substitution.

In many places, reduced emissions from deforestation and forest degradation (REDD) will be a necessary strategy for reducing emissions, but it will need to be complemented by other measures. Forest restoration can help remove greenhouse gases from the atmosphere (carbon sequestration) and also has many co-benefits, including biodiversity conservation, the provision of other ecosystem services and poverty alleviation. The increased use of wood-based biofuels and wood products are options for carbon substitution.

A task of the international community is to help understand and finance the cost of reducing greenhouse gas emissions and enhancing carbon sinks through sustainable forest management (SFM). This will not only lead to good forest practice but also improve local livelihoods.

To reduce deforestation, the value of forests to landowners and forest users must be at least as great as alternative land uses. Incentives for REDD, therefore, must benefit the agents directly responsible for deforestation and forest degradation and act as an incentive for reducing this destructive behaviour. In many places, identifying and involving these responsible agents are major challenges. Any potential REDD approaches must avoid perverse outcomes, such as encouraging poor forest practice.

Countries could identify hotspots – those forest areas most under deforestation pressure – for targeted REDD activities. Demonstration activities are already testing this approach.

SFM is not yet defined in the United Nations Framework Convention on Climate Change (UNFCCC). ITTO has a strong understanding of the principles of SFM, as well as experience in implementing it in the tropics.



To date, the Clean Development Mechanism (CDM) has not sufficiently encouraged afforestation and reforestation (A/R, as defined by the Marrakesh Accords of the Kyoto Protocol). Unless procedures are improved and transaction costs reduced, it is unlikely that the A/R CDM will contribute substantially to the enhancement of carbon sinks.

Many tropical countries have launched programs to increase the role of forests in mitigating climate change. In Brazil, the Amazon Fund is to be established with the aim of promoting effective reductions of greenhouse gas emissions from deforestation in the Amazon. In Mexico, an approach has been developed to commit, as permanent carbon sinks, those forests that are under the greatest threat of deforestation. In Africa, the Congo Basin countries aim to place at least 20% of the Basin's production forests under management plans by 2010 and have at least 7 million hectares certified as sustainably managed. While this latter initiative is not designed specifically to address climate change, it will reduce both deforestation and the vulnerability of the region's ecosystems and people to climate change and will therefore contribute to mitigation and adaptation. These and other national and regional initiatives are worthy of international support aimed at mitigating climate change.

Robust and credible strategies to mitigate climate change through SFM should recognize the historical forest management role of Indigenous and local communities and fully involve them in decision-making and benefit-sharing.

Studies are urgently needed on the implications of climate change for SFM in the tropics, on the role of tropical forests in mitigating climate change, and on national and international approaches to meeting the costs associated with managing tropical forests in the context of climate change.

The ability of countries to monitor carbon stocks in forests is highly variable. Tools are increasingly available to assist in this task but, in many countries, effective monitoring will require significant work and capacity building to establish reliable reference data for measuring deforestation and forest degradation.

Wood is a carbon-neutral material and a renewable resource. Bioenergy production from forestry and the substitution of fossil-fuel-intensive products by wood products could be important approaches to mitigating climate change. Fuels produced from wood can have higher energy efficiency than other

bioenergy sources, but production costs must be reduced and the environmental and socioeconomic impacts taken into account.

Wood is often more carbon-friendly than other commonly used building materials such as cement, plastics and steel. In certain cases, replacing one cubic meter of concrete or red brick with the same volume of timber can save around 1 ton of carbon dioxide.

In many tropical countries, the traditional use of wood as fuel is still common and the industrial use of wood for biofuel production is also likely to increase dramatically in coming years. More information is needed on the ramifications of wood-based biofuels for the forests sector, the availability of land, and climate change.

### **Adaptation**

Tropical forest ecosystems face many potential threats due to climate change, including changed precipitation regimes and the increased incidence and severity of pests, diseases, fire and storms. They might also be vulnerable to increased in-migration by and pressure from environmental refugees. However, little information is available on the nature of these threats.

The impacts of climate change on forests could exacerbate poverty and the prevalence of human disease while reducing the availability of forest-based traditional medicines and other products and services important for human wellbeing. Forest-dependent people will be particularly affected.

Low-lying coastal forests, particularly mangroves, are likely to be affected by predicted sea level rises due to climate change, with huge implications for important ecosystem services and human health. More information on possible adaptation measures in these forests is urgently required.

SFM provides a basis for adaptation to climate change in forests by increasing resilience, but there will be an ongoing need to re-assess forest practices. Many existing forest management tools do not explicitly account for the possible impacts of climate change.

To minimize the impacts of climate change on forest ecosystems and forest-dependent people, countries will require flexible and equitable decision-making processes at local and national levels that allow rapid and adaptable forest management responses.

Funding for forest-based adaptation is essential, but access by the forests sector to existing adaptation funds needs to be clarified and improved. More efforts are required to convince the international community of the importance of adapting the forests sector to climate change.

## Recommendations

The meeting generated recommendations for ITTO, national governments, and members of the Collaborative Partnership on Forests (CPF) and other relevant organizations.

### Recommendations for ITTO

#### *Development studies*

- 1) Study the implications of climate change for SFM in the tropics.
- 2) Develop guidelines for climate change mitigation and adaptation options in tropical forests and for accounting for carbon in forest management plans and ITTO projects, and update the ITTO Criteria and Indicators of Sustainable Forest Management in Tropical Forests to reflect the current state of knowledge on climate change.
- 3) Assist in the improvement of modalities and procedures in the A/R CDM and CDM institutions.
- 4) Analyse the possibility of introducing the concept of forest restoration to the post-2012 climate change negotiation process within the UNFCCC.
- 5) Study methods for accounting for the permanence of carbon in harvested tropical wood products.
- 6) Commission studies on the substitution potential of wood products and their role in climate change mitigation.
- 7) Analyse approaches to financing tropical forest-based initiatives to climate change mitigation and adaptation.

#### *Capacity building*

- 8) Help member countries to build forests-sector capacity to mitigate and adapt to climate change, including by:
  - supporting regional collaboration on the role of tropical forests in climate change mitigation and adaptation

- encouraging national consultation processes on mitigation and adaptation in the forests sector
  - encouraging the development of policy and institutional frameworks that support the role of tropical forests in climate change mitigation and adaptation
  - supporting financial contributions to REDD and the enhancement of carbon sinks
  - supporting forestry officials in member countries to participate in climate change negotiations.
- 9) Support member countries in the assessment and monitoring of forest carbon stocks and forest-based carbon emissions within their national forest inventory systems and facilitate the exchange of good practices and test-results of new methodologies and technologies.
  - 10) Support member countries in ensuring that forest policy frameworks include climate change considerations, and that tropical forest issues are taken into account in national action plans for adaptation.
  - 11) Encourage and assist member countries to develop proposals for pilot projects on REDD and other forest mitigation options and for increasing the resilience of tropical forests to climate change, and consider providing finance for such projects.
  - 12) Support local people to participate in and benefit from initiatives in forest-based climate change mitigation and adaptation. In this regard, work with relevant parties, including other members of the CPF, to ensure that forest-dependent people benefit from REDD, the enhancement of carbon sinks in forests, and payments for ecosystem services.
  - 13) Continue to promote community-based forest enterprises as a flexible strategy for assisting forest-dependent people to mitigate and adapt to climate change.
  - 14) Contribute to the development of policies and guidelines to promote sustainable wood-based biofuels in a way that does not jeopardize food security and is consistent with the principles of SFM.
  - 15) In partnership with the private sector and other stakeholders, encourage and assist governments to promote the use of carbon-friendly wood products in construction.

- 16) Ensure that forest-based approaches to climate change mitigation and adaptation fully consider the need for good governance, equity, the involvement of civil society and local communities, respect for human rights, and poverty reduction.

*Knowledge management and information-sharing*

- 17) Provide information and guidance on the management of tropical forest types particularly vulnerable to climate change.
- 18) Conduct a global review of best practice in rights-based approaches to REDD and forest-based carbon enhancement in the tropics.
- 19) Work with other members of the CPF and other relevant parties to ensure that modalities for REDD and the enhancement of carbon sinks are user-friendly.
- 20) Actively provide the UNFCCC process with information on tropical forests and the role of SFM in climate change mitigation and adaptation.

**Recommendations for national governments**

- 21) Increase the capacity of personnel working on forest-based climate change at the national and sub-national levels.
- 22) Increase awareness among all stakeholders, including policymakers, of the importance of forest-based mitigation and adaptation options in national responses to climate change.
- 23) Where lacking or insufficient, develop land-use mapping and planning, inventory and monitoring to assist adaptive land management.
- 24) Undertake demonstration activities to develop and understand REDD and the enhancement of carbon sinks in the context of climate change, including through ITTO support.
- 25) Promote community-based forest enterprises as a flexible strategy for assisting local people to adapt to climate change.
- 26) Use participatory consultation processes to incorporate forests more fully in national development agendas and in approaches to the Millennium Development Goals.

- 27) Support the involvement of civil society, communities and other relevant stakeholders in national policies and actions on forest-based climate change mitigation and adaptation.
- 28) Ensure that forest-based approaches to climate change mitigation and adaptation fully consider the need for good governance, equity, the involvement of civil society and local communities, respect for human rights, and poverty reduction.
- 29) Develop public awareness programs on the important and dynamic relationship between forests and climate change.
- 30) Study the feasibility of wood-based biofuels in climate change mitigation compared to other energy alternatives.
- 31) Where appropriate, encourage the development of community-based wood energy programs.
- 32) Develop policies and guidelines to promote sustainable wood-based biofuels in a way that does not jeopardize food security and is consistent with the principles of SFM.

**Recommendations for members of the CPF and other relevant organizations**

- 33) Generate information on the relationship between forests and climate change and support national forest inventories and design monitoring methods to assist in generating such information.
- 34) Strengthen research on the links between climate change, forests and human wellbeing.
- 35) Provide information and guidelines on the management of forest types that are especially vulnerable to climate change.
- 36) Develop and test options for adapting the forests sector to climate change.
- 37) Help build capacity among forestry officials in member countries to increase their awareness of and participation in climate change negotiations.
- 38) Collaborate more strongly on assisting members to mitigate and adapt to climate change.
- 39) Raise awareness of the role of forests in climate change mitigation and adaptation.
- 40) Facilitate free access to remote sensing for monitoring the role of forests in climate change mitigation and adaptation.

# 1 INTRODUCTION

ITTO is a United Nations-established intergovernmental agency tasked with promoting the conservation and sustainable management, use and trade of tropical forest resources. It operates under the International Tropical Timber Agreement, an agreement negotiated and signed by 60 producer and consumer countries. It develops internationally agreed policies to promote SFM and forest conservation and assists tropical member countries to adapt such policies to local circumstances and to implement them in the field through projects. Over the last 20 years, the Organization has provided more than US\$300 million in grants to fund about 750 projects in its member countries. It is an active member of the Collaborative Partnership on Forests (CPF) and has a wide range of partners including governments, international and regional organizations, forest companies, local communities, and non-governmental organizations.

On 30 April–2 May 2008, ITTO convened an expert meeting to explore the role of sustainable tropical forest management in climate change mitigation and adaptation. Specifically, the meeting aimed to clarify the potential role of ITTO in climate change adaptation and mitigation in relation to tropical forests, and assist members in formulating and implementing an integrated forests-sector response to climate change. The expected outcomes were:

- a common understanding of the role of sustainable tropical forest management in addressing climate change;
- the identification of actions that ITTO, its members, partners and other key stakeholders could take to address climate change through sustainable forest management (SFM); and

- the identification of forest-related issues relevant to key forthcoming policy events.

Participants explored existing and possible future schemes for reduced emissions from deforestation and forest degradation (REDD), reviewed other mitigation options in the forests sector, and examined the need to assist the forests sector to adapt to climate change.

The meeting listened to the views of non-government stakeholders through representatives of ITTO's Trade Advisory Group (TAG) and Civil Society Advisory Group (CSAG) and heard presentations from the World Bank's Forest Carbon Partnership Facility (FCPF), the Forest Department of the Food and Agriculture Organization of the United Nations (FAO), the Center for International Forestry Research (CIFOR), the World Agroforestry Centre, a number of ITTO member countries, and experts in the field of forests and climate change. These presentations are summarized in sections II–V; the Powerpoint presentations themselves are available on the ITTO website.

In addition to presentations and question-and-answer sessions, participants formed working groups to discuss the technical and institutional issues around tropical forests and climate change, both globally and by region (ie Africa, Asia and the Pacific, and Latin America and the Caribbean). The unedited reports of these working groups are contained in the annex to this report.

## 2 OPENING AND WELCOMING REMARKS

### Chairs: Ms Katharina Kühmayer and Ambassador Kyoji Komachi

#### **Emmanuel Ze Meka**

**Executive Director**

**International Tropical Timber Organization**

I am honoured and delighted to welcome you all to this meeting, organized by ITTO in cooperation with the Governments of Japan, Switzerland and Norway and the City of Yokohama. This meeting takes place in the lead-up to the Fourth Tokyo International Conference for African Development (TICAD IV), which will be held here in Yokohama on 27–30 May 2008 and, I hope, will provide inputs to it. This meeting is relevant, however, to the entire membership of ITTO and is designed to assist the International Tropical Timber Council (ITTC) to clarify and illustrate the role of ITTO in climate change adaptation and mitigation in relation to tropical forests and to assist members in formulating and implementing an integrated forests-sector response to climate change.

It is a great pleasure to welcome the Chairperson of the ITTC, Ms Katharina Kühmayer, as well as His Excellency Mr Kyoji Komachi, Ambassador of Global Environment Affairs, Ministry of Foreign Affairs of Japan, who will co-chair the meeting. It gives me equal delight to welcome His Excellency Mr Koichi Fujishiro, Chairperson of the Yokohama City Council, and Ms Yumiko Noda, Deputy Mayor of the City of Yokohama, and to hereby put on record my gratitude to the City of Yokohama for its ongoing support of ITTO, including its support for this meeting.

I am grateful to the panelists and presenters who, over the next few days, will benefit us with their knowledge, experience and insights. I recognize the support of ITTO's partner organizations in the CPE, particularly FAO, CIFOR, the World Bank, the United Nations Convention on Biological Diversity, the United Nations Framework Convention on Climate Change (UNFCCC), and the World Agroforestry Centre, as well as representatives of CSAG and TAG, who have devoted time to attending this meeting. This wide-ranging participation underscores the importance and sensitivity of the issue of climate change. The attention of all branches of society – governments, non-governmental organizations (NGOs), scholars and scientists, and local and business communities

– is needed if we are to meet the challenges posed by climate change.

I am confident that this conference will help generate and develop useful tactics and strategies for curbing deforestation and forest degradation and to further strengthen the sustainable management of tropical forests. If it does, it will have played an important part in building our capacity to adapt to and mitigate climate change.

#### **Yumiko Noda**

**Deputy Mayor**

**City of Yokohama**

**Japan**

It is a great honour to welcome you all to our city and to this meeting on tropical forests and climate change. I would like to express my appreciation to ITTO's Executive Director, Mr Ze Meka, for deciding to hold the event here in Yokohama. As he mentioned, in one month the City will be hosting TICAD IV. We have been thinking about what we might do to make TICAD a great success and how the city might contribute to its main theme of 'a vibrant Africa'. We won't be able to make a huge contribution, but we want it to be meaningful.

With 3.6 million citizens, Yokohama is Japan's second largest city. We are, however, a long way from Africa and we don't know what is happening there. So, to some extent, we are indifferent. Indifference, which leads to inaction, is one of the biggest challenges we face as a city and as a global society. TICAD IV represents an opportunity for our citizens to learn about what is happening in Africa and to understand how the vibrant future of that continent could be affected by climate change. Interest often espouses sympathy and sometimes leads to action.

Therefore, the city has been taking steps to raise the interest of our citizens towards Africa. Last Saturday, for example, we started a program of African festivals, parades, etc, in which citizens can learn about and enjoy Africa. Tomorrow, we start our 'one station one country' project, in which all subway stations will be decorated by flags and pictures from particular African countries and information on the country,



along with messages and pictures from school children, will be presented. We hope that subway passengers will get to know Africa as they walk through the stations.

By opening this meeting on tropical forests and climate change to all interested parties, we are providing Yokohama's citizens with an opportunity to hear the views of experts in this field. If we become aware of how climate change can affect people in Africa, we might make our lifestyles more environmentally friendly. Yokohama citizens have already demonstrated an amazing power to act on environmental issues. One of our problems here is household waste. In January 2003, the city established a target of reducing waste volume by 30% by 2010 (compared to 2001). By 2005, we had already achieved that target. Last year, the total volume of waste was 38% less than in 2001, even though the population grew in the intervening period. We are also working to create a greener environment: only 31% of the city is covered by trees but, by 2009, we will have planted 1.5 million more trees. In January 2008 we introduced a target of reducing greenhouse gas emissions in the city by 30% by 2025. We are confident we can meet this target.

On a global scale, these efforts are small. As a society, we created the problems; we are therefore responsible for fixing them. It is time to aim higher and to join efforts at a global scale. I am looking forward to today's session.

***Kyoji Komachi***

**Ambassador for Global Environmental Affairs  
Ministry of Foreign Affairs  
Japan**

I would like to express my deepest gratitude to the City of Yokohama for hosting this meeting. I was head of Japan's delegation to the 13th session of the Conference of the Parties (COP) to the UNFCCC in Bali last year. Much is expected of the next COP, to be held in December this year, because it will be taking up the issue of REDD, which is not included in the current framework. There is much expectation that REDD will contribute to reducing greenhouse gas emissions on a global scale.

In the last 20 years, ITTO has been active in alleviating the situation in the tropics but SFM has not necessarily been adopted widely. Degradation and deforestation continue, with negative impacts on people, biodiversity and global warming.

This meeting on addressing climate change through SFM is timely. Climate change is a common issue for

all humankind. ITTO implements specific projects in developing countries and has the ability to help build capacity. Japan is ITTO's top donor; we will continue to fund ITTO activities, including those related to REDD and illegal logging in tropical countries. I hope that ITTO will strengthen its cooperation with other bodies, including the World Bank, in these respects.

We have many distinguished experts at this conference and their contributions will be beneficial to forthcoming international discussions. Next month, many heads of state from Africa will gather at TICAD IV to discuss a range of issues, including climate change, and in July Japan will also host the G8 Summit at Toyako in Hokkaido. I hope that ITTO will be able to leverage some momentum through these events and will play an even greater role in assisting the sustainable management of tropical forests in the future.

***Ms Katharina Kühmayer***

**Chairperson of the International Tropical  
Timber Council  
Austria**

I have the honour of welcoming you all today to the opening of the International Expert Meeting on Addressing Climate Change through Sustainable Management of Tropical Forests in the comfort of the excellent facilities here in Hammagin Hall. As the current Chair of the ITTC and on my own behalf, please allow me to record our deepest appreciation to the Governments of Japan, Switzerland and Norway, the City of Yokohama, the Japan International Cooperation Agency (JICA), and the Mainichi Newspaper for their generous support for this meeting.

The theme of this meeting is important to all of us. Tropical forests have enormous potential to contribute to climate change mitigation and adaptation. It is quite a surprise to learn that, according to the 2006 Stern Review, land use, mostly deforestation, accounts for about 18% of current global greenhouse gas emissions – more than the 14% estimated to arise from the global transportation sector. The Stern Review also suggests that curbing deforestation is a highly cost-effective way of reducing greenhouse gas emissions, with the potential to offer significant reductions fairly quickly. Therefore, actions to tackle tropical deforestation and to sustainably manage the remaining areas of tropical forests are urgently required. The sustainable management of tropical forests will also help conserve biodiversity and

provide livelihood benefits for forest-dependent people. Afforestation and the reforestation of degraded forest lands could help mitigate climate change by increasing carbon stocks while simultaneously providing many ecological and socioeconomic benefits.

Many of us are now aware of the Bali Action Plan agreed at the 13th COP of the UNFCCC convened in Bali, Indonesia last December. The Bali Action Plan is a roadmap for a new negotiating process to lead to a post-2012 international agreement on climate change, which should be concluded by 2009. It focuses on the development of appropriate policy approaches and positive incentives for measures that reduce emissions from deforestation and forest degradation as well as promote the role of conservation, SFM and the enhancement of forest carbon stocks in the mitigation of climate change. In light of ITTO's accumulated experience and contributions to SFM in tropical forests and thereby to climate change mitigation and adaptation through its policy and project work, I believe it is highly desirable that ITTO play a leading role in assisting tropical countries to navigate the Bali roadmap towards a sustainable carbon future.

Over the past two decades ITTO has developed several internationally agreed policy documents to promote SFM and has assisted tropical countries in the adoption of such policies to be implemented in the field. ITTO is also an active member of the CPE, which is now developing a framework strategy to improve synergies and the multiplier effects of joint actions in the field of forests and climate change.

While this international expert meeting will provide clarity and inputs to ITTO in advancing its policy work and project activities relating to climate change mitigation and adaptation, it will also contribute meaningfully to upcoming international fora and events on climate change. This includes the upcoming TICAD IV, to be held next month here in Yokohama. A focal theme of TICAD IV is "addressing environmental issues and climate change".

Considering the urgent need for international assistance to Africa in the sustainable management of tropical forests, I hope that this expert meeting will devote adequate time to discuss what could be done at the regional level to achieve our goals related to SFM and climate change. I also sincerely hope that the outcome of our expert meeting will provide useful inputs to the G8 Summit to be held in Hokkaido in July 2008.

As climate change continues to dominate discussions at many international fora, ITTO must urgently develop a strategy on how its work impacts on climate change issues, thereby raising its relevance and profile at the international level. In particular, I wish to emphasize the importance of developing practical proposals on how to incorporate and integrate REDD and carbon sequestration into the implementation of SFM in tropical forests. It is equally important that ITTO and its member countries ensure that SFM is recognized as an eligible activity for funding mechanisms that might be established to assist REDD or other mechanisms that might be created in any post-Kyoto climate change agreement. In this connection, I hope that a draft ITTO program on climate change and SFM can be formulated at this meeting so that it can be further reviewed at the ITTO meeting on operational modalities of future work of the ITTC, which will be held on 9–12 June 2008 in Accra, Ghana. By the 44th Session of the ITTC in November 2008, I trust that ITTO will have a sound program on climate change in the context of SFM that can attract increased funding from a broader base of donors, thus enabling the Organization to assume an increasing role in this field.

Climate change is a threat, but at the same time it offers a great opportunity to the tropical forests sector. I have every confidence that with the active participation of you all, this expert meeting will address the urgent need for developing and implementing forest-based mitigation and adaptation measures and other actions to maximize the role of tropical forests in maintaining the carbon balance and a healthy planet.

## 3 KEYNOTES

### Global overview of tropical forests in addressing climate change

**Rodel Lasco**

World Agroforestry Centre

By area, tropical forests – forests located between the tropics of Capricorn and Cancer – are the largest of the forest biomes. The 2005 FAO Forest Resources Assessment (FRA) shows that tropical forests cover 1.7 billion hectares, down from 1.9 billion hectares in 1990. This implies an average deforestation rate of 6 million hectares per year over the period.

Land use, land use change and forestry (LULUCF), mainly tropical deforestation, are responsible for about 20% of global greenhouse gas emissions. The Intergovernmental Panel on Climate Change (IPCC) estimates that, during the 1990s, 1.6 gigatonnes of carbon were emitted per year due to LULUCF. According to FRA 2005, however, carbon stocks in forest biomass decreased by 1.1 Gt of carbon annually between 1999 and 2005. So there is uncertainty in these estimates.

There is much interest in the possible role of tropical forests in climate change mitigation. In its 2007 report, the IPCC identified the tropics as having the greatest potential for climate change mitigation through forestry, but this potential is difficult to quantify. More detailed estimates of the economic or market potential of mitigation options are needed, by region and by country. Initial studies show that the largest potential is in avoiding deforestation and enhancing afforestation and reforestation, including for bioenergy.

In the 1980s and 1990s, most deforestation occurred in the Amazon, tropical Africa and Southeast Asia (mainly Indonesia). The IPCC estimates that, in the short term, 93% of total mitigation potential in the tropics will be in avoided deforestation. In the long term, at 27 dollars per tonne of carbon dioxide (CO<sub>2</sub>), deforestation could be almost eliminated. Over 50 years, this could mean a net cumulative gain of 278,000 megatonnes (Mt) of CO<sub>2</sub> relative to the baseline and 422 million additional hectares of forests. The largest gains in carbon would be in Southeast Asia.

The establishment of new forests through reforestation and afforestation offer the second largest potential for climate change mitigation measures in forests. The estimated cost of REDD projects in developing countries range between US\$0.5 and US\$7 per tonne of CO<sub>2</sub>, compared to US\$1.4 to US\$22 for similar projects in industrialized countries. In the short term (2008–2012), the economic potential area available for afforestation/reforestation under the Clean Development Mechanism (CDM) is 5.3 million hectares in Africa, Asia and Latin America combined, with Asia accounting for 4.4 million hectares.

Research conducted in East Kalimantan, Indonesia, and Ucayali, Peru, as part of the Alternatives to Slash and Burn Partnership suggests that most forest-based mitigation options would be available at less than US\$5 per tonne of CO<sub>2</sub>. The key message from this is that cost-effective opportunities for large reductions in emissions from REDD are available, provided that appropriate institutions and incentives systems are created. To be effective in the long term, REDD mechanisms must provide land users with financial incentives that outweigh the returns they could get from conversion to other land uses. Tropical forest conservation has a number of co-benefits, such as biodiversity conservation and contributions to the livelihoods of the rural poor.

There are still few takers of forestry carbon projects under the Kyoto Protocol, with fewer than 14 million carbon credits expected to be available by 2012. Of projects developed under the CDM, fewer than 1% (0.8%) are devoted to afforestation and reforestation. Reasons for this slow uptake include high transaction cost (US\$200,000 per project), a lack of base financing, and complicated rules and methodologies. The voluntary market, currently the only source of carbon financing for avoided deforestation, is slightly more encouraging, with forestry-based credits accounting for about 36% of all market transactions, which in 2006 amounted to 23.7 million tonnes of CO<sub>2</sub>-e<sup>1</sup> valued at US\$91 million. In the past, voluntary carbon markets have served as valuable sources of experimentation and innovation.

<sup>1</sup> CO<sub>2</sub> equivalent –the concentration of CO<sub>2</sub> that would cause the same level of radiative forcing (ie global warming) as a given type and concentration of greenhouse gas



The role of forest in climate change adaptation is perhaps less discussed, but it is also important. More than 800 million people rely on tropical forests for fuel, food and income. Forests and planted trees can help local communities adapt to climate change through livelihood diversification and the provision of ecosystem services.

## **Sustainable forestry: solution and victim**

**Tasso Azevedo**

**Brazilian Forest Service**

**Brazil**

Deforestation is part of the climate change problem. Brazil is responsible for 2.5% of global greenhouse gas emissions, 55% of which is from its forests. Forests are also a victim of climate change. A reduction in evapotranspiration could lead to the loss of up to 60% of tropical forests. This, in turn, would have immense impacts: loss of rain for agriculture; decreases in the quality and quantity of water; loss of biodiversity; and the collapse of water-based transportation in the Amazon.

Forest protection and SFM are imperative for maintaining essential forest services in our society. But if global greenhouse emissions continue unabated, we might lose our forests anyway. So, the challenge for Brazil is to promote conservation and SFM while ensuring that this effort makes a truly additional contribution to reducing emissions and does not simply offset someone else's emissions.

Reflecting Brazil's commitment to SFM, the government has defined three forest policy goals for the period 2004 to 2011: to increase the annual area of reforestation from 320,000 hectares to 1 million hectares per year; to increase the area of sustainably managed natural forest from 300,000 hectares to 15 million hectares; and to decrease deforestation.

We have made progress towards all three of these goals. In 2007, 700,000 hectares of new plantations were established. The area of natural forests certified as sustainably managed by the Forest Stewardship Council was 3 million hectares (up from 300,000 hectares in 2003), and the rate of deforestation declined from 2.6 million hectares in 2003 to 1.1 million hectares in 2007.

Nevertheless, REDD is the biggest challenge in the Amazon. Half of Europe could fit in the Amazon,

which is home to 22 million people, including 220 Indigenous groups speaking 180 languages. Tackling deforestation is a very complex equation. Eighty-five per cent of the Amazon is forest, but we have lost 15% in the last 30 years. In 2004, deforestation became a matter of state: the President called on eleven ministries to set up an action plan to prevent and control deforestation. They came up with three strategies – land tenure and territory planning, environmental monitoring and control, and incentives for sustainable production – involving 144 actions.

Outputs of the land tenure and territory planning strategy include: 10 million hectares of new Indigenous territories created; 20 million hectares of protected areas created in federal areas (40 million hectares if including state lands); and 66,000 illegal land titles cancelled. Under environmental monitoring and control, 1 million m<sup>3</sup> of illegal logs have been seized; over 500 (now close to 600) people, including 110 corrupt public servants, have been jailed for illegal forest activities; and a real-time remote sensing survey system has been established to monitor deforestation and logging, generating data on a monthly basis and in some cases every 15 days. A host of incentives has been created. New legislation regarding public forests has been introduced, creating 19 million hectares of sustainable forest districts and 4 million hectares of extraterritorial reserves and adding 193 million hectares to a Public Forest National Registry.

The net effect has been an almost 60% decrease in deforestation and a 30% decrease in Brazil's emissions in three years. There is no room for complacency, however, and the declining rate of deforestation could easily reverse – as it appears to be doing in 2008. New measures are being introduced, focusing on reducing investments and credit for activities that lead to deforestation and forest degradation and on increasing investments in activities that promote forest conservation and more efficient use of existing deforested areas.

In most cases, sustainable forest activities cannot compete financially with other uses of the land such as agriculture and cattle breeding. This is the main challenge: making forests more valuable than alternative uses of the land. Incentives are needed. The Brazilian Government is committed to investing US\$500 million until 2011 to combat deforestation. It is creating what it is calling the Amazon Fund, through which investments will be made in actions to control

and combat deforestation and to promote the conservation and sustainable use of forests, including: to better manage protected areas and public forests; environmental monitoring and control; combating illegal logging; SFM; biodiversity conservation; reforestation and the restoration of forest ecosystems; and payments for ecosystem services (PES). Up to 20% of the funds will be spent on assisting the transfer of technology and experiences to other tropical forest countries.

The fund will be hosted and managed by the Brazilian Development Bank (BNDES). This is an outside organization, so that the government will not control the funds. Instead, a steering committee comprising representatives of federal and state governments, NGOs, social movements, the business sector and scientists will determine the use of the funds. A scientific committee will attest to REDD and an annual audit of the application of the funds will be carried out. The idea is to make all fundraising based on real reductions in emissions from deforestation in the Amazon.

The principles behind the Amazon Fund are: it should be consistent and simple; transaction costs should be low; success should be based on real reduced emissions; and it should be highly participatory, involving all sectors of society. The scope of the fund up to 2011 is the entire Brazilian Amazon; after 2011 it will be extended country-wide.

The scheme will take a conservative approach to calculating emissions, based on an assumption that there are 100 tons of carbon in one hectare of Amazonian forest. Reduced emissions from deforestation = (average deforestation rate - deforestation rate in the year of interest) x 100 tons of carbon per hectare. The average deforestation rate is calculated by averaging the annual deforestation for the previous ten years. If the rate of deforestation in the year of interest is higher than the average deforestation rate then the Brazilian government will be unable to raise funds in that year for reduced emissions and will have to discount the reduction in the following year.

In 2006 the average deforestation rate was 1.95 million hectares and the deforestation rate for 2006 was 1.4 million hectares. The total reduced emissions from deforestation in 2006 = (1.95 million hectares - 1.40 million hectares) x 100 tons = 55 million tonnes of carbon, the equivalent of 200 million tonnes of CO<sub>2</sub>. This was a very significant real reduction.

Contributors to the Amazon Fund are expected to be governments, companies, NGOs, etc. The only thing that participating parties will receive will be a diploma recognizing their contributions to the reduction of carbon emissions. The diploma will be non-transferable and non-tradeable and cannot be used to offset emissions. The idea is that this fund will be truly additional and will make a real contribution to the overall goal of reducing emissions. Preparations are under way to have the initiative operational by June 2008 and up to US\$150 million per year is expected to be available over the next five years.

### **Sustainable management of tropical forests: the role of ITTO in climate change mitigation and adaptation and in assisting members in formulating an integrated forests-sector response**

**Jürgen Blaser**  
Intercooperation  
Switzerland

Forests play many roles in climate change. They are highly vulnerable to climate change (forests as 'victim', as Tasso put it). Deforestation is responsible for a significant volume of emissions of greenhouse gases. Forests also have the potential to increase the resilience of communities to climate change and to mitigate climate change. If the concentration of CO<sub>2</sub> in the atmosphere increases to 550 parts per million in the next 30–40 years, forests will become highly vulnerable and their mitigation role will be jeopardized. Forests are a mitigation option now and for the next 30–40 years – an important transitional measure towards a low carbon economy. The long term is important, but we need to take advantage of the shorter-term window of opportunity. At the same time, we need to increase the resilience of forest trees and ecosystems to climate change.

If forests are to play a positive role, many issues in the forests sector need to be resolved, including rights, tenure, access, land-use planning, benefit-sharing and law enforcement.

The UNFCCC has identified two broad approaches to dealing with climate change: mitigation and adaptation. Mitigation is the role of forests in maintaining and increasing carbon pools and sequestering carbon – the overall aim is to reduce emissions from the atmosphere. Adaptation is

maintaining and increasing the resilience of ecosystems and reducing the vulnerability of the people who depend on these systems.

There are three broad mitigation options: carbon sequestration; reducing emissions of greenhouse gases; and the substitution of greenhouse gas-emitting sources.

The three forest-related carbon sequestration options are afforestation, reforestation and forest restoration. The Kyoto Protocol recognizes **afforestation** as an eligible activity in the CDM on land that has not been forested for at least 50 years. **Reforestation** is also an eligible activity in the CDM on land that was not forested on or after 1 January 1990. **Forest restoration**, the restoration of degraded forests, is not defined under the UNFCCC and is not yet an eligible activity in the CDM.

The main forest-related option for reducing emissions of greenhouse gases is REDD, while substitution options include the increased use of wood products and wood-based biofuels.

In its Fourth Assessment Report, Working Group III of the IPCC recognized the role of forests and formulated an important sentence: “Forest mitigation strategies should be assessed within the framework of SFM, and with consideration of the climate impacts of changes to other processes such as the hydrological cycle”.

This gives us leverage to rethink the SFM agenda from a climate change perspective.

Not all deforestation is undesirable. It is needed to feed people and contribute to economic development. It should be discouraged when: it is not economically efficient; the land use is unsustainable; or it leads to social inequities and conflicts. We must distinguish between good and bad deforestation.

How to commit and manage forest areas as carbon reservoirs? By using the concepts of permanent forest estate and SFM, carbon reservoirs can be permanently committed and managed in line with REDD.

A variety of mitigation options exist; in all situations, adaptation is an issue.

Many tropical forests are losing forests quickly, but some less so. Some tropical countries already have very small areas of forests. Some (eg China, India and the Philippines) have started to reforest. The situation

is highly varied and we should not concentrate on a single agenda. If all options are on the table they can be applied as appropriate to suit the situations of different countries, regions within countries, and landscapes within regions. This is where ITTO can find its niche.

In committing forests to climate change mitigation and adaptation, some overarching issues apply. First, the carbon sequestration potential of forests can generate annual funds in the order of several billion dollars worldwide. A permanent forest estate also has many co-benefits, such as timber production, biodiversity conservation, and the maintenance of water quality. If well designed, implemented and policed, climate change mitigation and adaptation through SFM offers an alternative development pathway that can directly benefit rural/forest-dependent people.

It is important, however, to be realistic. Countries that destroy and degrade their forests often have many economic, social and governance problems; it will not simply be a case of putting money in and achieving forest protection. It will be important to address the real problems within the forest sector, particularly governance.

In the first commitment period (2008–2012) of the Kyoto Protocol, Annex I countries – the industrialized countries – can count forest management, afforestation, reforestation and avoided deforestation, and bioenergy. Non-Annex I countries (developing countries) can use the CDM for funding afforestation and reforestation (A/R; eleven methodologies approved to date) and bioenergy projects (one methodology approved). There is also a piloting phase in REDD.

In the first commitment period, the use of wood products for substitution is ineligible for both Annex I and non-Annex I countries.

The post-2012 regime will be decided at COP 15 in Copenhagen in 2009. The Bali Action Plan is designed to guide the negotiation process over the next 2–3 years. Many questions remain to be answered: Which countries will agree to make commitments? Which forest mitigation options will be eligible in industrialized countries? What will be the role of wood products? Which forest mitigation options will be eligible in developing countries? What role will forest mitigation activities, including REDD, natural forest management, and forest restoration, play?

The international forestry community has a responsibility to bring these issues to the attention of the climate change community.

SFM is an instrument for maintaining carbon pools. It involves the concept of a permanent forest estate – forest dedicated permanently to forest conservation and sustainable use. For it to work in climate change mitigation, tools are needed to quantify the carbon flux for local and national accounting. Which actors will be involved? Direct forest users and forest owners need to be identified, and incentives made available to them. We have to learn about the kinds of incentives that will be effective – not just how many dollars per tonne, but also what for? Measures must reach the agents directly responsible for deforestation and forest degradation and act as an incentive for reducing this destructive behaviour.

ITTO can plan an important role in making SFM a realistic approach to climate change mitigation, including by generating additional funds for SFM (eg by promoting PES), assisting countries to commit forests within their permanent forest estates as carbon pools, and providing support for forest governance. More specifically, ITTO can help strengthen the ability of its members to implement forest mitigation options and ensure that the potential role of SFM in REDD is well and widely understood and that ITTO's experience is deployed effectively in discussions on REDD. In particular, the concepts of permanent forest estate, SFM, forest restoration and committed forests as carbon reservoirs should be included. SFM, including production forestry, should be considered an eligible activity in any REDD mechanism. Such a mechanism should also recognize the sovereignty principle – national forest authorities should be included in decisions on any REDD mechanism. ITTO's project experience can be used for defining modalities and procedures in a REDD mechanism and/or other future forest mitigation options.

ITTO can play a useful role in climate change adaptation by assisting member countries to: integrate their forests sectors in national action plans for adaptation; strengthen the resilience of forest ecosystems through SFM; and build capacity on adaptation options in relation to forests.

The main difference between the past and today is that environmental problems are truly global now. We need to look beyond traditional sectoral boundaries. SFM is part of the solution package.

## Discussion

**Question to Tasso:** In the Amazon Fund, how do you make payments to local people to not deforest? You use satellites to monitor deforestation but not on what is kept as forest. How do you decide where to direct the funds? **Tasso's response:** The basic assumption of the system is that it is not easy to know where deforestation is being prevented. Normally, systems that try to find this out are unfair because you have to prove that you are the Devil. You have to hold your hand up. We are trying to avoid this by accounting for the whole system – there must be a reduction in the rate of deforestation across the entire region. How do you spend the money to make this happen? That must be decided by the steering committee, which comprises representatives of federal and state governments, civil society, business, and the social movement. They might decide to make a direct payment, or to direct funds to satellite monitoring. We believe that the best way to do this is to have the people from the different sectors decide. If it doesn't work, the funds won't be available for the next year.

**Question to Tasso:** Forest monitoring focuses on deforestation. What about degradation? Brazil has one of the most advanced monitoring systems; can you explain if you are grappling with how to monitor degradation? **Tasso's response:** we have three monitoring systems, two of which are dedicated to capturing degradation, logging, etc. By the end of this year we hope to report on forest degradation at the same time as we report on deforestation. Under our system, land that has been cleared in the last 20 years is considered cleared forever so we can be sure we are not double-counting. So the system is designed in a way that is safe – we are only counting new deforestation. Forest degradation is much more complex and not so black and white. Systems for monitoring are not so precise but this is also an issue we are tackling.

**Question to Tasso:** Under the Amazon Fund, the carbon certificates are not transferable. Therefore, there is no market mechanism. Who will pay into such a regulatory framework post-2012? **Tasso's response:** This is the most important point and it is related to the ethics of what we are doing. Norway is one of the countries we are discussing this with, but this will probably be made concrete when the Norwegian prime minister visits Brazil in September. We think funds will be raised because of the

effectiveness of the mechanism in decreasing emissions. If the only way to get support is to offer offsets, then the world is in a bad way. We would prefer to get not one single dollar for offsets and to make all the investment ourselves to be sure that the reduced emissions are truly additional. Most people we talk to say this is the first thing they have seen that is truly aimed at reducing emissions. I am very optimistic that we will get a good response, although perhaps not to the full extent that is desirable.

**Question to Blaser:** Under the UNFCCC, forest degradation is not well addressed, so calling for forest restoration is cherry-picking. **Blaser's response:** The CDM is an evolving mechanism. It currently allows reforestation and afforestation, which bring non-forest back to forest. But most of the carbon we are losing inside forests is due to degradation. We do not have an instrument at our disposal to address this. So we are looking to the future for negotiations on this. We can make a case for addressing the degradation of carbon stocks in forested areas. This could be one of the major things that ITTO can bring to the climate change agenda.

**Question to Blaser:** You propose many forest activities to mitigate global warming. Can you set priorities among these? **Blaser's response:** This is something I hope that we can do through our combined efforts. It depends a little on how we define SFM. Last year's discussion at COP 13 focused only on REDD, but there is scope for looking at a wider range of forest-sector activities. As I said before, no one solution will fit all situations. The activities that can be pursued in a low-forested country will often be quite different to those that would be of interest to a highly forested country. Brazil has potential for REDD, but also a huge reforestation program. Countries should have a menu of forest-related options at their disposal so they can choose those that best fit their circumstances.

**Question to Blaser:** You mentioned the need to simplify the CDM. We agree that this is a complex mechanism but we think such complexity is necessary for win-win-win results. **Blaser's response:** I strongly recommend that you join the carbon sequestration group tomorrow. We are working in a dynamic environment. The CDM was developed with clear objectives – that it should create win-win situations and be additional, etc. But after all this time we still have only one registered A/R CDM project. Without losing the strength of the system we need to reduce transaction costs so that people can formulate projects more easily.

## Panel

### **Akira Miyawaki**

**Japanese Center for International Studies in Ecology  
Japan**

We have to take steps to sequester carbon. We have reforestation projects in Borneo and Kenya. Globally, as long as tropical forests are there they are sequestering carbon. They used to say that it was impossible to cultivate *Shorea* species – dipterocarps. But we put them in water and the roots started to grow. In collaboration with Universiti Putra Malaysia, we have been reforesting with these native species in Borneo. You can create these kinds of forests, which sequester about 44 tonnes of carbon per hectare per year (compared to 27 in Japan). We have to plant indigenous species, and as much as possible to mix the species. Seedlings become a forest. We have used a similar approach in Kenya. It is important to trade carbon but the most important thing is to plant trees – indigenous trees – and, as time goes by, to create healthy forests.

### **Koichi Fujishiro**

**Yokohama City Council  
Japan**

I was born and raised in Yokohama. The city has grown tremendously, but this growth has come at the cost of green space. As a person who loves Yokohama I am very concerned about this. In Yokohama, green coverage declined from 50% of the land area in 1960 to 31% in 2004. The average temperature has increased by 2.6 degrees since 1930 – the 'heat island' phenomenon. It is imperative that we retain our green areas. We are determined to keep our remaining forests and agricultural areas. We are engaged in a tree-planting initiative as part of commemorations for Yokohama's 150 year anniversary; we will plant 1.5 million trees. Last year we already achieved half of this. Yokohama's citizens have a good awareness of the need to protect green space. By cumbersome processes of inheritance, however, sometimes these areas are sold to developers; the city wants to purchase them but doesn't always have sufficient resources. The other day, the city announced that it required 15 billion yen to adequately green the city. We are talking about taxation systems. This indicates that green conservation is imperative for us. We want Yokohama to be part of the movement for tackling global warming and if we spread these initiatives around the world we can address climate change. One person has little power, but if you consolidate this power you can change the world.



**Masahiro Amano**  
**Waseda University**  
**Japan**

Deforestation is responsible for a large part of global greenhouse gas emissions. The CDM's provisions are designed to encourage reforestation and afforestation, which sequester carbon. In reality, however, it has not been successful in this. The concentration of biomass and therefore carbon is very high in tropical forests. REDD has been discussed widely, but the ability to abate deforestation is limited. Timber production is very important in developing countries. ITTO has come up with SFM to balance the need to use forests productively with the need to maintain them in a healthy state. Focusing solely on REDD and the CDM will limit the potential of forests to help mitigate climate change. We cannot achieve the objectives with just one mechanism.

**Yoshitsugu Minagawa**  
**Forestry Agency**  
**Japan**

I led the Japanese delegation in the recent COP 13 of the UNFCCC. In discussing REDD and the contribution of Japan I could duplicate today's keynote speakers. Emissions of greenhouse gases are going up and to abate them there needs to be economic compensation – this is the basic concept of REDD. Incentives are needed to avoid deforestation and compensation is needed for the opportunity costs of foregoing land conversion. Developing countries are not committed to reductions targets, but it is important that they also join the framework of reducing emissions. In Japan, we think REDD is an innovative mechanism. It has long been held that forests that fix carbon must be given an economic value and we must create incentives for conserving tropical forests. REDD is new and therefore implementation will include technical and policy issues. We should ensure that REDD is effective, efficient and fair. How do we establish the baseline and accurate and low-cost monitoring? How do we verify? How do we share the profits derived from REDD? There needs to be a thorough examination of the effects that a possible market mechanism could have on the carbon credits market.

Japan is making many contributions to addressing climate change through REDD. It will host the upcoming Subsidiary Body for Scientific and Technological Advice (SBSTA) workshop on REDD. We are also contributing US\$10 million to the World

Bank's FCPF, providing cooperation assistance through JICA, and also monitoring forests using a Japanese satellite. In addition, we continue our strong cooperation with ITTO (both as the host country and biggest donor), particularly to help address illegal logging.

**Hiroyuki Kawaguchi**  
**Global Environment Office**  
**Mainichi Newspaper**  
**Japan**

Our organization, the Global Environment Office, was founded last April. We have contacted many different environment-related companies. We write articles about environmental issues and we also conduct awareness-raising campaigns, including one with Professor Miyawaki – the My Mai Tree. The first 'my' symbolizes the role of each individual, and the second 'my' refers to the Mainichi newspaper. We have planted 140,000 trees in two years in partnership with local governments and shrines. It is important to continue these sorts of campaigns. Another of our campaigns is helping to raise funds for greenbelt activities in Kenya, and another is helping to remove waste from Mt Fuji and to increase the installation of solar power generation. We are also using 'Solar Bear' to help popularize solar power generation facilities. Solar bear is very cute and popular among children and women; he strayed from his parents because of global warming. A picture book has been produced and we are running a competition to install solar power generation facilities. We want to continue activities for environmental education. Mainichi Newspaper has more than 3,000 employees and we distribute eco-bags and are calling for a reduction of plastic bags at shops.

**Martin Tadoum**  
**Central African Forest Commission (COMIFAC)**  
**Presented by Victor Kwame Ageyman, Ghana**

The Congo Basin has a total forest area of 235 million hectares, the world's second largest contiguous tropical forest. In 2006, the rate of deforestation was 0.2% and the rate of degradation 0.1%. To address these threats, the heads of states of all Central African countries came together in the Yaoundé Declaration to collectively promote conservation and SFM in the Basin. This declaration led to the creation of a regional body, COMIFAC, to oversee the harmonization of forest and environmental policies within Congo Basin countries and the development of a convergence

plan to help coordinate activities between countries. Among the efforts undertaken were: the adoption of the African Timber Organization/ITTO Criteria and Indicators for the Sustainable Management of African Tropical Forests and their mainstreaming at the national level; revision of national forestry codes to introduce mandatory design and implementation of management plans for production forests; the introduction of management plans to 20% of production forests of the Congo Basin with a target of implementing management plans for all production forests within five years; and the encouragement of forest certification in forest concessions in several countries, including Cameroon, Congo and Gabon. About 1.8 million hectares of forest are now certified and other forest stakeholders of the sub-region have signed up to the process; the aim is to increase this to 7 million hectares within five years.

COMIFAC countries have pledged their full support for the incorporation of REDD in the next Kyoto Protocol regime. They are actively participating in international debates on the issue and have made four submissions to the UNFCCC Secretariat. COMIFAC countries have also outlined or are trying to develop emissions calculations for their forests, as is being done for Brazil. This is important because of the specificity of the Congo Basin. COMIFAC countries believe there is a need for a predictable and sustainable funding facility to support or reward their efforts to maintain standing carbon stocks. REDD is a genuine opportunity to halt deforestation in developing countries, to mitigate climate change, and to compensate countries in their forest conservation efforts. Countries of the north and south should come together to establish such a tool.

### **Statement by the Civil Society Advisory Group**

***Yati Bun***

**Civil Society Advisory Group**

CSAG thanks the Government of Japan and the City of Yokohama and everyone behind the hosting of this meeting. We welcome the opportunity to present our views and to participate in the dialogue.

Forest communities and civil-society organizations want to be part of just, equitable and credible local and global solutions to climate change. Many communities, including traditional owners, are already applying sustainable solutions. Robust and

credible strategies to mitigate climate change through SFM should recognize the historical role of local communities. Otherwise, REDD and other instruments will rightly be labelled unfair and will fail. Many social justice and Indigenous organizations criticise REDD and are worried about the role of the logging industry; they are also sceptical of the role of financial institutions like the World Bank. These concerns must be taken seriously in international negotiations. But these stakeholders are not being taken seriously at either the national or international levels. Clarifying tenure and rights issues is essential. Any REDD initiatives must also be based on a prior assessment of the underlying causes of deforestation. In many regions, governance is weak and corruption widespread. Effective REDD strategies must adopt a rights-oriented approach – the ‘do no harm’ approach is insufficient. CSAG recommends that ITTO: take timely measures to support the effective participation of Indigenous people and other marginalized stakeholders in negotiations and pilot initiatives; and adopts a rights-based approach that addresses governance, livelihoods, and food security, etc. We also have many specific recommendations, which will be made available at the back of the hall.

### **Statement by the Trade Advisory Group**

***Barney Chan***

**Trade Advisory Group**

I thank the organizers for the opportunity to address the meeting and I speak as coordinator of TAG. The main function of TAG is to give advice to ITTO on issues related to trade. It is a loose collection of trade representatives, which meets when ITTO convenes its Council sessions. Tropical forests alone will not be able to mitigate climate change; at worst, global forests are responsible for only one-fifth of carbon emissions. We must tackle the source of the problem, which is the emission of carbon, especially those resulting from industrialized countries. Carbon emitters find it cheaper to pay for tree-growing rather than to adapt their own technologies.

REDD has been proposed in the UNFCCC as one way of reducing carbon emissions. When discussing carbon emissions and sequestration, the most critical aspect is who owns the carbon. If payments are made for REDD, the question is: who will benefit? Local communities, government, or logging companies? REDD is still under development: we urge you to work on this point. Payments for environmental

services might not fall back to the logger, so the signal might not hit the target stakeholder.

It is difficult to see how REDD payments can benefit industry. What is the message? Over-cut the forest and then get paid to rehabilitate? I hope not. There is an urgent need to make REDD relevant to the private sector; make it an active incentive.

Moreover, rather than simply using climate change negotiations to control the rate of deforestation and forest degradation, we want to encourage the greater use of timber products, because they store carbon. The more we use timber products responsibly, the more we lock up carbon.

We have two years to work on REDD and other instruments. The difficult work has just started. I am here to signal the willingness of TAG to work with you to resolve this issue. My colleagues around the world are also willing to work with you.

## Mitigation options in tropical forests including in a post-2012 climate change regime

**Carmenza Robledo**  
Intercooperation  
Switzerland

Forests are vulnerable to climate change; ecosystem functions are in danger; people and the wood chain are at risk. Forests are large emitters of greenhouse gases – the second largest emitter. We have to consider how to reduce these emissions.

Let me start with some working definitions:

**SFM:** Managing [permanent] forest to achieve one or more clearly specified objectives of management with regard to the production of a continuous flow of desired forest products and services [eg carbon sequestration] without undue reduction of its inherent values and future productivity and without undue undesirable effects on the physical and social environment.

**Forest restoration:** the process of enhancing and accelerating natural and artificial processes of forest regeneration on forest land in order to regain the elastic capacity of the forest ecosystem after it has been degraded.

**Forest degradation:** the reduction of the capacity of a forest to produce goods and services. ‘Capacity’ includes the maintenance of ecosystem structure, functions and carbon stocks.

SFM is not yet included in the UNFCCC. ITTO has the concepts and technical and empirical experience to implement SFM and forest restoration to help mitigate climate change.

The forest carbon cycle involves the emission of greenhouse gases through deforestation, forest degradation and de-vegetation and the sequestration of carbon in biomass, litter, dead wood and soil. There is also substitution: bioenergy can substitute for fossil fuels, and wood products can substitute for carbon-intensive materials like steel and aluminium. This is not always the case, however, and more lifecycle analyses are needed. There is no reason to exclude any of these options (see table) – until 2009 we have the opportunity to design a new regime. At the very least we should create a system that is not perverse. Maybe we can’t have optimal efficiency and effectiveness, but we should be striving to make the best sustainable use of the resource.

Mitigation options (general)	Mitigation options in UNFCCC/Kyoto Protocol (forestry sector)	Forest management options
Reduction of greenhouse gases	Reducing emissions from deforestation and forest degradation	Sustainable management of (natural) forests Committing forests for REDD
Carbon sequestration	Afforestation Reforestation	Plantations, agroforestry Forest restoration, committing forests for carbon enhancement
Carbon substitution	Bioenergy; substitution through wood products	Non-timber forest product (NTFP) management, biofuel; plantations; sustainable wood production

The direct drivers of deforestation and forest degradation include clearing for commercial and subsistence agriculture, and wood extraction. Not all deforestation is undesirable; it is important to work out where it makes sense and where it needs to be reduced or stopped. Under a ‘committed forest’ approach we would first define the permanent forest estate and determine those areas where there are drivers of deforestation. Using principles of national sovereignty, sustainable development, consistency with decentralization, environmental integrity and stakeholder consultation, and in alignment with the UNFCCC, a country would decide which ‘hotspots’ it will commit for emissions reductions. In these



forests, the task would be to reduce emissions by reducing or stopping deforestation and degradation. Some projects around the world are already testing this approach.

When a forest degrades, carbon – along with biodiversity and ecological functions – is lost. If a process of restoration is initiated, however, you will get carbon back and also promote stability, functional flexibility and ecosystem integrity. Forest restoration has many collateral positive effects besides carbon sequestration. Carbon payments could increase the competitiveness of forest restoration.

The REDD/restoration model could be implemented by countries in their committed forests. If a country reduces deforestation it will reduce emissions. By also rehabilitating those committed forests the country can increase carbon stocks, so there will be a net carbon gain.

*Current situation of the A/R CDM:* assets include the availability of tools and methodologies and extensive capacity building, but these have been insufficient to overcome the high level of complexity of the mechanism, its high transaction costs, doubts over financial feasibility, difficult contracting conditions and low carbon prices. To date there is only one registered project in the A/R CDM, so there is a clear need for simplification after 2012. It is a question of how to do that – let's discuss!

In the field of carbon substitution there are two basic options: biofuels and wood products. Methodologies are available for estimating the role of biofuels in the energy sector (as opposed to the forestry sector). There are concerns about the impacts of biofuels on food security and the environment and even about their potential to reduce carbon emissions. Presently, substitution by wood products is not an eligible activity under the Kyoto Protocol for either developed or developing countries.

In sum, the forestry sector has several potential mitigation options: REDD, forest restoration, A/R, forest management, biofuels and wood products. SFM is important in all of these and also for achieving the Millennium Development Goals, especially goals 1 (eradicate extreme poverty and hunger), 3 (promote gender equity and empower women), 7 (ensure environmental sustainability) and 8 (develop a global partnership for development).

Open questions revolve around land tenure and the ownership of carbon credits, the incentives that

should be provided, integrating the carbon regime with other economic activities such as the production of timber and non-timber products and payments for ecosystem services, and how best to account for forest-related carbon. In addition, issues of forest governance are at the centre of any effort to use forest mitigation options.

We have to somehow include these options in the post-2012 regime to be agreed by COP 15 of the UNFCCC. This meeting needs to resolve the role of ITTO, while helping members to understand the sector and to implement mitigation measures.

## **Methodologies for monitoring and accounting for greenhouse gas emissions from deforestation and forest degradation**

**Sandra Brown**  
**Winrock International**  
**United States**

A group of us has created a sourcebook on methods for monitoring reductions in deforestation and forest degradation; it can be found at [www.gofc-gold.uni-jena.de/redd](http://www.gofc-gold.uni-jena.de/redd). Many countries don't have the expertise that Brazil has in terms of remote sensing, nor its capacity to process information. There have been quite a lot of studies on carbon stocks in the Amazon, but not all countries have that luxury. Nevertheless, many countries have conducted forest inventories from time to time and there are tools for using those data to estimate carbon stocks. This is a simple way of dealing with the issue of carbon stocks; the Brazilians, for example, take the lowest estimate of carbon stocks per hectare as a way of avoiding overestimations. In the long run, however, it would be better to get closer to the truth, so we want to do a better job of it. The sourcebook provides guidance on how to use inventory data to come up with deforestation estimates and carbon stocks. It focuses on using existing data; given uncertainty about where the policy agenda is going, this is probably sensible: there is no need to set up a sophisticated system if there won't be a demand for it.

Chapter 4 of the sourcebook examines carbon stocks in detail. The IPCC talks about three methodological tiers; the question countries face is which tier to use. Chapter 4 provides guidance on this. Tier 1 uses default values provided by the IPCC for mean annual increment (MAI) (for degradation) and/or forest

biomass stock (for deforestation) for broad continental forest types. Tier 2 uses more country-specific data – including MAI and/or forest biomass values from existing forest inventories and/or ecological studies. Tier 3 involves repeated measurements of trees from permanent plots and/or calibrated process models. The IPCC says that it is good practice to use higher tiers for the measurement of significant sources/sinks of greenhouse gases. In countries where there is significant deforestation and timber harvesting activities, this would imply Tier 2 or higher and will often involve the collection of new data.

The first step to improving estimates of carbon stocks is to stratify. For example, forests for which clearing is unlikely – such as those that are very remote, or on steep slopes – can be identified and excluded. Then think about stratifying by biophysical factors such as climate (wet to dry) and elevation and by human disturbance factors such as closeness to roads and human settlements. If you put these altogether you might get an indication of where you should focus efforts.

The second step is to assess existing data quality. If available data are less than ten years old and derived from multiple plots in which all species were measured to small diameters – maybe the dataset is okay to use. If your data don't meet those criteria, then think about a third step: collecting missing data based on decisions about which strata are at risk of deforestation or degradation in the future.

How to monitor forest degradation? You need to know the cause of degradation – such as logging, fire, fuelwood collection, etc – so you can design a system for monitoring and accounting. For this purpose, 'degradation' is simply removing biomass at a greater rate than it can be replaced. Even SFM, or certified logging, when done well, lowers carbon stocks. Different systems are needed for different causes. General procedures for estimating the impacts of degradation on carbon stocks for 'forests that remain as forests' exist in the IPCC.

One methodology takes a 'gain and loss' approach, where the change in carbon stock equals the gross gain in carbon (through regrowth of degraded forests over multiple years) minus the gross loss (through the harvesting of logs and fuelwood, and disturbance). You could also use a 'stock difference' method, but this requires repeated inventories over time. Wood products are assumed to oxidize in the year of harvesting; this overestimates emissions if

the wood is used in long-term products. Wood going into wood products is not permanent. It can be long term, but it eventually gets turned over, retired, and burnt or put into landfill. So it doesn't stay out of the system forever.

A big question for the trade: are we importing carbon emissions if we import wood?

The method does not account for losses due to collateral damage to the stand and the construction of skid trails, roads and landing decks, etc. We need to do a better job in estimating logging impacts. We need to know: the area of forest logged; the volume of timber extracted; the extent of roads, skid trails, etc; the amount of dead wood produced per unit area; tree mortality from skid trails; the decomposition rate of dead wood; the amount of wood going into long-term storage; and the rate of regrowth of the stand after logging per unit area per year for multiple years.

Can we do all this? Yes we can.

However, the monitoring of degradation needs to be frequent – it has to be done annually. A basic data need is the area of forest logged annually. This can be obtained from national statistics, if accurate, or through independent remote sensing. We need to know the volume of timber extracted. We could ask the concessionaire, but would this be reliable? We can also use a sampling approach using remote sensing data, in which aerial transects are flown over concessions to monitor logging gaps, roads, etc.

Logging has the effect of decreasing living biomass and increasing dead stock. The task is to quantify both. This can be done by measuring felled trees and using regression analyses to estimate the change in live and dead carbon. We can also estimate the carbon loss caused by skid trails and roads.

If we put all this (and other data, such as the decomposition rate of dead wood) together we can estimate the change in carbon, including net change, in a forest subject to logging.

To conclude, if deforestation and forest degradation is a key category we need to use a Tier 2 or Tier 3 method, both of which imply the collection of new data. To participate in REDD, most tropical countries will need to measure and estimate carbon stocks in key pools. They will need to collect country-specific data on direct logging impacts (field data), area logged per year, actual extraction rates, losses caused by the decomposition of wood, and regrowth of logged

areas through time. Methods for collecting the required data are available.

The IPCC methodology of gain and loss is useful for forest degradation. However, it needs to be modified to account for all emissions from changes in carbon stocks from logging, such as collateral damage.

## **Promotion of wood-based bioenergy in the tropics: opportunities and challenges**

### ***Manoel Sobral Filho***

#### **Brazil**

There has been a fiery debate on the role of biofuels in food production. According to Jean Zeigler, the UN Special Rapporteur for the Right to Food, the “massive production of biofuels is a crime against humanity”. The heads of the World Bank and the International Monetary Fund have also made negative comments. But Brazil’s president, Luiz Inacio Lula da Silva, has an opposing view: “The real crime against humanity is to discredit biofuels and condemn food-starved and energy-starved countries to dependency and insecurity”. There are many causes of the food crisis, including the cost of oil – now US\$120 a barrel. Five hundred million people in Brazil, China and elsewhere are eating more now because they are wealthier; this has had an impact on food supply. Developed countries must share some of the guilt, because of agricultural subsidies. Biofuel production – such as the use of corn for biofuel in the United States – is just one more reason.

I will try here to make the case for biofuels, but it is really the market that is making the case.

Last year, ITTO hosted an international conference on wood-based bioenergy. The key points to emerge from that conference were:

- wood-based energy offers countries, including developing countries in tropics, an opportunity to increase their energy security;
- wood industries can use wood residues for the co-generation of energy, thereby increasing the cost-effectiveness of their operations and improving energy efficiency;
- using wood-based bioenergy, in the wood industry and in general, can help reduce greenhouse gas emissions;

- the wood-based bioenergy sector needs to be developed on the basis of SFM; and
- the international community should support the development of efficient and cost-effective wood-based bioenergy in tropical countries and facilitate appropriate technology transfer and investment.

On this last point, I don’t see such support from the international community happening at the moment.

In 2005, the total volume of wood harvested globally was 3.1 billion m<sup>3</sup>, of which 1.7 billion m<sup>3</sup> was used as firewood. This total could be more because a lot of use is unreported; of the total, 0.5 billion m<sup>3</sup> were used by the pulp and paper industry.

Wood is increasingly used for the production of liquid fuels (mainly ethanol) and for electrical power generation for sale through the grid. This trend is encouraged by the deregulation of the power supply sector. Corn produces about 3,100 litres of ethanol per hectare per year, sugarcane about 6,900 litres. A wood energy plantation could produce somewhere between 7,300 and 16,000 litres. Energy efficiency, which is the output of energy compared to the energy inputs required, is 1.34 for corn ethanol, 8.3 for sugarcane ethanol and up to 16 for wood-based ethanol. Emissions reductions compared to gasoline are about 20% for corn ethanol, 56% for sugarcane ethanol and 80% for wood-based ethanol.

For a plant producing about 265 million litres of ethanol per year, the raw material cost per litre of corn ethanol would be an estimated US\$0.46 (if corn costs US\$3.50 per bushel) and sugarcane ethanol would cost US\$0.30. The cost of raw material for the production of wood-based ethanol would be in the range \$0.33–0.43 per liter (assuming that wood was priced at US\$40/dry tonne and there was an ethanol yield of 292–420 litres per dry tonne). The price of wood is likely to be variable given the huge range of site productivities. In some experimental plantations in Brazil, trees are 20 metres tall after two years, with a total MAI of 85 tons per hectare.

The key to producing ethanol from wood by biochemical means is the development of the necessary enzymes to maximize production. Progress is being made in this regard.

Several commercial or semi-commercial wood-based biofuel plants are already in operation and more than 20 are under construction, but none in developing countries.

Brazil has a total land area of 850 million hectares. Some 347 million hectares is used for agricultural purposes, including 211 million hectares for pasture. Sugarcane production covers 7.8 million hectares, only half of which is used for biofuel production. Very little of Brazil's land area, therefore, is used to produce biofuel, so there is huge potential for increasing production without greatly affecting food supply. At the moment, biofuel production is expanding at the expense of pastures.

If bioenergy becomes a reality, there will be greater demand and competition for land. This increases the risk of deforestation but might also increase the economic feasibility of SFM. It could also increase prospects for the rehabilitation of degraded forests, but landowners will likely prefer monocultures because of the higher yield and profitability. No matter what governments say, owners often prefer to listen to the market.

Precious Woods, a company operating in the Amazon, presents an interesting example of bioenergy production. From the perspective of commercially valuable timbers, the forests in which Precious Woods operates are very poor. The company installed an electricity generation unit there with a capacity of 11 megawatts. I believe that the company now derives 70–80% of its income from power generation. The advantage of bioenergy is that many more species can be used; the great disadvantage is that it employs fewer people. Nevertheless, the income generated by the electricity plant makes the added-value timber operation more viable.

Finally, I would like to point out the contribution that this conference will make to carbon emissions. Many of us flew in airplanes to get here, at a cost of 120 grams of CO<sub>2</sub> per passenger km. For an intercontinental trip, this adds up to about 2 tons of CO<sub>2</sub> per passenger.

## **Tropical forestry and climate change adaptation**

***Manuel Guariguata***  
CIFOR

The tropical forest biome has warmed since the 1970s. It is also suffering from precipitation anomalies and experiencing a higher frequency and intensity of extreme weather events. These problems are only compounded by increasing fragmentation, degradation, over-harvesting and flammability. Without management for adaptation, the mitigation potential of tropical forests is likely to diminish.

Several measures can be taken to maintain the adaptive capacity of tropical production forests. They might require the rethinking and reassessment of current forestry practices and the greater prominence of forests in international negotiations. On-site measures include managing the mix of timber species to maximize adaptation, implementing reduced impact logging (RIL) guidelines in order to maintain structural and biological diversity (the hallmarks of a resilient system), and improved fire management.

RIL is generally more profitable when a long-term vision is included; it reduces forest degradation and the susceptibility of the stand to fire, and is more carbon-retentive. Options for incorporating climate change considerations in post-harvest silviculture include: maximizing genetic variation for enrichment planting (there might be opportunities to maximize resilience by manipulating species); and increasing the retention of seed trees.

The range of intervention options is wider for plantations: both the genetic material and species can be adjusted more readily between rotations. But to what extent is current tree breeding considering the threat posed by climate change? Can we enhance awareness among forest growers on this issue?

We should learn from the Venezuelan experience. In 1997, up to 11,000 hectares of pine plantation were lost due to drought blamed on el Niño. When this plantation was established, the only germplasm available came from a very specific location in Central America. Venezuela is now paying the price of poor planning in what was a massive afforestation project. We need to get the message out that conditions are changing rapidly.

Climate change, increasing forest fragmentation and a lack of fire management are increasing the risk of forest fire. If we want to maintain resilience, more emphasis should be given to fire management in forests. Partly this will involve strengthening the rights and responsibilities of local communities and the capacity and accountability of local governments.

In contrast to guidance on assessing LULUCF greenhouse gas emissions and removals, information on how to maintain the resilience of production forests is very limited. For example, the CDM forestry voluntary standards provide no concrete adaptation measures. We need to generate practical approaches for mainstreaming tropical forestry into national adaptation planning. ITTO is in a good position to produce guidelines for putting forestry in the

context of climate change adaptation – so there is a niche there. We also need to create awareness in the industrial, smallholder and community-based forestry sectors: as a starting point, ITTO could assess the perceptions of these towards the risks associated with climate change.

Adaptation can be costly in the face of uncertainty but those outlined here do not deviate substantially from current good practice. Some ITTO producer countries, however, have not yet embraced RIL as a nationwide management standard – so there is a long way to go.

More effort is needed to assess the impacts of climate change on forests and options for managing forests to increase their resilience. The new concession systems in the Amazon and Congo basins provide an opportunity to introduce adaptation measures to management. REDD schemes provide an entry point for bridging mitigation and adaptation in the context of SFM.

## Discussion

**Question to Brown:** Do the transects by plane involving laser measurements, or other methods? Do you think it is possible to go into such detail when estimating carbon when we are talking about countries where there is a lack of technical equipment and competence? **Brown's response:** No, the measurements are not done by laser but using high-resolution stereo images. They are only measuring area, not height. We did that work in Congo Brazzaville and in several other developing countries as well. It needs to be complemented by ground data, requiring sampling in one or two concessions – 100 plots can be sampled in a few days using basic equipment. We always work with local foresters to collect those data.

**Question to Brown:** When you talk about SFM I take it that you look into the whole forest area in the forest management unit. In our forests we plan in such a way that we have areas for protection, etc, and other aims and objectives. When we talk about emissions from the forests sector, is the overall management of the forest management unit taken into account, or just a particular area within it? **Brown's response:** From a carbon perspective, we need to think about a landscape. If humans are in there, the chances are that stocks will be reduced – by management, deforestation, whatever. If you have afforestation you have an increase in carbon stocks. When you put it all together you do the math and sometimes forests will be a sink and sometimes a source.

**Statement:** Sandra talked about the selection of tiers 1, 2 or 3 and that, in the context of REDD, the higher tier should be used. The relevant COP decision for non-Annex I parties only 'encouraged' the use of the higher tier. It is extremely difficult to use remote sensing to assess stored carbon. The UNFCCC does not define forest degradation. In 2003, the IPCC did report on definitions of forest degradation and offered four or five options but the parties have not yet reacted to that. Therefore, the future design of REDD is completely in the hands of the negotiators.

**Question to Brown:** In your discussion on stratification you suggested that you wouldn't monitor those areas in which no activities were likely to occur. But if we look at monitoring for adaptation, isn't there a case for a more systematic approach and getting data that can serve both purposes? **Brown's response:** Good question. It is hard to justify a monitoring system just for carbon. But, having said that, from the perspective of adaptation it would be nice to know what changes are occurring in the forest. It is a question of resources. Let's start with those areas that will give most bang for your buck.

**Question to Sobral:** Are you trying to convince us that wood energy is relevant to SFM and more efficient compared to other biofuels? What type of wood product/species can be used and what technology is required – is it from Brazil or can we get it elsewhere? **Sobral's response:** It's not that I'm trying to convince you that wood-based biofuel is an attractive option. It is a reality – today, 20 plants are being built in the United States, Finland, Sweden, Italy, but I don't see it in the tropics. Let me give you an idea of the amount of wood this could involve. The volume of pulpwood harvested annually is 500 million m<sup>3</sup>. I predict that, soon, more wood will be used in ethanol production than for pulp. The only question is: will the technology work? When will it happen? 5–10 years? It is not really a question of species. In Brazil, the most obvious species is eucalypt; it is well established and already used in steel production. In the United States, people are talking about poplar and its genetic modification to grow faster with less lignin and more cellulose. Some people are talking about 50 tons of dry biomass per hectare per year. My point is that tropical countries should be watching these developments – we have more sun, so we should be able to grow biomass more efficiently. If we have the land and if we can get access to technology, we should be looking at this option.



## 4 COUNTRY INPUTS

### Brazil

**Adriano Santhiago de Oliveira**  
Brazilian Ministry of Environment

The IPCC found that the primary source of the increased atmospheric concentration of CO<sub>2</sub> since the pre-industrial period is from fossil fuel use, with land use change providing another significant but smaller contribution. According to Brazil's Minister of Environment, Marina Silva: "For Brazil, the efforts made by developing countries in order to mitigate climate change through the forests sector need to be additional to the efforts provided by developed countries to reduce their emissions". The UNFCCC's COP 13 established two negotiation blocs related to actions to be taken by the forests sector on climate change mitigation: policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, SFM and enhancement of forest carbon stocks in developing countries.

In its initial national communication to the UNFCCC, Brazil reported that 55% of its greenhouse gas emissions were due to land use and forestry, mostly deforestation, more than half of which was in Amazonia. The causes of deforestation include: unclear land tenure; conversion of the land to agriculture and pasture; and unsustainable timber harvesting.

As reported by Mr Tasso on the first day, Brazil's deforestation rate has declined by almost 60% in the last three years. Much of this can be attributed to the Action Plan for Deforestation Prevention and Control in the Amazon, which was launched by President Luiz Inacio Lula da Silva in 2004. Mr Tasso described this plan, and its successes, in some detail.

The trend of declining deforestation could change any time, however; already there are indications of a slight increase in deforestation in 2008. The Brazilian government is launching several new initiatives to limit this, including: a national plan to combat deforestation 2008–11; a plan to combat deforestation at the state level 2008–11; environmental 'regularity' as a condition for accessing credit from public and private financial institutions; a public list of properties locked for economic activities due to illegal logging or deforestation; a program to promote

socioeconomic reform in 36 critical municipalities; a program of landscape restoration at the property level; a program of payments for forest conservation; and SFM on public lands. We are launching the Amazon Fund for the protection and conservation of the Amazon, as described by Mr Tasso. The Brazilian government has also launched processes to develop a national climate change policy and a national climate change plan.

### Cameroon

**Samuel Ebia Ndongo**  
Ministry of Forestry and Wildlife  
Cameroon

Cameroon has a population of about 19 million people. Forests cover 40% of the national territory, including 17.5 million hectares of moist forests, 4.55 million hectares of forest affected by degradation, and 4 million hectares of savanna. In 1984–91, some 14 million hectares of forests were the subject of a national inventory. The first forestry concessions were granted in 1997, with an obligatory clause compelling the beneficiaries of the latter to submit management plans. According to FAO, about 200,000 hectares of Cameroon's forests, including 100,000 hectares of moist forests, are affected by degradation every year, due to a variety of factors including agriculture, forestry, mining, the illegal felling of trees, large agroindustrial projects, and the construction of hydroelectric dams.

Measures taken to restrict deforestation include:

- managing the risks to neighboring populations (eg by granting community forests and council-managed forests, with support from both the state and NGOs);
- managing risks associated with illegal logging – the development of a tracking system is under way and a second phase of the Computer-Assisted Forestry Information Management System is planned; and
- managing risks associated with large industrial projects by, for example, institutionalizing environmental impact assessments prior to the start of any given project.

The National Forestry Assistance Agency (ANAFOR) has been created, following the restructuring of the former national forestry agency, with the mission/mandate to supervise the implementation of the Forest Plantations Development Program, including through a Plantations Development Fund, the creation of a National Forestry Seedlings Centre, and the securing of the land. ANAFOR already provides assistance to some concessionaires within their forest management units. A national reforestation program was launched recently aimed at creating some 15,000 hectares of tree plantations per year. The total investment envisaged under this program for the 2008 financial year amounts to 800 million Central African francs.

## **Colombia**

### **Ruben Guerrero**

#### **Ministry of Environment, Housing and Territorial Development**

Colombia has 55.6 million hectares of natural forests, which is 49% of the country. About 2.5 million hectares of natural forest are designated for production and 10.3 million hectares as national parks; in addition, 5.0 million hectares are assigned to Afro Colombian communities and 31.1 million hectares to Indigenous people. Each year, about 30,000 hectares of land are reforested.

In the period 1994–2001, the deforestation rate was an estimated 101,000 hectares per year, caused by illegal agriculture, illegal logging, and mining and oil projects. In 1994, LULUCF caused an estimated 16.6 Mt of CO<sub>2</sub>-e emissions, about 11% of Colombia's total emissions.

In 2005, a program to monitor change in Colombia's forest resources was introduced. A number of policies and initiatives are in place, too, including: the National Forest Development Plan (2000); the National Forest Dialogue (2003); the National Forest Program Facility, with FAO (2004); the Forest Ecosystems Restoration and Conservation Program (2002); the Forest Guards Program (2002); the Forest Fire National Plan (2004); and voluntary forest certification (2003). Forest projects under way with international assistance include: Forestry Project for the River Chinchina Basin; the River Magdalena Forestry Program; Forest Law Enforcement, Governance and Trade; the Additional Investment for Sustainable Alternative Development Program; Capacity Building in SFM; and Alternative

Financing Models for the Sustainable Development of the San Nicolas Forest. This last project, conducted with funding from ITTO, is introducing forest management systems in pilot areas using financial instruments such as payments for environmental services with the aim of improving the ability of communities to develop sustainable land-use alternatives. Expected outputs include connected biological corridors, sustainable management practices targeting the extraction of timber and NTFPs, and the increased availability of financial instruments for payments for environmental services. It could be an important model for REDD initiatives under the UNFCCC.

The Colombian government has also developed policies and initiatives relating to climate change, including: Climate Change Policy Guidelines (2002); Governmental National Strategy (2003); Group for Climate Change Mitigation (2002); Guidelines for CDM Forest Projects (2004); Portfolio CDM Projects (2002); Adaptation Project (2005/2010) with the World Bank; national communications (2000, 2004); memoranda of understanding (with France, the Netherlands and the United Kingdom); and Incentives for CDM Projects (Law 877/2002).

In conclusion, Colombia has been implementing actions to address climate change and promote SFM, including through cooperative mechanisms. However, national and international efforts are insufficient to stabilize and solve issues related to forests and climate change. Further actions are needed to: increase the financial resources available to promote SFM; develop economically viable small-scale projects for forest-dependent communities; build capacity in inventory, monitoring and assessment, develop procedures and methodologies related to the role of forests in climate change; mainstream mitigation and adaptation into the National Forest Development Plan; update criteria and indicators for SFM to consider mitigation and adaptation approaches; and simplify the CDM and include restoration and REDD in the post-2012 climate change regime.

## **Ghana**

### **Robert Bamfo**

#### **Head of Climate Change Forestry Commission, Ghana**

As a Party to the UNFCCC, Ghana has committed itself to preparing and periodically updating its National Inventory of Anthropogenic Emissions and Removals of Greenhouse Gases not controlled

by the Montreal Protocol. The country is also in the process of contributing to global emissions reductions by hosting projects under the CDM. Ghana is a member of the Coalition of Rainforest Nations, which on behalf of developing countries has been spearheading negotiations on REDD at UNFCCC meetings.

Potential sites for CDM plantation development to mitigate climate change have been identified in 33 degraded forest reserves; other degraded areas also exist in the central, western and three northern regions. Afforestation or reforestation CDM projects will assist Ghana to achieve SFM by increasing investment in forestry. Between 2000 and 2007 over 124,085 hectares of degraded forest lands were planted through various initiatives. Another 282,000 hectares are available for planting.

Drivers of deforestation and forest degradation include: harvesting for fuelwood and charcoal; forest reserve encroachment heightened by the high incomes that can be earned from cash crops such as cocoa and oil palm; agricultural expansion (permanent agriculture, cattle ranching, shifting cultivation); illegal logging; illegal chainsaw lumbering; wildfires and biomass burning; population and development pressure due to expanding urbanization, settlements and new infrastructure (eg electricity lines and roads); and the exploitation of mineral resources and mining.

In 1990, total forest cover was 7.45 million hectares, but by 2000 this had declined to 6.09 million hectares, an average annual deforestation rate of 1.8%. Forest cover declined further, to 5.51 million hectares, between 2000 and 2005, at a rate of 1.9% per annum.

The main policy instruments to reduce deforestation in Ghana are the 1994 Forest and Wildlife Policy and the Forestry Development Master Plan.

Two major national inventories have been conducted in recent decades within Ghana's forest reserves: one in 1986–1992 and the other in 2001–02. Another national inventory of the off-forest reserve areas within the high forest zone was conducted in 1996–97.

The following government institutions or organizations are responsible for monitoring and verifying land use/land cover change in Ghana: the Forestry Commission's Resource Management and Support Centre; the Centre for Remote Sensing and Geographic Information Systems (CERSGIS) of the University of Ghana; the Climate Change Unit of the Forestry Commission, which is collaborating closely with CERSGIS to integrate data on carbon

stocks in GIS spatial databases; and the CarboAfrica project, which is being implemented by the University of Tuscia, Italy, in collaboration with the Forestry Commission. The latter is a terrestrial ecosystem greenhouse gas monitoring system to quantify, understand and predict the carbon cycle in sub-Saharan Africa. The carbon flux network consists of 18 stations, the first of which is in Ghana in the Ankasa Conservation Area in the high forest zone.

Challenges to the role of SFM as a climate change mitigation measure in Ghana include illegal logging, illegal chainsaw operations, encroachment by farmers, and wildfire. The 2001–02 multi-resource forest inventory indicated that the forest estate had become severely degraded. There is a lack of incentives for forest-fringe communities and landowners to help maintain forest carbon sinks or promote additional carbon storage through SFM.

ITTO should: continue to promote SFM practices in order to discourage the conversion of forest to other land uses; provide capacity building to help producer member countries use remote sensing and GIS to monitor changes in the condition of tropical forests and in forest carbon stocks; and promote investments in SFM that provide climate change mitigation and adaptation benefits.

## Indonesia

### *Nur Masripatin*

**Secretary for Forestry Research and Development Agency  
Indonesia**

More than 60% of Indonesia (123 million hectares) is forested. The forests are very important: they are home to a huge amount of biological diversity, they provide important sources of income and other customary uses for people living in and near them, and they generate employment. In the 1980s and 1990s they were the 'second backbone' of national economic development and continue to be an economic prime-mover. In the period 2000–2005, Indonesia lost about 1.2 million hectares of forest per year, despite a moratorium on land conversion.

*Current status of forest resource inventory and monitoring systems:* since 1985 the Ministry of Forestry has carried out extensive data collection using various remotely sensed data. About 1,000 permanent plots were established in 1993 in concession areas and research forests and, in collaboration with South Dakota State



University and Wageningen University, land-cover change was monitored inside and outside forest lands in three periods: 1985–1997, 1997–2000 and 2000–05. However, data on forest cover changes over time are not readily available. Many existing data were created in one-time mapping exercises to facilitate better planning and forest management. To produce archipelago-wide land-cover maps often needs more than one year. Consequently, the maps are not produced simultaneously, which might have considerable influence on the calculation of annual change. Efforts are under way, supported by international agencies, to improve the monitoring of forest change.

Indonesia's forestry sector policy has five priorities: 1) law enforcement/combating illegal logging; 2) forest and land rehabilitation (5 million hectares in 2003–09) and forest conservation (institution-strengthening in protected area management); 3) forestry sector restructuring, particularly through the development of timber plantations and the restructuring of industry; 4) community empowerment; and 5) securing forest land (strengthening the legal status of state forest land). All of these will make a positive contribution to climate change mitigation, at least indirectly.

But there are many challenges in implementation. Some of these are financial – there is a gap between available domestic funds and the magnitude of the problem. Market failures are also an issue; the market for illegal forest products, for example, makes it harder to tackle illegal logging. There are also issues related to governance, methodologies, and the lack of an explicit policy on the role of SFM in climate change mitigation and adaptation. It should be noted, too, that climate change adaptation and mitigation is a matter of survival for Indonesia. The unique role of forests in climate stabilization and as a life-support system has not been adequately recognized either within current climate-related mechanisms (eg A/R CDM) or under existing market systems for forest products and services (eg the prices obtainable for sustainably produced products versus unsustainably produced products).

At the national level, REDD poses the following challenges: technical and methodological – capacity building is needed at all levels; institutional – including governance; awareness – many stakeholders have little awareness of the issues; and its integration in national, sectoral, and local (provincial, district, etc) policies.

## Japan

**Yuichi Sato**

### Japan Forestry Agency

To help promote SFM, Japan provides research and development, technical cooperation, training, equipment and facilities, and financial assistance through organizations such as JICA, ITTO, the Japan Bank for International Cooperation, FAO, research institutions, NGOs and non-profits, the Japan Forestry Agency, and so on. Through such institutions we are helping to collect basic information on tropical forests and exploring income-generating activities to help local people replace shifting cultivation, an important cause of deforestation. In China, Japan-funded activities include the rehabilitation of degraded forest land using local materials. In Africa we are promoting farm forestry among local farmers. We are helping to develop log-tracking systems that can be used to prevent illegal logging and hotspot detection systems to combat forest fire. We are also starting activities to control illegal logging using remote sensing and, in Indonesia, we have started forest resource assessment and monitoring.

REDD: this is our challenge. We recognize the gap between ongoing activities and REDD. REDD is still in the negotiation process and many things are under discussion. For example, issues related to national policy-setting for REDD, reference scenarios/emissions reference levels, reducing emissions activities, monitoring requirements and measurement, and policy approaches and positive incentives must all be considered and included in REDD.

Recent Japanese initiatives in forests and climate change include: an announcement of a US\$10 million contribution to the FCPF launched by the World Bank (October 2007); an emergency call to tackle deforestation at COP 13 in Bali (December 2007); a project agreement on forest resources monitoring using the latest satellite technology in Indonesia (February 2008); convening a seminar on forest fire as an element of REDD in Indonesia (March 2008); convening a Japan-Asia capacity-building seminar on REDD (March 2008); convening the 2nd Global Earth Observation System of Systems Asia-Pacific Symposium and proposing better coordination to improve global forest carbon observations (April 2008); hosting the 3rd UNFCCC SBSTA workshop on REDD (to be convened in Tokyo in June 2008); hosting TICAD IV in Yokohama (May 2008); and hosting the G8 summit in Toyako (July 2008).

We hope that this international expert meeting will share information, methodologies and lessons learned, help build capacity to plan and implement REDD, explore the possibility of additional efforts including demonstration activities encouraged at COP 13, and clarify further issues to be solved and next steps.

**Question to Sato:** Your hotspot detection map seemed much more intense than the one we normally see. Can we access the information? **Sato's response:** That project is under the Ministry of Education and Science implemented through JICA in Indonesia. The image is free of charge, unless for commercial use.

**Question to Sato:** What does Japan expect from the FCPF, and what is the relationship between this and negotiations in the UNFCCC? **Sato's response:** The objective of the FCPF is to provide pilot activities for actual REDD activities. Within the first commitment period we need to build up experience and knowledge for activities that will take place in the second commitment period. This is my personal opinion. My position is to get some concrete actions happening on the ground. Our intention is to start as soon as possible with funding for the FCPF. Regarding its relevance to the UNFCCC: we expect the FCPF to generate experiences that will assist negotiations in the UNFCCC and provide a basis for a consensus on REDD.

## Malaysia

### **Dato' Hj. Dahlan bin Hj. Taha** Forestry Department Peninsular Malaysia

What is SFM? ITTO defines it as the process of managing permanent forest land to achieve one or more clearly specified objectives of management with regard to the production of a continuous flow of desired forest products and services without undue reduction of its inherent values and future productivity and without undue undesirable effects on the physical and social environment. FAO defines it as management which ensures that the values derived from the forest meet present day needs while at the same time ensuring their continued availability and utilization to meet long-term development needs.

National challenges associated with implementing SFM include: federal-state relations in forestry; national forestry policy; forestry legislation; forest encroachment and illegal logging; the sustainability of the forest resource; forest management systems; and capacity building and institutional strengthening.

International challenges include forest certification, forest trade, forestry research and development, and the role of non-governmental organizations. I will talk about several of these in more detail.

Malaysia's national forest policy sets out the following management objectives and strategies: enhance the security of the resource base; conduct systematic forest inventories; adhere to the annual allowable cut; establish a regime of forest management; issue forest licenses to reflect sustainable forest practices; apply RIL; managed and protect soil and watershed areas; encourage the participation of local communities; and develop a process of review. Management is also governed by legislation, including the National Forestry Act, 1984, the Wood-based Industries Act, 1984, the Land Conservation Act, 1960, the Environmental Quality Act, 1974, the National Parks Act, 1980, the Water Enactment, 1935 and the Wildlife Act, 1972.

To help reduce forest encroachment and illegal logging, the National Forestry Act was amended in 1993 to provide for an increase in the maximum penalty for forest offences in permanent reserved forest from RM10,000 to RM500,000 and imprisonment for a term not exceeding three years to a term not exceeding 20 years.

To ensure the continuity of flow of wood production, the control and regulation of forest resources is carried out using: area control and/or volume control methods; and the allocation of annual felling coupes based on forest inventory data, the net area of production forest, and current silvicultural management practices.

A selective forest management system was introduced in Peninsular Malaysia in 1978. It allows for flexible timber harvesting regimes and factors in the protection and conservation of genetic resources, soil, water and the environment in general.

There is still much work to be done, however, in capacity building. The forest sector faces an acute shortage of scientific, technological and professional personnel. Efforts are being made to build human and institutional capacities, but there is an urgent need for foresters to redefine their roles and responsibilities. We have learnt that human resource development is an expensive business.

In Peninsular Malaysia, certification under the Malaysian Timber Certification Council scheme is well advanced. Contrary to popular belief, however, timber certification is expensive. It requires additional

resources for administrative personnel and for procedures, publicity and product research. The success of timber certification introduced on a voluntary basis depends on whether consumers are willing to pay more for timber products produced from sustainably managed sources. Timber certification is becoming increasingly popular as a trade instrument to promote SFM, but it is still subject to considerable argument at the international level. Even though timber certification schemes are voluntary, they may in reality be compulsory. If incentives to subscribe to timber certification are strong enough, importing countries will not need to introduce unilateral action and/or legislation discriminating against imports of timber from unsustainable or uncertified sources.

In Malaysia, research is being conducted in several fields of forestry, including commercial forest plantations, growth and yield studies, RIL, agroforestry, biodiversity conservation, and climate change effects.

NGOs are becoming increasingly influential in world affairs. They are consulted by governments as well as by international organizations such as the UN, FAO and ITTO. The Forest Stewardship Council participated in the formulation of a national standard for forest certification to ensure that the standard is compatible not only with ITTO's criteria and indicators for SFM but also with the Forest Stewardship Council's principles and criteria.

In the face of climate change, forests have become more important than ever before. More efforts are needed to achieve SFM through global initiatives, the use of technology, and increased funding. Existing forests should be given due credit, and those managed sustainably even more credit. But the impacts of climate change are uncertain. How will it affect efforts to achieve SFM in Malaysia? How do we best increase forest resilience in the face of climate change?

## Mexico

### **Leonel Iglesias Gutierrez**

*Comisión Nacional Forestal*  
(National Commission for Forests)

Land use and land use change cause 14% of Mexico's CO<sub>2</sub> emissions. To reduce emissions in this sector, some key questions needed to be addressed, including:

- How much forest clearing would occur without any measures?
- Are forest management and conservation effective ways of reducing forest conversion?
- Where will deforestation most likely occur in the future?
- How much carbon will be emitted from forest conversion?
- How do we define priority areas?

The first step was to identify areas that were deforested between 1993 and 2002. Comparing 1993 and 2002 land-cover maps it was determined that about 706,300 hectares of forest were lost each year during the period. The next step was to determine if forest management and conservation helped to reduce the rate of forest conversion. The total proportion of forest converted to non-forest over the period was 14%, but this rate was higher for forest not under management (15.4%) than for forest under management (10.4%), higher for forest not under a conservation regime (14.5%) than for forest in conservation areas (8.6%), and higher for forest in conservation areas not under management (10.1%) than for forest in conservation areas under management (5.0%).

The next step was to predict where deforestation was most likely to occur. We tested the spatial correlation between a set of indicators and the forest conversion observed between 1993 and 2002. A vulnerability map was developed to identify forests that are or would come under threat from deforestation between 2002 and 2010. The map was developed based on the correlation between deforestation observed in 1993–2002 (comparing land-use maps of both dates) and various factors representing access to or pressure on the land. Access factors highly correlated with deforestation were distance to roads, distance to settlements, distance to developed areas, and distance to secondary vegetation.

The next question was whether we could identify priority areas for forest conservation using social indicators. Based on the 2000 population census, we developed maps of the following indicators: marginality (extended poverty index), employment, primary sector (% of working population active in the primary sector), and the presence of Indigenous groups. By cross-referencing forests at risk with social factors, biomass density and other factors we prioritized interventions to achieve national emissions reduction targets and other goals. At the country level, three greenhouse gas inventories have been carried out in the LULUCF sector, each with increasing detail. The last inventory was carried out

at the Tier 2 level. A network of research institutes has been established to assist the governmental institutions.

Mexico's REDD program will be incorporated within the existing forest program, ProArbol, with additional rules of operation for REDD projects. Communities or private forest owners located in eligible forest areas will be invited to participate. Once the evaluation committee accepts a community or private project, a contract will be established between the National Commission for Forests and the forest owner. In this way a transparent system is guaranteed and participation is voluntary. The amount paid for REDD activities needs to be sufficient for communities to overcome the opportunity cost of foregoing alternative land uses and to pay for the activities that need to be developed to guarantee the project's success.

## **Papua New Guinea**

### ***Goodwill Amos***

#### **PNG Forest Authority**

The majority of global climate models and PNG research institutions suggest that PNG will become warmer than it is today and consequently more vulnerable to climate change. The projected warming could result in higher maximum temperatures, more hot days, and more intense precipitation events. The peak wind intensities associated with tropical cyclones are expected to increase, leading to larger waves and stronger storm surges. Sea levels are also predicted to rise. The impact of these changes will exacerbate already stressed marine, freshwater and terrestrial environments.

PNG has over 29 million hectares of forests. Forests are often the only source of cash income for many communities and the only way that education and health services can be funded. For the global community, PNG's forests have significant conservation value for their biodiversity and carbon storage. There are challenges, however, in linking SFM and climate change to the development and management of PNG's forest resources.

Foreign aid, donor partners and technical agencies have always and will continue to play a major role in PNG's forestry sector in the form of: technical assistance (research, GIS technology, forest inventory and monitoring systems, etc), corporate planning; and capacity building and institutional strengthening.

Major donors include the Australian Agency for International Development, the World Bank, the European Union, JICA, the Asian Development Bank, ITTO, the Global Environment Facility, the Australian Centre for International Agricultural Research, CIFOR, the Commonwealth Scientific and Industrial Research Organization, FAO, the Secretariat of the Pacific Community, and the Australian National University. New and emerging global initiatives such as forests and climate change have brought new development partners, including the Clinton Foundation Fund and the Norway Fund.

PNG's system of landownership is unique: local resource owners control 97% of all land and 99% of forested land. The rate of deforestation is relatively low, but exactly how low, and how it varies, is uncertain. Drivers of deforestation and forest degradation include: subsistence agriculture; the collection of fuelwood and fodder; agriculture; plantations and other land uses; selective logging; mining and petroleum exploration and operation; urban and other infrastructure development (eg roads); and natural disasters such as landslides, cyclones, volcanoes, tsunamis and fire.

Climate change issues are high on the government's policy agenda. During COP 13 of the UNFCCC, the prime minister reiterated the country's intention to be a front-runner in addressing climate change issues. The government has four main priorities for translating its international commitments into policies and actions at the national level. These are: preparation of a whole-of-government national climate change policy and action plan; establishment of an Office of Climate Change and Environmental Sustainability; preparation of a strategy for REDD; and establishment and strengthening of a fully operational designated national authority (DNA) under the CDM. Also, the prime ministers of PNG and Australia recently signed the PNG-Australia Forest Carbon Partnership, which initially will focus on three areas: 1) a policy dialogue to support negotiations on the development of market-based incentives for developing countries to participate in REDD initiatives under the UNFCCC and Kyoto Protocol and to ensure that PNG and Australia can participate in these markets; 2) forest carbon monitoring and measurement; and 3) the exchange of experience and expertise to support the participation of PNG and Australia in international carbon markets.

The impacts of climate change on communities in PNG is causing the government and local people to seriously look at increasing forest cover through tree-planting (woodlots and tree plantations), SFM and forest conservation. REDD and other global initiatives on climate change will complement domestic efforts geared towards enhancing SFM,

which in turn contributes to sustainable development in PNG. The government needs a national land-use plan to avoid unscrupulous forest clearance. Such a plan would also provide security to REDD initiatives developed in collaboration with our international development partners.

## 5 STATEMENTS BY CPF MEMBERS

### CIFOR

#### *Manuel Guariguata*

Some 20% of global carbon emissions are from forest loss and land-use change – mainly in the tropics – which is more than that contributed by the fossil-fuel-intensive global transport sector. In many developing countries, emissions from land-use change account for 60–90% of total national emissions.

Climate change is already having dramatic effects on forests, natural resources and people's livelihoods. Developing countries, and poor people within developing countries, are the most vulnerable to climate change. Forests provide ecosystem goods and services (eg wood, water) that are vital for the adaptation of the most vulnerable societies. The maintenance of forest vegetation is crucial for reduced vulnerability and continued carbon sequestration.

CIFOR's initiative on forests and climate change is not new; it builds on the organization's strengths and its contributions to national processes on forests and climate change as well as on earlier research on such things as the underlying causes of deforestation and payments for environmental services. It has two foci: the mitigation of climate change – maintaining and increasing ecosystem carbon pools and carbon sequestration; and adaptation to climate change – maintaining and increasing ecosystem resilience and reducing vulnerability.

CIFOR is also providing valuable input to the design of an international post-2012 climate protection regime.

In mitigation, research is focusing on managing forest carbon pools, improving institutional arrangements and governance for the implementation of REDD, and the political economy and barriers to the adoption of policies for efficient REDD regimes. In adaptation, the Tropical Forest Climate Change Adaptation (TROFCCA) project is looking at the role of forests in broader climate change adaptation, and at mainstreaming forestry into climate change adaptation.

### FAO

#### *Susan Braatz*

FAO's role in forestry falls into five categories:

- 1) collecting, analysing, disseminating and acting as a repository of data and information on forests;
- 2) serving as a custodian of models, methods and definitions related to SFM;
- 3) strengthening capacities in support of SFM;
- 4) providing a neutral forum for discussion and debate; and
- 5) providing policy and technical assistance to member countries.

Countries will need accurate forest data to help with planning and monitoring for both mitigation and adaptation. A forest and carbon monitoring system must be reliable, transparent and cost-effective. It should combine remote sensing technologies with field measurements and be capable of producing results that are repeatable and conservative. The system should be cost-effective and affordable and should build on existing systems and experiences rather than starting from scratch.

In order to get consistent results between countries, there also needs to be a common overall framework which is adaptable to local needs. There should be, for instance, an agreed and well-defined set of variables to be monitored as well as common guidance, methodologies and monitoring standards. FAO firmly believes that each country should be responsible for the design and implementation of its own monitoring system. For many developing countries, this will require support to build national capacities.

FAO has two programs to assist countries with forest monitoring and assessment: the global FRA; and the support program for nation forest monitoring and assessment. The next FRA was officially launched in March this year and will be completed in 2010. Country reports compiled by national correspondents will continue to form the backbone of these assessments and most of the information needs for FRA 2010 will be met through the country reporting process.

Some aspects, such as trends in forest types or biomes and rates of deforestation and forest fragmentation, are better suited, however, to a remote sensing survey. The FRA 2010 Remote Sensing Survey is a new and very ambitious and exciting initiative. Its primary aim is to obtain information on the distribution of



forests and on changes in forest area over time at the regional, biome and global levels. It is designed to complement FRA's country reports and to give us a better picture of land-use dynamics such as the rates of deforestation, afforestation and the natural expansion of forests. It will provide information which is consistent over time and space, something that is difficult to obtain from a compilation of country reports. Very importantly, we wish to ensure a close link with existing and planned national forest assessment and monitoring systems – to build on and complement the information already available in countries.

The survey will use a systematic sampling grid covering the world and Landsat imagery for 1975, 1990 and 2000. The sampling intensity will be sufficient to provide statistically valid information at the regional, biome and global levels. By developing a common framework and methodology and providing training to all countries to participate in the survey, it will be possible for developing countries to determine historical deforestation rates and to establish a system for monitoring current and future rates at the national level. This will help such countries to benefit from a possible REDD mechanism.

To assist countries with limited information on their forests, FAO supports the development and implementation of national forest monitoring and assessment systems. These use the same systematic sampling design as the global remote sensing survey, but with a higher sampling intensity in order to obtain statistically valid information at the national level. At each sampling point, field measurements complemented by interviews and direct observations will capture a broader range of variables than traditional forest inventories. This is an affordable, robust approach which, in addition to generating information on climate change-related variables, also provides the information needed for forest planning and policy development.

FAO also provides assistance to countries' forest policy processes, both through its regular program and through support to the National Forest Program Facility, the secretariat of which is located at FAO headquarters. Over 60 countries have recently or are currently receiving assistance. Support is given for stakeholder processes, the drafting of new or revised forest policies, the development of strategic forestry programs, and the revision of forest legislation.

REDD and other mitigation and adaptation measures are more likely to be successful if they have strong technical underpinnings and are based on participatory principles. In the past several years FAO has worked in close collaboration with countries and other organizations, including ITTO, to develop approaches, guidelines and technical tools designed to help the field implementation of SFM. FAO will continue to assist countries to apply or adapt these tools.

FAO is collaborating with various partners on climate change initiatives. Some of them have been launched under the CPF, a partnership made up of the 14 main international organizations that have forestry programs. CPF members have just agreed to develop a strategic framework for a coordinated response to climate change. In addition, FAO is participating in the CPF expert panel on adaptation of forests and climate change and co-sponsoring, with the Swedish University of Agricultural Science and the International Union of Forestry Research Organizations, an international conference on the adaptation of forests and forest management to changing climate with an emphasis on forest health, which will take place in Sweden this August. FAO is also intending to reactivate the CPF process to harmonize forest-related definitions for international policy purposes, a process that dates back to 2002, to discuss the definition of forest degradation in the context of REDD.

FAO, the UN Development Programme (UNDP) and the UN Environment Programme (UNEP) have agreed to enter into partnership, as a 'One UN' initiative, to provide support to countries related to REDD readiness and implementation. The objective is to work together, drawing on the agencies' complementary comparative advantages, to provide early action and sustained support. This is not intended to exclude other sources of expertise: the partnership will work with other organizations to provide technical assistance.

Finally, FAO has a long history of collaboration with ITTO. We look forward to working together to support countries' efforts to address the challenges of climate change mitigation and adaptation.

## Forest Carbon Partnership Facility

**Ken Andrasko**

**World Bank**

Tropical forests continue to disappear at about 14 million hectares per year. Carbon finance can contribute a new source of recurrent revenues for forest protection and SFM.

The FCPF has two funding mechanisms: a readiness fund with a target amount of US\$100 million (almost there) to help build capacity in about 20 countries to undertake REDD; and a carbon finance fund, which would be used to purchase emission reductions. The target for this fund is \$200 million, of which we have less than half; the plan is to target about five countries for this. We don't have a view as to whether it would take a market or non-market approach; we are just experimenting. The small amount of funds would be to test the system and to help countries establish the infrastructure needed for an expansion of the fund to US\$1 billion and beyond as part of the post-2012 regime.

The FCPF is a true partnership. It is governed by a participants' committee (the main decision-making body) and a broader participants' assembly and assisted by independent technical advisory panels. Developing countries are on a par with developed countries in the governance structure; the idea is to experiment with the building blocks of REDD. The relatively small amount of funds will not solve anything but they will allow us to test various strategies.

To access the funds, countries must demonstrate readiness. They must have: formulated an economically effective, efficient and socially equitable REDD strategy involving a broad stakeholder consultation process – credibility will be key; established a reference scenario on REDD based on historic emissions and modelling; a monitoring and verification system; and a legal framework for the implementation of the strategy capable of reaching out to the drivers of deforestation. To date, 39 tropical countries have expressed formal interest in participating in the fund, and 13 have sent in readiness plan idea notes (R-PINs).

A number of issue-specific technical advisory panels are to be created. These will: review R-PINs to assist REDD country participant selection; review readiness action plans and readiness packages; provide analyses to FCPF participants in selecting emissions reduction programs; and carry out other functions as needed.

Any country interested in being a donor or participant can access the scheme through the website ([www.carbonfinance.org/fcpf](http://www.carbonfinance.org/fcpf)).

The FCPF will seek opportunities for additional benefits beyond REDD and climate change; these will be social (eg community development) and/or environmental (eg biodiversity). The application of World Bank environmental and social safeguards will require – at a minimum – that affected local communities are meaningfully consulted and biodiversity protected in carbon fund transactions.

A guiding principle of the fund is that incentives must go where they are needed to ensure sustainable emissions reductions. Hence, it represents a considerable opportunity for Indigenous peoples and other forest dwellers as conservers and traditional protectors of the forests. The fund has added an official observer role for Indigenous peoples and other forest dwellers and there is to be no trade-off between forest conservation and traditional land-use rights. Experts on Indigenous issues will be included in technical advisory panels, and a series of regional consultations with Indigenous peoples' leaders has been undertaken.

How to start? REDD opportunities vary according to the opportunity cost of land, carbon density, and the threat of deforestation (additionality). Can we identify threats where opportunity costs are low, carbon benefits medium-to-high, and barriers to implementation low, and target them for REDD activities? What are the governance concerns with these targeted lands and REDD strategies?

The main methodological issues in moving forward are:

- how to move from projects to a national approach (defining a REDD methodology, developing a national registry system, establishing a national coordination body);
- how to reconcile a national baseline with different project baselines (what baseline years and boundaries to use?);
- defining forest (should it include forest plantations?); and
- how to distribute REDD revenues (need a national legal framework)



## Convention on Biological Diversity (CBD)

In addition to the the above statements delivered in person to the meeting, a written statement from the Executive Secretary of CBD was provided and is included in this report as Annex 3.

### Discussion

**Question to Guaraguata:** I am interested to know more about TROFCCA. **Guariguata's response:** TROFCCA was conceived as a way of mainstreaming forests and forestry into broader adaptation policies. It looks at three aspects that are region-specific. In Southeast Asia it is looking at the role of climate instability in land instability, in Africa it is focusing on energy, and in Central America it is looking into the forest/water relationship. There is much more than that – please look at the TROFCCA website ([www.cifor.cgiar.org/trofcca](http://www.cifor.cgiar.org/trofcca)) for more information.

**Question to Andrasko:** I would like to hear more regarding the role of intergovernmental organizations like ITTO and regional organizations in contributing to and working with the FCPF. **Andrasko's response:** Good question; it is one we have been thinking about. Last week in Panama we held a workshop of mesoAmerican countries to talk about cooperation on the environment, including a mini-workshop on REDD. The World Bank, FAO, UNDP and UNEP made a joint presentation and explained how we want to cooperate together. We want to identify the needs of countries – the kinds of technical assistance that

particular countries want. We are learning a lot about what countries are looking for. Then we discussed how other organizations could cooperate. For example, if Panama wants support for a monitoring system then who could step forward and provide that cooperation?

**Question to Andrasko:** You say that the World Bank's safeguard policies will apply, but the Bank's legal department says those policies won't apply to the facility unless money is dispersed from the Bank. The facility's draft charter mentions rights to carbon, but what about human rights? Will the charter address human rights and the compliance of recipient countries with their international obligations? What is the status of the charter? You mentioned consultations with Indigenous people but we understand that those were not accepted as consultations. Are you planning more consultations? **Andrasko's response:** We are having a World Bank safeguards meeting tomorrow to define when the safeguards will apply. There is still a lot of work to be done and we can't clarify it yet. It might be worth undertaking activities and using them as learning experiences. We are thinking much more broadly than we were initially, so stay tuned. The charter is not yet finalized. We will be working on it over the next few weeks and the outcomes will be posted on the website; there will probably be a period for review. Regarding the consultations with Indigenous peoples, I had not heard that they were not considered consultations. I attended two of the three; at no time was there a suggestion that they did not constitute a consultation.

## ANNEX 1. WORKING GROUP REPORTS

On the second and third days of the workshop, working groups met to discuss various aspects of the relationship between tropical forests and climate change. The unedited reports of these working groups are included below; the conclusions and recommendations presented at the beginning of this report draw heavily on these reports.

### Working group 1 Carbon sequestration

The group recognizes the importance of including Forest Restoration in tropical forest in the UNFCCC system as well as the (unnecessary) complexity and lack of flexibility in de A/R CDM.

The landscape approach should be in the center (in a given landscape there are some mitigation options in a landscape mosaic).

#### **What are recommendations for ITTO?**

##### **A. Building capacities among member countries for taking advantage of actual mechanisms**

- Help to mitigate knowledge gaps between CDM and reality
- Increase funding of pilots and exchange of experiences among member countries
- Dissemination of information, creating knowledge networks, regional groups
- Help to tackle methodological/technological barriers for developing A/R projects (baseline, monitoring, etc.)

##### **B. Considering adoption of new eligible activities and mechanisms in a post 2012 regime**

- Contribute to fund participation of forest sector experts and stakeholders
- Analysing the lessons learned and experience through SFM in the tropical forests into the climate change negotiation process, and the possibility to include restoration as an eligible activity for mitigation.
- Promoting national/regional working groups for discussing and preparing submissions
- Increasing capacities of policy makers for considering forests related issues in the UNFCCC

- Consider the development of a CC thematic program to effectively address new issues (restoration, REDD)
- Involvement of different stakeholders in regional dialogue on forest in climate change (stakeholders consultation meetings)
- Training of forest practitioners on mitigation options and mechanisms.

#### **Workshops attendants and their organizations would be expected to:**

- Promote discussion in their countries for mainstreaming SFM and restoration.
- Act as focal point for capacity building.

#### **Issues discussed by the group**

1. Potential of Forest Restoration in tropical forest
2. Simplification of A/R CDM
3. Role of different stakeholders (rural areas)
4. Sustainable Management of all forest as a means for getting multiple benefits, including carbon (sequestration and emission reduction)
5. Impacts on governance, policies and legal issues. However C sequestration can not solve all problems in the forests
6. Needs for capacity building at different levels(see recommendations)
  - the field level
  - policy makers
  - project managers
7. Need to ensure participation of as many as possible stakeholders. Need for promoting fairness and equity in the UNFCCC agreements
  - i Setting a baseline
  - ii Monitoring requirements
  - iii Needs/availability of data
  - iv Socio-economic and environmental impacts
  - v Capacities
    - Implies secondary forests are converted to a higher stock forests

- It is related with definition of forest degradation, it is a more dynamic and thus a more complex concept, yet to be defined
- It is becoming a priority in some countries for (a) its mitigation potential; (b) ensuring implementation of forest policy
- No SFM is being implemented in some ITTO countries
- Classification of restoration, which would have implications on funding mechanisms
- Need for resources that could be provided by carbon payments
- Use all goods and services of the forest as a driving force for a multipurpose management: C, biodiversity and water
- Definition is needed

#### **A/R CDM**

- Lack of presence of knowledge and experienced foresters (seems very few foresters were included in discussion/negotiation) lead to a too complicated system with reduced activities yet
- It is necessary improvement to make it easier and realistic
- Holistic approach (complementary to other alternatives such as REDD)
- It is not flexible, it excludes restoration
- Initial non-forest conditions is mandatory
- Promote recognition of different situations, when setting baseline focusing more on socio-economic parameters is necessary
- Simplification: more consideration of the reality of participants (current capacities and capacity building); facilitate local people participation
- Current model and procedures makes project's transaction costs artificially too high
- Institutional loop (pipeline) is too high
- Year of reference (1990) should be revised to allow greater land eligibility

- Permanence/non-permanence shouldn't be a barrier
- Small-scale projects
- Developing national baseline for A/R
- Capacity building at the local level
- Lack of financing for implementing projects in order to produce credits to be sold. Needs for developing micro-credits programs for implementing projects
- How to management of expectations; people is likely to replicate success projects
- Flexible project boundaries
- Applicability conditions are too narrow focused and difficult to fulfill
- Too much expectations and too low payments
- Credibility of the baselines, need for agreement
- Definition, scope and extent. Ask for monitoring requirements
- Need for backstopping capacity building in/for data
- Socio-economic conditions need to be addressed
- What is the role of voluntary markets? Requirements are almost same as for A/R CDM projects
- Need to enhancing the participation of the forest sector in the UNFCCC
- Too many requirements block the system
- Use existing knowledge (eg ITTO, FAO): resource of good decisions and/for capacity building

#### **Common points**

- How SFM is (to be) included?
- Fairness, consistency, common concepts for mitigation approaches (REDD, A/R CDM and others)
- Readiness on the ground
- Impacts on ownership, land nature and use rights
- How to ensure involvement of civil society (especially local communities)

- Leverage on the importance of including environmental services in the ITTO/ITTA
- Carbon markets should be free markets (many things involved: governance, biodiversity, poverty, land tenure, law enforcement)
- Need of involvement of rural communities in C sequestration projects and needs for capacity building
- Participation of stakeholders to increase success, reduce risks and increase permanence
- Recognition of different circumstances among countries
- For national approaches, the national inventories should serve as base for developing national baseline (reference scenario) as well as for monitoring
- Needs for support for getting accurate data (capacity building)
- Combination of REDD and A/R (one project for managing area)
- Reality check
- What is really new?
- Efficiency of capacity building (are workshop attendees getting enough skills and knowledge for making a change?)
- Efficiency of capacity building for empowerment of local communities
- Need for national policies
- Need for consistent social and environmental impact assessment
- Benefit sharing agreements
- ITTO should increase their role for capacity building and support
- Improve community participation

### **Restoration**

- There is lack of definitions but ITTO has a prompt start
- It has a great potential to produce collateral benefits, both social and environmental

### **Simplification of A/R CDM**

- Promote creation of modules and tools for “building” projects
- Revision of reference year for defining land eligibility
- Proposing flexible project boundaries to promote recognition of additional carbon sequestration and additional benefits as result of replication in areas surrounding successful projects
- Developing mechanisms for upfront financing for project implementation (eg micro-financing)
- Promoting creation of operational entities at regional level

### **Capacity building**

- Which kind of capacity building? What ITTO has to do with it?

### **Participation in negotiation processes**

- Enhance participation of forest sector experts in negotiation process (funding)
- Training of policy makers
- Promoting national/regional working groups for discussing and preparing submissions

### **Role of communities and local stakeholders**

- Ownership, land tenure, rights of use, participation of local stakeholders
- Consultation process
- Share of benefits

### **Environmental integrity and market approach (to be discussed in plenary session)**

#### **National circumstances**

#### **Landscape**

- Including A/R, restoration and REDD activities into a landscape planning approach (SFM criteria and indicators)

#### **What is really new?**

- Restoration

## **Working group II**

### **Technical and methodological issues and approaches for reducing emissions in the context of SFM**

#### **1 Overview of technical issues**

- Role of SFM for production of forest goods
  - Types of activities – timber extraction rates; sustainable vs. unsustainable activities; capacity building, governance
  - Monitoring (where/what scale, biomass change/extraction volume, area impacted, reference levels)
  - Availability of data on carbon/biomass stocks for estimating greenhouse gas emissions levels in the forest sector
  - Carbon accounting/estimation (project to national level)
  - Confirmation of emissions reductions (carbon audits)
  - How to finance REDD (and environmental services)
    - How to distribute funds/benefits to stakeholders
    - Whether and how to establish contracts or agreements
  - Need for capacity building
  - Definitions (eg degradation) and scope (forest? industry?)
  - Impact of extreme/unusual events on reference emissions levels, monitoring and funding commitments (eg El Nino, Asian financial crisis, conflict, etc.)

#### **2 Three to five key issues to be considered in the framework of ITTO and other forums**

- Governance, equity, civil society/community involvement, human rights, poverty reduction
- Sustainable financing mechanism
- REDD implications on emissions mitigation
- REDD impacts on environmental services
- Credible/transparent monitoring system
- Data availability to establish credible reference emissions levels (carbon dynamics in tropical ecosystems, carbon stocks of logged/unlogged, etc)
- Cooperation/coordination with international/regional fora

#### **3 Recommendations**

- Include REDD in upcoming Accra meeting agenda (ITTO)
- Support further regional meetings on role of forest communities in climate change mitigation (ITTO)
- Encourage to support national consultation process on REDD (ITTO)
- Support policy and institutional frameworks to reward local communities for their contributions to REDD (ITTO)
- Global review of best practice in rights based approaches to REDD (ITTO)
- Introduce carbon component in ITTO projects (to collect and disseminate information)
- Update C&I to reflect current state of knowledge on REDD and SFM (ITTO)
- Report on progress contributing to REDD at UNFCCC COP 15 (ITTO)
- Commitment to increase capacity of personnel working on climate change issues at national level and to retain them (governments)



## Working group III Carbon substitution

### 1. Short overview

- Wood is a carbon-neutral material and a renewable resource. Traditional use of wood such as fuel wood is still dominant in developing countries
- Wood energy provides heat, electricity and transportation fuels.
- Accounting of harvested wood products is an ongoing issue in climate change negotiations.
- Bioenergy production from forestry and substitution of fossil intensive products by wood products is an important strategy for mitigating climate change
- Economic, social and environmental benefits of wood energy in tropical countries would be high if they are produced in a sustainable way.
- Comparative advantages of wood-based (cellulosic) ethanol as its production has higher energy efficiency compared with corn and sugarcane-based ethanol
- Promotion of forest-based bio-fuels is an interesting possibility for climate change mitigation
- Wood has the lowest energy consumption and CO<sub>2</sub> emission compared to commonly used building materials such as cement, plastic and steel. Replacing one cubic meter of concrete or red brick with the same volume of timber can save around 1 ton of CO<sub>2</sub>

### 2. Key issues

- Cost constraints in the production of wood energy, particular the use of wood residues due to high transportation costs.
- Lack of comprehensive information on wood energy, substitution of wood, the role of harvested wood products in carbon accounting to address climate change – issues of accounting systems. Sharing information on wood energy is limited
- Knowledge of wood energy technologies is limited, in particular with regard to wood ethanol
- Lack of public awareness of the potential of wood energy and substitution of carbon intensive materials with wood products
- Limited demonstration projects to support the efficient use of wood energy
- Need to develop markets for various wood energy products
- Lack of forest-related policy framework to integrate wood energy production in achieving SFM

- Limited support and R&D to optimal use of all residues in forest and wood products industries. R&D for new technologies for the production of wood energy and capacity building for R&D
- Insufficient supporting incentives for the production of wood energy
- Potential for competition with the agriculture sector (food production, etc.)
- Monoculture fast-growing species plantations for energy production may negatively affect biodiversity, water and soils.
- Lack of comprehensive information on the use of wood in construction – LCA comparing different construction materials

### 3. Recommendations

The working group made the following recommendations for the attention of governments, ITTO and others, including intergovernmental institution as appropriate:

- Commission studies on life cycle assessment of wood products with a special emphasis on carbon in climate change mitigation
- Monitor the developments and exchange information in the area of wood biofuels. Assist countries in strengthening their capacity to assess, monitor and report on forest- and wood-energy-related information
- Promote R&D for the production of biofuels
- Develop public awareness programmes about the mitigation potential of wood-based bioenergy and wood products in addressing climate change
- Encourage the exchange of information on incentives and other measures to promote wood energy
- Study the potential of forest plantations for biofuels
- Conduct a study on accounting of harvested wood products in the context of climate change mitigation
- Encourage and assist governments, in partnership with the private sector and other stakeholders, to formulate and implement policies and strategies to promote the use of wood products in construction which are eco/carbon-friendly products as well as the use of wood energy
- Encourage the development of community-based wood energy programmes
- Identify suitable markets and support to stakeholders for wood-energy development
- Contribute to the development of policies and guidelines which promote sustainable biofuel plantations in a way which is consistent with food production and security as well as environmental standards

## **Working group IV**

### **Technical and methodological issues and approaches to SFM as an adaptation measure**

SFM provides a basis for adaptation to climate change in forests, but there is a need to re-assess forest practice. Many existing tools do not explicitly account for the possible impacts of climate change.

Tropical forests face many potential threats due to climate change, including changed precipitation regimes and increased incidence and severity of pests, diseases, extreme storm events and fire. They might also be vulnerable to increased in-migration of environmental refugees. However, little information is available on the extent of these threats.

In many countries there is insufficient awareness of the possible impacts of climate change on forests and their implications for forest management, the forest sector, forest-dependent people, pests and diseases, invasive species, fire, biodiversity and other forest values.

The impacts of climate change on forests could exacerbate poverty and the prevalence of human disease while reducing the availability of forest-based traditional medicines and other products and services important for human wellbeing. Forest-dependent people will be particularly affected.

To minimize the impacts of climate change on forest-dependent people, countries will require flexible and adaptable local and national decision-making processes that allow rapid, equitable forest management responses.

Low-lying coastal forests, particularly mangroves, are likely to be affected by predicted sea level rises due to climate change, with huge implications for important ecosystem services and human health. More information on possible adaptation measures in these forests is urgently required.

More efforts are required to convince the international community of the importance of adapting the forest sector to climate change.

### **Recommendations**

<b>Key issues</b>	<b>ITTO</b>	<b>National governments</b>	<b>Other institutions</b>
Lack of information: <ul style="list-style-type: none"> <li>• at local scale on impacts of climate change on forests</li> <li>• on forest resources, including carbon stocks, biodiversity, etc</li> <li>• on most vulnerable forest types and people</li> <li>• on adaptation options and strategies</li> <li>• monitoring methods</li> </ul>	Increase country capacity in collection of country forest resource data; provide policy guidance on adaptation options and strategies	Where lacking or insufficient, develop land use mapping and planning, inventory and monitoring to assist adaptive management	Research institutions can generate information, support national forest inventory, design monitoring methods
Insufficient awareness of the possible impacts of climate change on forests and forest-dependent people	Provide information materials; convene regional workshops; promote regional collaboration	Inclusion in school curricula; awareness campaigns	

**Recommendations continued...**

<b>Key issues</b>	<b>ITTO</b>	<b>National governments</b>	<b>Other institutions</b>
Impacts of climate change on forests could exacerbate poverty and the prevalence of human disease	Strengthen collaboration with other forums such as WHO, MDGs; initiate case studies in key countries	Incorporate forests more fully in national development agenda and in MDGs;	Strengthen research on the links between climate change, forests and human wellbeing
The need for flexible and adaptable national and local decision-making processes that allow rapid, equitable forest management responses and resolution of conflicts	Provide policy and technical guidance; support development of national action plans; continue to promote community-based forest enterprises	Assess the contribution of decentralization to the flexibility of forest-related decision-making; reduce transaction costs in decision-making and benefit-sharing; develop mechanisms to resolve forest-related conflicts	
Many existing SFM tools do not explicitly account for the possible impacts of climate change	Support incorporation of SFM in national climate change policies and programs; review existing SFM guidelines and criteria and indicators and the extent to which they include climate change considerations	Incorporate SFM in national climate change policies and programs	Generate indicators to account for climate change
Certain forest types, such as mangroves and cloud forests, are likely to be particularly affected by climate change	Provide information and guidelines on the management of vulnerable forest types	In coastal forests, improve integrated coastal zone management; forest management interventions	
Lack of awareness in the international community of the importance of adapting the forest sector to climate change	Be active in providing information to UNFCCC process (eg side-events at SBSTA, submissions); provide capacity building among forestry officials in member countries on climate change negotiations; take advantage of other forums to spread the messages, particularly by strengthening coordination with other CPF members; consider the need for a tropical forest and climate change centre	Capacity building for officials involved in climate change negotiations; strengthen communication through bilateral and multilateral mechanisms	Be active in providing information to UNFCCC process (eg side events at SBSTA, submissions); provide capacity building among forestry officials in member countries on climate change negotiations; take advantage of other forums to spread the messages; CPF collectively bring the messages to international community including through Forest Day

## Regional working group – Africa

### Policy Needs

- i. Focus on policy makers – need to understand opportunity cost of CC
- ii. Capture climate change issues in forest policy framework
- iii. Integrate CC issues into forestry policy and national development agenda
- iv. Dissemination of IPCC reports to policy makers via the country focal point (FP)—need to make sure the FP of a country shares the info to the needed governmental departments
- v. Need to make sure the policy makers understand climate change issues—impacts, mitigation and adaptation and how each of these affects countries future development
- vi. Need for flexibility in policy frameworks to capture changing needs
- vii. Policy makers need to be aware of and make use of existing regional initiatives and subregional organizations
- viii. Need stabilization of political memory and political will to be engaged in CC issues (implications for structure of government)
- ix. Formulate adaptation strategy, and review and update National Action Plan for Adaptation (NAPA) as needed
- x. Is Africa part of the problem or part of the solution and potentially suffer the consequences (identified as most vulnerable to climate change)
- xi. Need to consult local communities and Indigenous people

### Legal, Institutional and Governance

- i. Presence of good laws and legal requirements but inadequate implementation and regulation
- ii. Review, and revise as needed, existing legislation to support new policies
- iii. Importance of including in forest management plans issues related to climate change, such as impacts and need for adaptation

- iv. Need for harmonization and coordination of actions related to climate change—eg in most countries the DNA acts alone and a multi-sectoral approach is needed
- v. Develop a high-level government committee comprised of a member from each stakeholder ministry/department (including research community) –can serve in advisory capacity, validate national reports related to CC, etc
- vi. Need for Land use planning and clarification of land tenure issues
- vii. Increased risk on Cc planning actions from national and local conflicts and refugees from cross border conflicts

### Financing Mechanism

- i. Needed for: Adaptation, capacity building, incentives for good practice, for promoting investment in CDM, for technology, compensate for opportunity costs, financing pilot activities, for research support
- ii. Types of mechanisms: PES, public and private funds

Need (cross-cutting across adaptation, mitigation, REDD, and SFM)	Source
Adaptation	Adaptation fund—needs to provide information on how countries can access it and simplify application process
capacity building	Public and CPF members
incentives for good practice (eg conservation of forests for biodiversity, protection forests)	Payment for environmental service—private/public
promoting investment in CDM and REDD	PES (carbon market)-promotion via additional ODA and multilateral funding agencies and investment by private sector
Technology	Private and ODA/UNFCCC for transfer developed country support developing countries transfer of environmental sound technology
compensate for opportunity costs	PES (carbon market)
financing pilot activities	PES and multi and bi-lateral
research support	CPF, PES, polluter-pay principle
Poverty reduction/sustainable livelihoods of people around forests	Micro credit and trust fund, C market, community development funds

**Pilot Experiences****i. Adaptation/Impacts/Vulnerability**

- a. Baseline of distribution and area of C stocks in forests so that future monitoring can detect trends
- b. Permanent sample plots to monitor trends in mortality, disease etc

**ii. Mitigation**

- c. CDM – different baseline and monitoring methodologies to bring to discussions on simplification
- d. REDD – need data to develop reference emission level for both deforestation and degradation – eg C stocks, area change, etc

**Capacity Building**

- i. Needs: human, institutional, technology, and communication
- ii. Free and readily available access to past and current remote sensing data (in multiple formats, either fast download or on electronic formats) –from latest technology, and several scales of resolution
- iii. Human training in the use and analysis of RS data, including the hardware and software
- iv. Communication networks to share capacity and experience

**Recommendations**

<b>TO ITTO</b>	<b>TO NATIONAL GOVERNMENTS</b>	<b>TO OTHERS</b>
Integrate CC issues into forestry policy and national development agenda	Dissemination of IPCC reports to policy makers via the country focal point (FP)—need to make sure the FP of a country shares the info to the needed governmental departments	Baseline of distribution and area of C stocks in forests so that future monitoring can detect trends
Importance of including in forest management plans issues related to climate change, such as impacts and need for adaptation	Formulate adaptation strategy, and review and update National Action Plan for Adaptation (NAPA) as needed	CDM—different baseline and monitoring methodologies to bring to discussions on simplification
Importance of including in forest management plans issues related to climate change, such as impacts and need for adaptation	Importance of including in forest management plans issues related to climate change, such as impacts and need for adaptation	REDD—need data to develop reference emission level for both deforestation and degradation—e.g. C stocks, area change, etc
	Importance of including in forest management plans issues related to climate change, such as impacts and need for adaptation	Free and readily available access to past and current remote sensing data (in multiple formats, either fast download or on electronic formats) –from latest technology, and several scales of resolution
	Need for harmonization and coordination of actions related to climate change—eg in most countries the DNA acts alone and a multi-sectoral approach is needed	Human training in the use and analysis of RS data, including the hardware and software
		Financing from PES and micro crediting



## Regional working group – Asia and the Pacific

### 1 Overview of regional issues related to SFM and climate change

#### a) Capacity building

- ITTO can help facilitate increased understanding of foresters on SFM and REDD issues
- How to transfer knowledge; exchange of good practices
- Role of research institutions
- Capacity building of stakeholders at all levels
- Provide more opportunities for members countries to discuss forestry and CC issues (eg forums, policy dialogues, meetings with DNA)

#### b) Policy review

- Benefits must reach local stakeholders
- Competition of land with other uses such as the one for forest bioenergy, food, etc.
- Review definition of SFM to take into account climate change (ITTO)
- Policies not just in forestry must be considered; policies in other sectors such as mining has impact on forests (see previous section)
- How to better compensate “good loggers”?; incentives for “good people”
- “Make thing simple”
- Policy integration
- Examine inclusion or increased participation of foresters in DNA
- How to facilitate participation of foresters in UNFCCC processes
- Tools for assessing impacts of climate change on forests and adaptation policies

#### c) Clarify role of SFM to mechanisms under the UNFCCC (eg REDD)

- REDD related to SFM but relationship still vague; SFM connected with degradation
- Unsustainable forestry can increase deforestation and degradation
- How to increase C stocks and sequestration through SFM
- Support participation in UNFCCC/REDD negotiations to promote SFM as a viable option in reducing GHG emissions and enhance C sequestration and conservation of C stocks

- Assess economic efficiency of SFM; must be sustainable financing; REDD financing should only be for initial period
- Divergent perceptions
- Involvement of Forest sector not substantial
- Develop simpler approaches, rules, instruments for forestry under climate change regime (compared to current CDM)

### Links of forestry sector to other sectors

- SFM is a part of sustainable development
- Identify what types of adaptation needed
- Acknowledge role of and consult various stakeholders and ensure their participation

### Promoting generation and access to new technology and information

- New technology of remote sensing is available (eg microwave/SAR, hyper spectral); ITTO can assist in sharing new technology
- Resources are needed by developing countries to access new technology
- Promote greater understanding of “Carbon dynamics”
- New knowledge on forests and climate change mitigation and adaptation

### 2 Recommendations to be considered in the framework of ITTO and other forums

- Capacity building on all levels including policy makers (Governments/ITTO)
  - Assess country’s needs eg for inter-sectoral linkages
  - Support enhancement of curricula of existing forestry training centers
- Support review of national forest and CC policies; many policies are out-dated (ITTO)
- Promote consultation at various levels [Governments/ITTO]
- Share information and experiences in good practices (eg institutional arrangements, CO<sub>2</sub>-e inventories/accounting, distribution of credits, monitoring including baselines, websites, development of new voluntary market, etc.) [ITTO]
- Study appropriate institutional arrangement to promote capacity building (eg feasibility of establishing a center for tropical forests and CC) [ITTO]
- Strengthen the role of research institutions on tropical forests and CC

Note: “ITTO” means “ITTO in collaboration with other organizations”.

**Regional working group – Latin America**

<b>Key issues</b>	<b>ITTO</b>	<b>National governments</b>	<b>Other institutions</b>
Forest ecosystems in Latin America are highly vulnerable to current changes in the global climatic system. The overall adaptation capacity in the region is low, thus the current vulnerability of forest ecosystem, the forest sector and forest depending people is increasing	<ul style="list-style-type: none"> <li>Promote a better understanding of and capacity building on the ongoing impacts of climate change on tropical forests, the forest sector, other sectors and forest depending people</li> <li>Facilitate the understanding of economic impacts as a consequence of the climate change impacts on tropical forests</li> </ul>	<ul style="list-style-type: none"> <li>Strengthen national policies aimed at understanding of ongoing impacts of climate change on tropical forests, the forest sector, other sectors and forest depending people</li> </ul>	
Financing mechanisms in addressing climate change	<ul style="list-style-type: none"> <li>Promote/facilitate dialogue spaces, exchange</li> </ul>	<ul style="list-style-type: none"> <li>Promote stakeholder consultations including civil society, (communities) private sector</li> </ul>	<ul style="list-style-type: none"> <li>Promote/facilitate dialogue spaces, exchange (eg World Bank, FAO, UNDP, UNEP, UNFF)</li> </ul>
Impacts on and challenges from cross-sectoral policies on mitigation and adaptation activities in forestry	<ul style="list-style-type: none"> <li>Facilitate regional exchange on addressing cross-sectoral experiences</li> </ul>	<ul style="list-style-type: none"> <li>Promote cross-sectoral dialogue and coordination among relevant policies</li> </ul>	<ul style="list-style-type: none"> <li>Facilitate regional exchange on addressing cross-sectoral experiences (eg World Bank, FAO, UNDP, UNEP, UNFF)</li> </ul>
Inequity in the distribution of public funds, especially compared to the agricultural sector public funds, especially compared to the agricultural sector	<ul style="list-style-type: none"> <li>Facilitate regional exchange on addressing in improving competitiveness of the forest sector including the regional studies conducted by ITTO</li> <li>Conduct the widespread the results of the studies on subsidies in the forest sector. Further in-depth studies of other positive incentives and its relation to forest and climate change</li> </ul>	<ul style="list-style-type: none"> <li>Promote a balance in the provision of public funds for promoting SFM</li> </ul>	
Increase the economic value of the forest	<ul style="list-style-type: none"> <li>Conduct studies on valuation of NTFP and environmental services in the tropical forest and its relation to SFM</li> <li>Promote exchange of experiences on PES among ITTO members and piloting experiences</li> </ul>	<ul style="list-style-type: none"> <li>Ensure incentives for the forest sector (eg better credit conditions)</li> </ul>	<ul style="list-style-type: none"> <li>Promote studies on valuation of NTFP and environmental services in the tropical forest and its relation to SFM</li> <li>Promote exchange of experiences on PES among ITTO members and piloting experiences</li> </ul>
Globalization has an impact on land use and on drivers for land use change	<ul style="list-style-type: none"> <li>Conduct studies to evaluate the pressure on the tropical forest especially for forest conversion due to international demand of specific products (eg land demand for biofuel plantations, mining, agricultural products)</li> </ul>	<ul style="list-style-type: none"> <li>Whenever required, countries should consider the need to promote national policies that maintain forest cover</li> </ul>	
It is necessary to promote a real effort on SFM as a means for a net mitigation impact	<ul style="list-style-type: none"> <li>Facilitate the understanding of different options to achieve effective mitigation to climate change through SFM</li> </ul>	<ul style="list-style-type: none"> <li>Shall pursue long term and efficient approaches for addressing climate change through SFM</li> </ul>	

**Regional working group – Latin America continued...**

<b>Key issues</b>	<b>ITTO</b>	<b>National governments</b>	<b>Other institutions</b>
<p>Role of institutions and processes that could have a regional coverage of developments/needs for using SFM in adaptation to and mitigation of climate change, such as:</p> <ul style="list-style-type: none"> <li>• Amazon Cooperation Treaty Organization (ACTO)</li> <li>• Comunidad Andina de Naciones (CAN)</li> <li>• Tratados de libre comercio</li> <li>• UNASUR</li> <li>• COFLAG</li> <li>• CCAD</li> <li>• Regional offices of international organizations, such as ITTO, FAO, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Reinforce the role of ITTO in clarifying the role of SFM in addressing climate change within the CPF</li> <li>• Informing the UNFCCC process; providing capacity building among forestry officials in member countries on climate change negotiation</li> <li>• Pursue a coordinated action among intergovernmental institutions in considering SFM of tropical forest in addressing climate change</li> </ul>	<ul style="list-style-type: none"> <li>• Promote coordinated positioning in different processes</li> <li>• Whenever possible promote national consultation and concerting processes defining national positions that have an impact on the management of tropical forests. Such consultation and concerting processes shall include all sectors of the society</li> </ul>	
<p>Challenges for local governance and decentralization processes in planning and implementing mitigation and adaptation activities</p>	<ul style="list-style-type: none"> <li>• Considering this issue when updating the set of C&amp;I of SFM</li> <li>• Conduct studies and disseminate best practices on governance and decentralization in the forest sector</li> </ul>	<ul style="list-style-type: none"> <li>• Promote the use of the updated the set of C&amp;I of SFM</li> <li>• Promote the use of best practices on governance and decentralization in the forest sector</li> </ul>	
<p>Land tenure, ownership of environmental services and use rights and its implications in adapting to and mitigating climate change</p>	<ul style="list-style-type: none"> <li>• Conduct a study on good practices in rights based approaches to promote SFM in addressing climate change (including customary, communities and small-farmers rights)</li> </ul>	<ul style="list-style-type: none"> <li>• Promoting good practices in rights based approaches to promote SFM in addressing climate change (including customary, communities and small-farmers rights)</li> </ul>	
<p>Communal forest tenure regime and traditional management systems of Indigenous peoples and traditional communities are effective strategies for preventing deforestation and degradation</p>	<ul style="list-style-type: none"> <li>• Include traditional sustainable management and community forest management as a means for addressing climate change in the forthcoming Ghana Conference and disseminate its results</li> </ul>	<ul style="list-style-type: none"> <li>• Recognize and support the demarcation and titling of community forest territories and promote and protect traditional sustainable management practices</li> <li>• Promote community forest management that are also effective strategies for preventing deforestation and degradation</li> </ul>	

## ANNEX 2. EXPERT MEETING PROGRAM



### International Expert Meeting on Addressing Climate Change Through Sustainable Management of Tropical Forests

**30 April – 2 May 2008, Yokohama, Japan**

#### PROGRAM

*Organized by the International Tropical Timber Organization  
in cooperation with  
The Governments of Japan, Switzerland and Norway, and the City of Yokohama*

Time	Theme	Speaker
<b>30 April, Morning: Opening Session Global Issues and Opportunities of Tropical Forests in Reducing Greenhouse Gas Emissions</b> Chairs: Ms. Katharina Kühmayer and H.E. Mr. Kyoji KOMACHI Venue: Hamagin Hall, Via Mare, Minato Mirai, Yokohama (Simultaneous interpretation in Japanese and English in the morning session)		
09:00-10:00	Registration	
10:00-10:30	<b>Opening &amp; Welcome Remarks</b> Mr. Emmanuel Ze Meka, Executive Director, ITTO Ms. Yumiko Noda, Deputy-Mayor of Yokohama, Japan H.E. Mr. Kyoji KOMACHI, Ambassador for Global Environmental Affairs, Japanese Ministry of Foreign Affairs Ms. Katharina Kühmayer (Austria), Chairperson of the ITTC, 2008	
10:30-10:50	<b>Keynote speech 1</b> Global overview of tropical forests in addressing climate change	Rodel Lasco, World Agroforestry Centre
10:50-11:10	<b>Keynote speech 2</b> Sustainable forestry: Solution and victim	Tasso Azevedo, Brazilian Forest Service
11:10-11:30	<b>Keynote speech 3</b> Sustainable management of tropical forests: Role of ITTO in climate change mitigation and adaptation and in assisting members in formulating an integrated forest sector response	Jürgen Blaser, Intercooperation
11:30-11:50	<b>Question and answers</b>	Chairs
11:50-13:10	<b>Panel discussion</b> Panel members: Dr. Akira Miyawaki, Director, IGES-Japanese Center for International Studies in Ecology Mr. Koichi Fujishiro, Chairperson, Yokohama City Council Prof. Masahiro Amano, Waseda University, Japan Mr. Yoshitsugu Minagawa, Deputy Director General of the Forestry Agency of Japan Mr. Hiroyuki Kawaguchi, Global Environment Office, the Mainichi Newspapers, Japan Mr. Martin TADOUM, COMIFAC (Commission for the Forests of Central Africa) <b>Questions and answers</b>	
13:10-14:30	<b>Lunch break</b>	
<b>30 April, Afternoon: Keynote speeches and country perspectives</b> Moderators: Jürgen Blaser, Intercooperation / Eduardo Mansur, ITTO Venue: Hamagin Hall, Via Mare, Minato Mirai, Yokohama		
14:30-14:50	<b>Introduction to the expert meeting: objectives, expected results, working modalities</b>	Moderators
14:50-15:00	<b>Statement from representatives of the Civil Society Advisory Group (CSAG) and the Trade Advisory Group (TAG) of ITTO</b>	Yati Bun, CSAG Barney Chan, TAG

15:00-15:20	<b>Keynote speech 4: Mitigation options in tropical forests including in a post 2012-climate change regime</b>	Carmenza Robledo, Intercooperation
15:20-15:40	<b>Keynote speech 5: Methodologies for monitoring and accounting of GHGs from deforestation and forest degradation</b>	Sandra Brown, Winrock International
15:40-16:00	<b>Keynote speech 6: Promotion of wood-based bioenergy in the tropics: Opportunities and Challenges</b>	Manoel Sobral Filho, Brazil
16:00-16:30	<b>Questions and answers</b>	Moderators
16:30-16:50	<b>Break</b>	
16:50-17:30	<b>Country inputs from 3 selected ITTO producer member countries (10 minutes each): Challenges and expectations in linking SFM and climate change</b> Questions and answers	Ghana Indonesia Mexico
<b>1 May: Thematic focus on forestry mitigation and adaptation measures</b> Moderators: Jürgen Blaser, Intercooperation/Hwan Ok Ma, ITTO Venue: 9th Fl, Yokohama Symposia (YS)		
09:00-10:00	<b>Presentation of members of the Collaborative Partnership on Forests (CPF) and other initiatives</b> <b>Introduction to the Forest Carbon Partnership Facility (FCPF) of the World Bank</b> <b>FAO and climate change</b> <b>Overview of CIFOR's current research on climate change</b> <b>Japan's initiatives to address deforestation and forest degradation</b> Questions and answers	Ken Andrasko (by video link) World Bank/Carbon Finance Unit Susan Braatz, FAO Manuel Guariguata, CIFOR Yuichi Sato, Forestry Agency of Japan
10:00-10:30	<b>Introduction to the objectives of the day and organization of 4 topical working groups, including the selection of working group facilitators and rapporteurs:</b> <ul style="list-style-type: none"> <li>• Carbon sequestration (afforestation and reforestation, forest restoration)</li> <li>• Greenhouse gas emissions reduction (managing existing carbon pools, methodological issues and development of pilot projects for REDD)</li> <li>• Substitution of carbon (use of wood, bio-energy)</li> <li>• Tropical forests and adaptation</li> </ul>	Moderators
10:30-10:50	<b>Coffee/Tea break</b>	
10:50-12:30	<b>Group 1: Carbon sequestration</b> Group discussion Preparation of summary and recommendations (Venue: Main Conference Hall, 9th Fl, YS) <b>Group 2: Greenhouse gas emissions reduction</b> Group discussion Preparation of summary and recommendations (Venue: Room No. 901, 9th Fl, YS) <b>Group 3: Substitution of carbon</b> Group discussion Preparation of summary and recommendations (Venue: Room No. 902, 9th Fl, YS) <b>Group 4: Tropical forests and adaptation</b> Background paper presentation Group discussion Preparation of summary/recommendations (Venue: Room No. 805, 8th Fl, YS)	Working group facilitators / resource persons: Group 1: Carmenza Robledo  Group 2: Sandra Brown  Group 3: Barney Chan  Group 4: Manuel Guariguata
12:30-14:00	<b>Lunch break</b>	
14:00-15:30	<b>Working groups (continued)</b>	
15:30-17:00	<b>Presentation to plenary of outcome of groups 1 and 2 and discussion</b>	Working group facilitators
17:00-18:30	<b>Presentation to plenary of outcome of groups 3 and 4 and discussion</b>	Working group facilitators
18:30-20:30	<b>Cocktail reception hosted by ITTO</b> Venue: Foyer of Main Conference Hall, 9th Fl, Yokohama Symposia	



<b>2 May: Regional needs for the development and implementation of forestry mitigation and adaptation measures</b>		
Moderators: Jürgen Blaser, Intercooperation/Hwan Ok Ma, ITTO		
Venue: 9th Fl, Yokohama Symposia (YS)		
09:00-09:20	<b>Introduction to the objectives of the day and organization of 3 geographical working groups, including the selection of working group facilitators and rapporteurs:</b> <ul style="list-style-type: none"> <li>• Africa</li> <li>• Asia-Pacific</li> <li>• Latin America</li> </ul>	Moderators
9:20-10:50	<b>Country inputs from 6 selected ITTO producer member countries (10 minutes each): Challenges and expectations in linking SFM and climate change</b> <b>Questions and answers</b>	Cameroon, Liberia, India, PNG, Brazil, Colombia,
10:50-11:10	Coffee/Tea break	
11:10-12:30	<b>Group 1: Africa</b> Group discussion Preparation of summary and recommendations (Venue: Main Conference Hall, 9th Fl, YS) <b>Group 2: Asia-Pacific</b> Group discussion Preparation of summary and recommendations (Venue: Room No. 901, 9th Fl, YS) <b>Group 3: Latin America</b> Group discussion Preparation of summary and recommendation (Venue: Room No. 805, 8th Fl, YS)	Working group facilitators: Group 1: Victor Agyeman  Group 2: Hiroshi Nakata  Group 3: Leonel Iglesias Gutiérrez
12:30-14:00	<b>Lunch break</b>	
14:00-15:30	<b>Working groups (continued)</b>	Working group facilitators
15:30-16:20	<b>Presentation to plenary of outcome of groups discussion</b>	Moderators
16:20-16:40	<b>Coffee/Tea break</b>	
16:40-17:20	<b>Review and adoption of recommendations of the International Expert Meeting</b>	Katharina Kühmayer Chairperson of the ITTC, 2008
17:20	<b>Closing session</b>	ITTO

## ANNEX 3. STATEMENT BY CBD SECRETARIAT



Secretariat of the  
Convention on Biological Diversity



INTERNATIONAL  
DAY FOR BIOLOGICAL  
DIVERSITY  
22 May 2008  
BIODIVERSITY  
AND AGRICULTURE

### Statement from Ahmed Djoghlaif

**Executive Secretary of the United Nations Convention on Biological Diversity on the Occasion of the Expert Meeting on Addressing Climate Change through Sustainable Management of Tropical Forests**

*30 April - 2 May 2008, Yokohama, Japan*

According to the Millennium Ecosystem Assessment and the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, climate change is emerging as one of the greatest threats to biodiversity. The relationship between biodiversity and climate change, however, runs both ways. This is especially true when considering that forests are home to 50-90 per cent of the world's terrestrial species and deforestation accounts for about 20 per cent of human carbon emissions.

Forests provide approximately 1.6 billion people with food, medicines, fuel and other basic necessities. Forests, therefore, have a significant role to play not just for climate change mitigation but also for the continued provision of ecosystem services under changing climatic conditions – in other words, adaptation. The key to successful adaptation lies in ecosystem resilience. A growing body of scientific evidence shows that biodiversity is directly linked to ecosystem resilience: the more diverse forest ecosystems are, at the genetic and species level, the better they will be able to withstand expected climate change impacts.

All types of forests can contribute to climate change mitigation and adaptation, at the stand, management unit, and landscape level. The Food and Agriculture Organization (FAO) Voluntary Guidelines for the Responsible Management of Planted Forests, as well as the International Tropical Timber Organization (ITTO) / IUCN Guidelines for Biodiversity Conservation in Tropical Production Forests are taking these important aspects into account. In addition, the Secretariat for the Convention on Biological Diversity (SCBD) this month published a new volume in its Technical Series, "A Cross-Sectoral Toolkit for the Conservation and Sustainable Management of Forests", which lists ways and means to integrate the value of forest biodiversity into the decision making processes of other sectors. It is essential that sectors such as agriculture, transport, or energy recognize the importance of sustainably managed forests for biodiversity conservation, as well as for combating climate change.

However, the future of forests as contributors to adaptation is not assured. Approximately 8000 tree species, or 9% of the total number of tree species worldwide, are currently under threat of extinction. A concerted effort towards the sustainable management of tropical forests in order to address climate change and conserve biodiversity, is therefore of the utmost urgency.

In fact, the important links between forest biodiversity and climate change have long been acknowledged in international processes. The seventh meeting of the Conference of the Parties to the United Nations Framework



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COP 9 MOP 4 Bonn Germany 2008



United Nations  
Environment Programme

413 Saint-Jacques Street, Suite 800  
Montreal, QC H2Y 1N9, Canada

Tel : +1 514 288 2220  
Fax : +1 514 288 6588

<http://www.cbd.int>  
[secretariat@cbd.int](mailto:secretariat@cbd.int)

Convention on Climate Change (UNFCCC) affirmed that the implementation of land use, land-use change and forestry activities can contribute to the conservation of biodiversity and sustainable use of natural resources.

More recently, reducing emission from deforestation and forest degradation (REDD) has been recognized by the Parties to the Convention on Biological Diversity (CBD) as having significant potential to mobilize benefits for both carbon sequestration and biodiversity conservation and sustainable use. While at the thirteenth meeting of the Conference of the Parties to the UNFCCC, Parties called on countries, when developing demonstration activities for REDD, to note the relevant provisions of the CBD.

Parties to the CBD have also called for further exploration of positive incentive measures for conservation and sustainable use of biodiversity, as well as of innovative financing options, which may include links to investments in climate change mitigation.

Additional work is needed to ensure that biodiversity and climate change are fully recognized in sustainable forest management, especially in tropical forests. This includes, ensuring that REDD, afforestation and reforestation mechanisms, to the extent possible:

1. avoid the negative impacts on biodiversity that may occur as a result of the unintentional creation of perverse incentives,
2. facilitate the provision of positive incentives, especially market-based incentives, for biodiversity conservation and sustainable use, and
3. ensure that potential participants have access to tools to maximize co-benefits and ensure sustainability.

Such consideration, can also contribute to the long-term sustainability of investments in sustainable forest management by (i) enhancing ecosystem resilience, (ii) supporting the traditional forest-based livelihoods of indigenous and local communities, and (iii) contributing to climate change adaptation in forest ecosystems. To support this, the Parties to the Convention are working towards an International Regime on Access and Benefit Sharing to be presented at the tenth Conference of the Parties to the Convention (COP9) in Nagoya, Japan, in 2010. Whether the outcome of all these efforts is positive or negative depends entirely on us.

While much has been achieved in the progress towards sustainable forest management, more efforts are needed to reach the 2010 Biodiversity Target and to counteract the impacts of climate change. It is for this reason that the United Nations General Assembly has proclaimed 2010 as the International Year on Biodiversity. Indeed 2010 will be a true milestone in international efforts to reduce biodiversity loss. I wish to recognise and thank the government of Japan for its commitment to this goal as shown by its offer to host COP10 and its active participation in the lead-up to COP9. As Japan hosted the 1997 climate change meeting in Kyoto and will host the next biodiversity summit in 2010, we in the Secretariat looks forward to Japan taking the lead as incoming President of the G8 Summit in 2008 in order to promote synergies between climate change and biodiversity.

Indeed healthy forest ecosystems are our best insurance for a sustained quality of life and our best allies for addressing climate change challenges. With this in mind I am pleased, on behalf of the Convention on Biological Diversity, to wish you the best of luck with the expert workshop and I look forward to seeing the outcomes of your efforts.

## ANNEX 4. LIST OF PARTICIPANTS

### International Expert Meeting Addressing Climate Change through Sustainable Management of Tropical Forests

30 April–2 May 2008, Yokohama, Japan

#### **Australia**

Ms. Erika Kate Oord  
Mr. Alastair Sarre

#### **Austria**

Ms. Katharine Kuehmayer  
Mr. Georg Poestinger

#### **Brazil**

Mr. Tasso Azevedo  
Dr. Paula Barboza  
Mr. Daniel Meireles Tristao  
Mr. Adriano Santhiago de Oliveira  
Dr. Manoel Sobral Filho

#### **Cambodia**

Mr. Kimsun Chheng  
Mr. Ratanakoma Long

#### **Cameroon**

Mr. Koutou Denis Koulagna  
Mr. Samuel Ebia Ndong

#### **China**

Mr. Zhang Zhongtian

#### **Colombia**

Mr. Rubén Darío Guerrero

#### **Congo, Republic of**

Mr. Adolphe Ngassebo  
Mr. Gregoire Nkeoua  
Mr. Germain Zasy Ngisako

#### **Côte d'Ivoire**

Mr. Manan Lucien Dja

#### **Fiji**

Mr. Jalesi Kumila Mateboto  
Mr. Inoke Ratukalou

#### **Ghana**

Mr. Victor Kwame Agyeman  
Mr. Robert Kofi Bamfo

#### **India**

Dr. Manoj Dabas

#### **Indonesia**

Mr. Kadim Martana  
Dr. Nur Masripatin  
Dr. Andi Novianto

#### **Japan/Japan-based**

Dr. Michael J. Adams  
Mr. Toshiyuki Akagi  
Mr. Satoshi Akahori  
Mr. Matheus Lage Alves de Brito  
Mr. Masahiro Amano  
Mr. Michiru Aoyama  
Mr. Kihachiro Arai  
Mr. James Cunningham  
Mr. Maheshwar Dhakal  
Mr. Makoto Ehara  
Mr. Koichi Fujishiro  
Mr. Tetsuo Fujishiro  
Mr. Yosuke Fukushima  
Ms. Sara Gally  
Mr. Hiroshi Hagiwara  
Mr. Masashi Hara  
Ms. Ayumi Hara  
Mr. Kazuhiro Harada  
Mr. Haruhiko Hasebe  
Mr. Takezo Hasegawa  
Mr. Masaaki Hashimoto  
Mr. Mutai Hashimoto  
Dr. Keiichi Hayashi  
Mr. Hisanori Hayashi  
Mr. Tatsushi Henmi  
Ms. Yukie Hibino  
Mr. Hiroshi Higuchi

Mr. Takahiko Hiraishi  
Mr. Atsushi Hirano  
Ms. Ayako Hirano  
Mr. Chuichiro Hirose  
Ms. Yoshiko Horiguchi  
Mr. Keiichi Horita  
Ms. Chiho Horiuchi-Radjai  
Mr. Minoru Hoshiya  
Ms. Minako Hosoda  
Dr. Kimihiko Hyakumura  
Ms. Minako Iezaki  
Mr. Minoru Inaoka  
Mr. Takeshi Inoo  
Mr. Takesato Io  
Ms. Rena Isayama  
Mr. Masao Ishibashi  
Ms. Yumi Iwadate  
Mr. Hiroshi Kadomura  
Mr. Jun Kajigaki  
Ms. Sakiko Kamata  
Ms. Noriko Katakura  
Mr. Tsuyoshi Kato  
Mr. Hiroyuki Kawaguchi  
Mr. Keisuke Kimura  
Mr. Kenichiro Kimura  
Mr. Hiroshi Kimura  
Ms. Yukie Kimura  
Ms. Madoka Kitahara  
Dr. Yoshiyuki Kiyono  
Dr. Shigeki Kobayashi  
Dr. Noriyuki Kobayashi  
Mr. Tsuneo Kojima  
Mr. Kyoji Komachi  
Mr. Rikiya Konishi  
Ms. Makiko Koriyama  
Mr. Katsuhiro Kotari  
Ms. Asako Kusakabe  
Dr. David Kenneth Leary  
Ms. Masako Maeda  
Mr. Toshiaki Maeda  
Mr. Hiroaki Masui  
Mr. Eiji Matsubara  
Mr. Yasuhiro Matsumoto  
Mr. Kenji Matsune  
Mr. Yoshitsugu Minagawa  
Mr. Hiroto Mitsugi  
Mr. Akira Miyawaki  
Mr. Hiroki Miyazono  
Mr. Kazuyuki Morita  
Mr. Noriyuki Motomura  
Mr. Yoshihiro Motoyama  
Mr. Izumi Nagatani  
Mr. Noboru Nakahira  
Mr. Kouhachi Nakakita  
Mr. Hidetoshi Nakamura  
Mr. Hiroshi Nakata  
Dr. Yoji Natori  
Ms. Sri Nining Murniningtyas  
Mr. Yumiko Noda  
Mr. Koji Nozawa  
Mr. Atsushi Odawara  
Ms. Akiko Ogura  
Mr. Yoshiaki Oka  
Mr. Masato Okabayashi  
Mr. Takeshi Okazaki  
Mr. Siaw Onwona-Agyeman  
Mr. Taisuke Oonishi  
Ms. Takako Ota  
Ms. Yuka Ozaki  
Mr. Tadashi Ogura  
Ms. Lavinia Poruschi  
Mr. Jean Quellier  
Mr. Hiroshi Saita  
Mr. Shuichi Sano  
Dr. Nophea Sasaki  
Mr. Akira Sato  
Mr. Takeyuki Sato  
Mr. Yuichi Sato  
Dr. Haruo Sawada  
Mr. Muneo Segawa  
Mr. Naoto Shibui  
Ms. Kaori Shiga  
Mr. Yutaka Shimoda  
Mr. Akira Shimizu  
Ms. Cecilia Simoes  
Ms. Makiko Soeda  
Mr. Daisuke Sudo  
Ms. Keiko Suzue  
Mr. Atsushi Suzuki  
Mr. Kei Suzuki  
Mr. Kenta Suzuki  
Ms. Maho Suzuki  
Ms. Maika Suzuki  
Mr. Tamotsu Taguchi  
Mr. Hideaki Takai  
Mr. Kenichi Takano

Mr. Tetsu Takeda  
 Mr. Koichi Takenaka  
 Mr. Yukihiko Takeya  
 Mr. Hidekazu Tanaka  
 Mr. Kiyoshi Tanaka  
 Mr. Yasuhisa Tanaka  
 Mr. Koji Tauchi  
 Ms. Takako Teranishi  
 Mr. Takeshi Toma  
 Mr. Yoshitsugu Tsuchiya  
 Mr. Koji Uda  
 Dr. Natsuki Watanabe  
 Mr. Tatsuya Watanabe  
 Ms. Makino Yamada  
 Ms. Sumiko Yamada  
 Ms. Kana Yamashita  
 Mr. Masaki Yamashita  
 Ms. Teiko Yamashita  
 Mr. Shigeo Yashiba  
 Mr. Yasuhiro Yokota  
 Mr. Naoyoshi Yokoyama

**Malaysia**

Mr. Barney Chan Sek Tee (TAG)  
 Y.Bhg. Dato' Hj. Dahlan bin Taha

**Mexico**

Mr. Armandu Alanis  
 Mr. Leonel Iglesias Gutierrez

**Netherlands**

Ms. Carla Boonstra

**Norway**

Mr. Jan Abrahamsen

**Papua New Guinea**

Mr. Goodwill Amos  
 Mr. Yati Agoriwefa Bun (CSAG)  
 Dr. Gae Yansom Gowae

**Singapore**

Dr. John David Neidel

**Switzerland**

Dr. Jürgen Blaser  
 Dr. Carmenza Robledo

**Tanzania**

Mr. Gerald Jones Kamwenda  
 Dr. Felician Bakamaza Kilahama

**Thailand**

Mr. Suchat Kalyawongsa  
 Dr. Jesada Luangjame

**United Kingdom**

Dr. Thomas Griffiths

**United States of America**

Ms. Sandra Brown

**INTERNATIONAL ORGANIZATIONS**

**CIFOR**

Mr. Manuel Guariguata

**COMIFAC**

Mr. Martin Tadoum

**FAO**

Ms. Susan Braatz

**World Agroforestry Centre**

Dr. Rodel Diaz Lasco

**World Bank**

Ken Andrasko (video-link)

**ITTO SECRETARIAT**

Mr. Collins Ahadome  
 Mr. Bin Buang Amha  
 Dr. Chisato Aoki  
 Ms. Utako Aoike  
 Mr. Ramon Carrillo Arellano  
 Mr. Jean-Christophe Claudon  
 Ms. Manako Hanawa  
 Mr. Mahboob Hasan  
 Ms. Hideko Hattori  
 Ms. Yuka Irie  
 Mr. Takeichi Ishikawa  
 Dr. Steven E. Johnson  
 Ms. Rosemarie Jungheim  
 Mr. Simon Kawaguchi  
 Mr. Christopher Kossowski  
 Dr. Hwan Ok Ma  
 Mr. Eduardo Mansur  
 Ms. Frances Marie Maplesden  
 Mr. Charas Mayura  
 Ms. Manami Oshima  
 Ms. Kanako Sakaguchi  
 Ms. Masako Sakai  
 Mr. Kenneth Sato  
 Ms. Maiko Suzuki  
 Ms. Naho Tamura  
 Ms. Lingyun Yang  
 Mr. Emmanuel Ze Meka





## INTERNATIONAL TROPICAL TIMBER ORGANIZATION

International Organizations Center, 5th Floor, Pacifico-Yokohama, 1-1-1, Minato-Mirai, Nishi-ku, Yokohama, 220-0012, Japan

Tel 81-45-223-1110 Fax 81-45-223-1111 Email [itto@itto.or.jp](mailto:itto@itto.or.jp) Web [www.itto.or.jp](http://www.itto.or.jp)

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