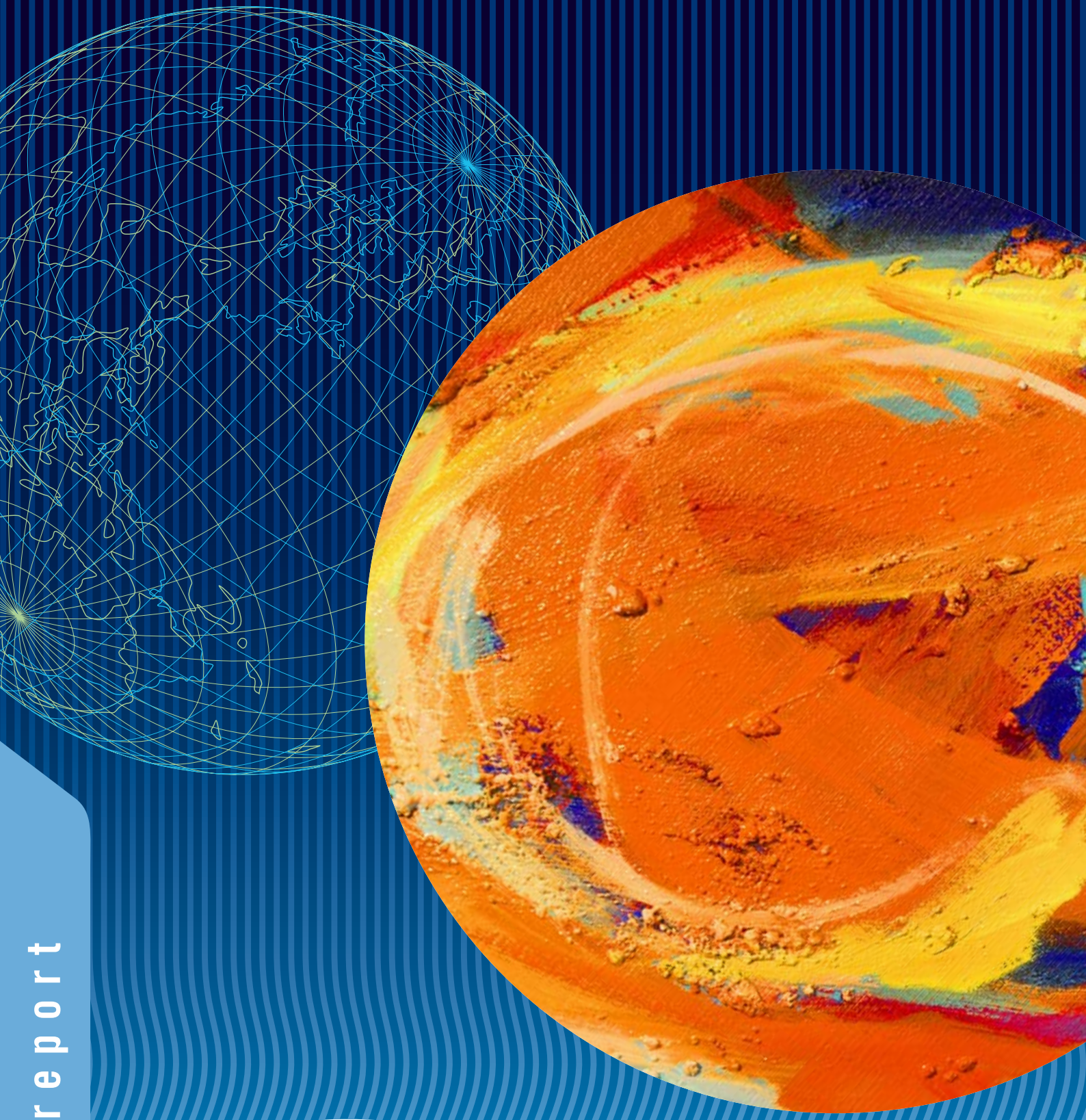

chairmans report

The Trondheim/UN Conference on Ecosystems and people – Biodiversity for development – The road to 2010 and beyond

October 29 – November 2, 2007

TRONDHEIM CONFERENCES ON BIODIVERSITY

Chairman's Report

Conclusions and recommendations
from presentations and discussions

The Trondheim/UN Conference on Ecosystems and people – Biodiversity for development – The road to 2010 and beyond

29 October – 2 November 2007

Hosted by

- Norwegian Ministry of the Environment

In collaboration with

- United Nations Environment Programme (UNEP)
- Secretariat of the Convention on Biological Diversity (CBD)

- Norwegian Ministry of Foreign Affairs
- Norwegian Ministry of Agriculture and Food
- Norwegian Ministry of Fisheries and Coastal Affairs

Organised by

- Norwegian Directorate for Nature Management (DN)

In collaboration with

- Norwegian Institute for Nature Research (NINA)
- Norwegian University for Science and Technology (NTNU)

- City of Trondheim
- Sør-Trøndelag County Authority

Held at Radisson SAS Royal Garden Hotel, Trondheim, Norway

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CONCLUSIONS AND RECOMMENDATIONS FROM THE NORWAY/UN CONFERENCE ON ECOSYSTEMS AND PEOPLE – BIODIVERSITY FOR DEVELOPMENT – THE ROAD TO 2010 AND BEYOND

Trondheim, Norway, 29 October – 2 November 2007

All governments have agreed to achieve, by 2010, a significant reduction in the rate of biodiversity loss. In adopting this target in 2002, the Conference of the Parties to the Convention on Biological Diversity (CBD) saw it "as a contribution to poverty alleviation". The Johannesburg Plan of Action linked the target to the negotiation of an international regime to ensure the fair and equitable sharing of benefits arising from the use of genetic resources. Following the 2005 United Nations General Assembly Summit, the target was integrated into the framework for the Millennium Development Goals (MDGs), highlighting the strong interdependence between biodiversity, ecosystems and people. Indeed the Millennium Ecosystem Assessment concluded that the loss of biodiversity and decline of ecosystem services is a barrier to achieving the MDGs and that the MDGs and the 2010 Biodiversity Target need to be pursued in an integrated manner.

The fifth Trondheim Conference brought together 228 participants, comprising scientists, managers, policy advisors, and NGO and community representatives from 75 countries to explore further the relationship between biodiversity, ecosystem services and human well-being and to understand the synergies and trade-offs inherent in various development paths. The Conference also aimed to consider how to make best use of time remaining before 2010 to move towards the Biodiversity Target, to contribute to the eradication of hunger and poverty, and to support the broader set of the MDGs, in particular, the eradication of hunger and poverty.

HUMAN WELL-BEING AND DEVELOPMENT DEPENDS ON BIODIVERSITY AND ECOSYSTEM SERVICES

The combination of increasing population, unsustainable levels of consumption and climate change is putting the world's ecosystems under increasing stress. We need ecosystems not only to provide increasing quantities of food and clean water, but also to act as carbon sinks and to contribute to fuel production, and also to maintain essential cultural, regulating and supporting services. But most of these essential services are under strain – 15 of the 24 ecosystem services examined by the Millennium Ecosystem Assessment are degraded. As wetlands are lost, for example, services such as flood control, water purification and fishery production are all lost. Poor people, and those marginalized from decision-making processes are usually the most vulnerable to such changes.

We need to recognize and manage trade-offs among ecosystem services for the broader benefit of society

The framework relating biodiversity and ecosystem services to human well-being, developed by the Millennium Ecosystem Assessment, is an important tool in understanding these linkages and in managing trade-offs among ecosystem services.

Different types of trade-off can be identified:

- **Temporal Trade-offs**: "Benefits Now, Costs Later" (e.g.: Overfish now – no fish or jobs later; or build on wetlands now – suffer floods later).
- **Spatial Trade-offs**: "Benefit Here, Cost There" (e.g.: Logging here – flooding there)
- **Beneficiary Trade-offs**: "Some Win, Others Lose" (e.g.: subsidized private shrimp farmer wins – local community loses from loss of fishing and coastal protection).

These trade-offs are real, but we can move towards "winning more and losing less" by improving access to information on ecosystem services and their valuation, integrating ecosystem services into global, national and local planning ensuring equity and consistency of rules and their application, framing and using appropriate incentives and/or markets, and clarifying and strengthening rights of local people over their resources.

Strengthening rights over resources and ecosystem services is a social, economic and environmental necessity

Strengthening rights, particularly of indigenous peoples and local communities, over land, resources, ecosystem services and the benefits that arise from their management, and traditional knowledge is both a moral imperative and a social, economic and environmental necessity. Experiences from many parts of the world indicate that this is essential for effective biodiversity conservation. Completing the unfinished business of land reform, assuring customary tenure, land reform and addressing land claims is also a vital prerequisite for the effectiveness and fairness of market-based approaches to ecosystem management. Without recognition of rights, market-based approaches are likely to reinforce existing inequities and contribute to cycles of conflict.

Enhancing resilience of socio-ecological systems is essential for adapting to global change

Adapting to climate change and other global change phenomena requires resilience of integrated socio-ecological systems (people, as societies, integrated with the natural environment). Resilience is defined as the capacity to buffer disturbances, to recover, renew

and reorganize and to learn and adapt. As the UN Secretary General has observed in September 2007: "Building "resilience thinking" into policy and practice will be a major task for all of the world's citizens throughout the new century". Change is inevitable, but we need to understand ecosystem change, especially the existence of thresholds and the potential for non-linear change in order to avoid or mitigate negative impacts on human well-being.

Biodiversity plays a crucial role in providing the basis for adaptation and adaptability. Among the other key elements for resilience are: social capital and institutions, innovation and flexibility, and adaptive governance. These are consistent with the principles of the ecosystem approach adopted by the CBD. There is a need to apply these elements through a process of experimentation and learning by doing. Good governance – with equity in process and outcomes – is a key requirement at all levels – from local, through national, to global.

Ecosystem services should be integrated into decision making

The framework relating biodiversity and ecosystem services to human well being, and other tools and methodologies developed by the Millennium Ecosystem Assessment, help to put into operation the ecosystem approach that has been adopted by the CBD.

More effective use should be made of these tools and the many others already available, including impact assessments, and the tools developed under the CBD. National Biodiversity Strategies and Action Plans need to be updated and used to integrate biodiversity into sectoral and cross-sectoral planning processes.

Capacity needs to be strengthened in all countries for the integration of biodiversity and ecosystem services in planning processes, building upon the Millennium Ecosystem Assessment, thereby strengthening also science-policy linkages. Such integrated assessments undertaken at the appropriate spatial and temporal scales with the participation of decision makers and relevant stakeholders can help governance adapt to changing conditions. They would also lay the foundations and generate the information needed for a future global assessment, efficiently serving the CBD.

Economic and financial incentives should be adjusted to sustain ecosystem services

Markets fail to value critical services leading to the degradation of such services. The value of many ecosystem services', particularly regulating services, accrues to the public and is not recognized until the services are lost. As a result of this market failure, the financial and business case for maintaining ecosystem services is often missing, weak, or obscured. There is a need to promote pro-poor economic and financial incentives for sustaining ecosystem services, including, for example taxation mechanisms, elimination of perverse subsidies, payment for ecosystem service schemes and other market mechanisms. These all require strong institutions, an effective regulatory framework and the safeguarding of rights, particularly rights of indigenous and local communities. Market based approaches can complement but not replace public funding and official development assistance.

RESPONDING TO CURRENT AND EMERGING CHALLENGES AND OPPORTUNITIES

Challenges and opportunities arise from the contemporary global change processes and some of the policy responses being discussed to address these changes. Application of the concepts and principles outlined above can help to maximise the ecological and social benefits and to minimize the corresponding costs – to win more and lose less. A number of examples were presented at the conference addressing different agendas.

The Climate Change agenda:

Protecting nature can reduce emissions from deforestation and degradation (REDD)

Protecting forests, wetlands and other intact ecosystems can be a cost-effective way of reducing greenhouse gas emissions. But this will only be achieved effectively and efficiently if based on a clear understanding of ecosystem structure and functioning. For example: because biodiversity underpins ecosystem resilience; the permanence of carbon sinks is enhanced in some intact natural ecosystems compared to some degraded or simplified ecosystems. Moreover it is necessary to consider that the whole ecosystem, including soils (especially of peatlands) and not the wood alone acts as a sink for greenhouse gases. It is also important to distinguish between flows of greenhouse gases (annual sequestration rates) and standing stocks which can amount to several decades of annual flows.

In addition to considering sequestration of greenhouse gases, measures are needed to ensure that REDD "does no harm" to biodiversity or livelihoods. This should be a minimum requirement. Further REDD schemes should be devised to also allow for biodiversity and livelihoods incentives to be harmonised with those for carbon sinks in order to generate multiple co-benefits.

Biofuels must be developed in a socially and environmentally sustainable way

It is evident that large-scale growing of biofuels may pose significant threats to biodiversity and local livelihoods. For example, the conversion of tropical forests into monocultures of oil palm or soybean involves the loss of large amounts of biodiversity as well as greenhouse gases. Biofuel plantations may also displace local people. Tools for addressing these threats include

zoning, certification, and incentives for smaller farmers and for the avoidance of large monocultures etc. Sound biodiversity-related criteria are needed to inform ongoing initiatives to develop standards. It is necessary to develop global standards on biofuels. Such standards would reduce transaction costs and avoid market distortions. Standards need to be relevant also for second generation biofuels based on cellulose from numerous sources.

Biodiversity is necessary for adaptation to climate change

Biodiversity underpins ecosystem resilience and thus adaptation to climate change. There is a need for adaptation planning to make better use of biodiversity and ecosystem management. For example:

- Genetic diversity provides both adaptation to current needs and adaptability to future ones and is essential in ensuring the resilience of agricultural systems.
- Wetlands help to buffer against floods, storms and other extreme events associated with climate change

There is also a need to do more in the CBD to actively address the role and management of biodiversity under the impacts of climate change and activities to address those impacts.

The Food and Health agenda:

Cooperation is needed to combat malnutrition and obesity

Many countries are facing the double burden of malnutrition from micronutrient deficiency and obesity from overconsumption of energy-dense foods. Dietary diversity – underpinned by biodiversity – can contribute to overcoming these challenges. Cooperation among policy makers, researchers and the private sector in the health, agriculture and environment sectors is needed to ensure that people have access to diverse and healthy food sources.

Biodiversity sustains future food supplies

We need to maintain genetic diversity – and associated traditional knowledge -- among crops and livestock both in genebanks and farmers' fields, and in fisheries in order to provide adaptation to current conditions and adaptability to changing environments. Other components of biodiversity such as pollinators, pest control organisms and soil biota, also sustain productivity in agricultural ecosystems and fisheries. Many people, in particular poor people, are dependent on fisheries and other wild food sources for their food and nutrition. But most marine fisheries are over-exploited while freshwater fisheries are threatened by habitat change. While the application of the ecosystem approach to fisheries management is a promising approach, greater efforts are needed to reduce overfishing and to end destructive fishing practices.

Healthy ecosystems contributes to healthy people

Clean water, regulation of pests and diseases and other major determinants of human health depend on ecosystem processes. Intact wetlands, for example, can also reduce impacts of extreme events associated with climate change. Maintenance of healthy ecosystems thus contributes to human health and well-being and needs to be considered in health policy.

Biodiversity provides medicines

Biodiversity – and associated traditional knowledge – provides traditional medicine and is the basis for a substantial proportion of modern drugs. Maintaining this storehouse requires conservation and sustainable use of biodiversity and the fair and equitable sharing of the benefits derived from the use of medicine-related biodiversity.

The Fisheries and Oceans agenda:

There is an urgent need to stop overfishing and destructive fishing practices and to establish marine protected areas

The Johannesburg Plan of Action calls for the establishment of a network of marine protected areas by 2012 and the restoration of fisheries by 2015. These goals are being pursued through a number of global and regional processes and organisations. Understanding of biodiversity and its role in supporting marine ecosystems is crucial to realizing these goals efficiently. Key actions should include an end to overfishing and destructive fishing practices in areas both within and outside national jurisdiction, abolishing of perverse subsidies and the establishment of a network of marine protected areas.

THE ROAD TO 2010 AND BEYOND

We need to act with urgency to maximise progress by 2010 towards the Biodiversity Target

We have heard several examples of progress towards the 2010 target. A good example is that the rate of deforestation in the Amazon has been substantially reduced since 2002 through coordinated action across thirteen ministries of the Brazilian Government. But overall the notable lack of implementation demonstrates that governments and other actors need a greater sense of urgency to make the most of the few years left before 2010 to achieve maximum progress towards the 2010 Biodiversity Target and to lay down the pre-requisites for sustained and continued action. A lot can and should be achieved in the coming three years. Governments, civil society and the private sector all have an ethical responsibility to act. Examples of progress towards the 2010 Biodiversity Target will help inspire sustained action.

The following constitutes a 10 point action plan, as proposed at the conference by the President of CBD COP-8:

1. Completion of an international regime on access and benefit sharing;
2. Adoption of a system to protect traditional knowledge;
3. Approval of an ambitious strategy for the mobilization of financial resources for the implementation of the Convention;
4. Significant enlargement of the CBD financial mechanism in phase 5 of the Global Environment Facility;
5. Enhanced mainstreaming of biodiversity in global, regional and national public policies as well as in the private sector;
6. Consolidation of national and regional Systems of Protected Areas, with mechanisms of financial sustainability;
7. Consolidation of sustainable forest management systems in public and private forests and the opening of market access that allows value to be added to timber and non-timber forest products in the country of origin;
8. Creation of mechanisms at global and national scales that value the conservation of natural ecosystems in private and community lands, including the payment for ecosystem services and incentives for reduced deforestation;
9. Definition of global and national adaptation strategies on climate change which focus on the consolidation of ecological corridors and the protection of the variability of genetic resources;
10. Consolidation of a system of global environmental governance that articulates and optimizes the existing mechanisms and processes.

Biodiversity loss must be halted in the first half of the 21st century

The 20th century was characterized by social injustice and by the unsustainable consumption by a minority that has resulted in the Earth's sustainable carrying capacity being exceeded. Future targets established under the CBD will have to recognize that this situation cannot continue. Biodiversity loss must be halted within the first half of the 21st century. Future targets should address the drivers of biodiversity loss, highlight the benefits to be achieved through the sustainable use of biodiversity and the fair and equitable sharing of benefits arising from the use of genetic resources. In setting targets beyond 2010 a broad cast of actors needs to be involved, including civil society, the private sector and scientific bodies, as well as governments. National targets should be developed within a global framework to allow for more concrete action. Such targets should be quantitative so that progress can be assessed and further strengthen accountability.

There is a need to strengthen the interactions between the biodiversity and climate change regimes. There is equally a great need for an enhanced integration of biodiversity into the agendas on development and global trade.

We need a stronger interface between science and policy makers that could be facilitated through a regular mechanism for scientific assessment and capacity building for policy implementation, with intergovernmental and stakeholder involvement. It is therefore important to continue the processes to develop such a mechanism. A critical point in making this information relevant to decision-makers is to frame the information in economic terms, so that trade-offs become clearer.

We need to build awareness for action through better communication

The presentations and discussions at the Fifth Trondheim Conference illustrated the relevance of biodiversity to many topical issues including climate change, food and health. Enhanced efforts are needed to frame information on biodiversity in economic terms to make trade-offs become clearer. A greater investment in communication is also needed to raise awareness of these linkages among decision makers and the general public, and to mobilize the efforts needed to achieve the 2010 Biodiversity Target.

A CALL FOR INTERACTION

TO THE MEETINGS OF THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE AT BALI IN DECEMBER 2007

from the participants of the Norway/UN Conference on "Ecosystems and people – Biodiversity for development – The road to 2010 and beyond". Trondheim, Norway, 29 October – 2 November, 2007

The world faces the combined challenges of combating climate change, desertification and the loss of biodiversity, while at the same time ensuring achievement of the Millennium Development Goals. Meeting these challenges will require a better and more coordinated management of ecosystems. This is necessary to maintain biodiversity and the resilience of these systems to ensure the continued provision of ecosystem services to safeguard future well-being of communities.

228 scientists, policy advisors, and NGO and community representatives from 75 countries have met at the 5th Norway/UN Conference on Biodiversity. The aim of the Conference was to explore further the relationship between biodiversity, ecosystem services and people, and the challenges of meeting the 2010 Biodiversity target. The Conference has recognised important linkages between managing biodiversity and ecosystems, and mitigating and adapting to climate change.

There are a number of opportunities for combined contribution to the objectives of the Climate Change Convention, Convention on Biological Diversity and the Millennium Development Goals. These include:

- *Adaptation to climate change*. Biodiversity supports ecosystem resilience and thus contributes to adaptation to climate change in several ways. For example:
    - Genetic diversity provides better adaptability to a changing environment
    - Agricultural biodiversity underpins food security
    - Intact ecosystems help to buffer against climate induced disasters
- *Reduction of emissions from deforestation and degradation* - and management of the natural environment to maximize the role of ecosystems as carbon sinks
- *Protecting forests, wetlands and other natural ecosystems* has been demonstrated to be a cost-effective way of reducing greenhouse gas emissions, as well as contributing to adaptation.

However, realizing these multiple benefits is not automatic. It requires that we make use of knowledge of biodiversity and ecosystem structure and functioning. We have to make sure that international instruments are mutually supportive to each other. This implies that climate change adaptation and mitigation activities, including production and use of biofuels, 'do no harm' to biodiversity or to the rights and possibilities of indigenous and local communities.

The participants conclude that the objectives of the Climate Change Convention, the Convention on Biological Diversity and the Millennium Development Goals can only be achieved if there is close cooperation among the actors within the regimes. We call for dialogue and interaction at several levels, including:

- **Interdisciplinary research and assessment**
- **Cooperation among policymakers at the international level**
- **Cooperation at the national level in implementing UNFCCC and CBD**
- **Development of new mechanisms to fully realise synergies between the two conventions**

Peter J. Schei, Conference Chairman

BACKGROUND AND INTRODUCTION

The Trondheim Conferences on biodiversity

The Trondheim Conferences on Biodiversity have since 1993 provided an opportunity for policy makers, managers and scientists to have an open and constructive dialogue on key issues being discussed under the CBD.

The Conference in May 1993 provided input that was highly instrumental to the first Intergovernmental Committee meeting of the signatories to the CBD in September that year. The theme of the second Conference in July 1996 was scientific and management problems related to alien invasive species. The Conference provided useful input to the discussions at the second SBSTTA meeting in September 1996, and to the development of the Global Invasive Species Program (GISP). In June 1997, the organizers of the Trondheim Conferences hosted a workshop on biodiversity in freshwaters, to provide scientific input to the third SBSTTA meeting in September 1997. The Conference in 1999 on the Ecosystem Approach for Sustainable Use of Biological Diversity provided useful input to the discussions at the fifth SBSTTA meeting in 1999, and to later work on the ecosystem approach and on the sustainable use of biological resources under the CBD and in other fora. The forth Conference in 2003, was on the subject Technology Transfer and Capacity Building, and formed a basis for developing a programme of work on Technology Transfer and Cooperation under the CBD.

Organisation of the 2007 conference

The conference was hosted by the Norwegian Ministry of the Environment on behalf of the Norwegian government, in collaboration with the United Nations Environment Program (UNEP), the Secretariat of the Convention on Biological Diversity (CBD), the Ministry of Foreign Affairs (UD), the Ministry of Fisheries and Coastal Affairs (FKD) and the Ministry of Agriculture and Food (LMD).

Invitations to the conference were in December 2006 sent from the Norwegian Minister of Environment to all members of the United Nations, and invitations were later also sent to relevant UN agencies and international and non-governmental organisations in the field of environment and development. Information on the conference has also been provided to national focal points for the Convention of Biological Diversity

Preparations for the conference were guided by a an interministerial advisory group, which had participation from the Ministry of the Environment (MD), the Ministry of Agriculture and Food (LMD), Ministry of Fisheries and Coastal Affairs (FID), Ministry of Foreign Affairs (UD) and the Ministry of Labour and Social Inclusion (AID). The group was chaired by Lindis Nerbø of the Norwegian Ministry of the Environment, and the Directorate for Nature Management (DN) served as secretariat for the group.

The conference programme was developed by a Programme Committee, with Odd Terje Sandlund as chairman and Laila Saksgård as secretary, both of the Norwegian Institute for Nature Research. Members of the Programme Committee were Anne Martinussen of WWF Norway, Horst Korn of the Federal Agency for Nature Conservation (Germany), Peter Johan Schei and Kristin Rosendal of the Fridtjof Nansen Institute, Knut Stenberg of the Norwegian University of Science and Technology (NTNU), Maria Berlekom of the Centre for Biodiversity (Sweden), Ivar Jørgensen of the Norwegian Agency for Development Co-operation (NORAD), Matti Nummelin of the Ministry for Foreign Affairs (Finland), Christian Prip of the Ministry of Environment (Denmark), Tone Solhaug of the Ministry of the Environment, Gufu Oba of the Norwegian University of Life Sciences (Noragric), Bjørn Hersoug of the University of Tromsø, Hein Rune Skjoldal of the Institute for Marine Research and Finn Katerås of the Directorate for Nature Management (DN).

The Norwegian Directorate for Nature Management (DN) was responsible for organizing the conference, which was done in cooperation with the Norwegian Institute for Nature Research (NINA) and the Norwegian University for Science and Technology (NTNU) and with the City of Trondheim and the Sør-Trøndelag County Authority.

Conference focus and program

The title chosen for this fifth Trondheim Conference on Biodiversity is “Ecosystems and people – biodiversity for development – the road to 2010 and beyond”. This broad approach reflects key strategic issues to be discussed at the next Conference of the Parties in May 2008: progress in the implementation of the Strategic Plan for the CBD and follow-up on progress towards the 2010 target of significantly reducing the rate of biodiversity loss and relevant Millennium Development Goals (MDG).

These are comprehensive and critical issues for the CBD, and through a sound and scientific basis and through open-minded discussions the conference sought to:

- Illustrate the role of biodiversity in poverty alleviation and in reaching the United Nations’ Millennium Development Goals (MDG);
- Demonstrate the critical role of biodiversity and ecosystems in securing sustainable development;
- Consider progress on the goal to achieve by 2010 “a significant reduction of the current rate of biodiversity loss at the global, regional and national

level as a contribution to poverty alleviation and to the benefit of all life on earth";
- Identify and consider possible efforts towards 2010 and beyond;
- Present and consider difficult trade-offs that countries will have to make; and
- Provide insights and inspiration for implementation of Strategic Plan for the CBD.

The programme includes scientific studies, policy presentations, practical case studies and panel discussions, and the programme aimes at providing participants with insights and inspiration.

The social program was also an important part of the conference, with receptions cordially hosted by the Ministry of the Environment at the Royal Garden Hotel on 29 October, by the Sør-Trøndelag County Authority at Lian Restaurant on 30 October, by the City of Trondheim at the Archbishop's Palace on 31 October and by the Directorate for nature management at Rica Nidelven Hotel on 1 November.

Outputs from the conference

This document presents the report of the Conference Chairman, Peter Johan Schei, containing his conclusions and recommendations from the presentations and discussions at the Conference.

The text is based on main points from the lectures and the following discussions and the panel debate, minutes taken by session rapporteurs, and discussions with the "friends of the chair". Friends of the chair were Hesiquio Benitez Diaz (Mexico), Maria Berlekom (Swedbio/Sweden), Doris Capistrano (CIFOR/Indonesia), Asghar Mohammadi Fazel (Iran), Braulio Ferreira de S. Dias (Brazil), Jon Hutton (UNEP-WCMC), Horst Korn (Germany), Maria Paulina Mbengashe (South Africa), Jeffrey McNeely (IUCN), Jo Mulongoy (CBD Secretariat), Alfred Oteng Yeboah (Ghana).

Arild Lindgaard (DN), David Cooper (CBD Secretariat) and Peter Herkenrath (UNEP-WCMC) assisted the Chair in the preparation of this report.

In most cases abstracts and/or presentations have been available. The report does not necessarily represent a consensus among the participants.

In addition to this report, ordinary proceedings from the Conference will be produced and published. This report and the presentations made at the conference may also be found at the conference home page at www.trondheimconference.org.

This Chairman's Report and the Conference Proceedings will be distributed to all conference participants as well as to relevant international fora working on issues related to the conference topics, in particular those working with the Convention on Biological Diversity.

The output of the conference will also be submitted as information papers to the thirteenth meeting of the CBD's Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA13), which will be held in Rome in February 2008, and to the ninth Conference of the Parties (COP9), which will be held in Bonn in May 2008.

The Earth Negotiations Bulletin (ENB) covered the conference, and daily coverage and a summary version may be found at http://www.iisd.ca/sd/tcb5/.

SESSION 1

OPENING SESSION

Conference Chair: **Peter J. Schei**
Fridtjof Nansen Institute, Norway

Following an artistic presentation by the Cantus Choir, opening statements were delivered by:

- Rita Ottervik, The Mayor of Trondheim
- Heidi Sørensen, State Secretary, Ministry of the Environment, Norway
- Marina Silva, Minister of Environment, Brazil
- Bakary Kante, UNEP
- Ahmed Djoghlaf, CBD Executive Secretary
- Kristian Øien, UNEP's TUNZA program, Junior Board

The Mayor of Trondheim, **Rita Ottervik**, welcomed participants to Trondheim. She made reference to "mother earth", and reminded the participants that threats to ecosystems imply that we cannot take for granted that ecosystems are able to produce goods and services for human well being in the long time. She underlined that we must improve our ability to value ecosystem goods and services in order to create better management practices. She also challenged the participants with regard to communicating the values of biodiversity in a clear understandable language.

Trondheim is committed to take action on the global biodiversity targets, and the Mayor marked this by signing the "Countdown 2010" Declaration.

State Secretary **Heidi Sørensen** drew our attention to the fact the biodiversity is still being lost at a high rate; - "There is still fire in the library of life", a phrase echoing Gro Harlem Brundtland and used at the first Trondheim conference 14 years ago. Sørensen underlined how biodiversity contributes to poverty reduction and to the benefits of all life on earth, and that the integration of biodiversity in the broader development agenda is an important step in the right direction.

Sørensen stated the need to see the linkages between different environmental challenges. If we can reduce deforestation of tropical rainforests we will gain results both for biodiversity and climate change. Norway will carefully consider how financial means could stimulate early action to reduce deforestation activities in tropical forests.

Mainstreaming of biodiversity is still a challenge. Improved knowledge and readily accessible information on biodiversity is necessary in order stimulate sector integration, and to assist decision making at all levels. The Millennium Ecosystem Assessment is a success, and it is clear that the CBD needs a scientific platform along the lines of the Intergovernmental Panel on Climate Change.

Finally she called for an international agreement on access and benefit sharing to genetic resources, and underlined that the outstanding questions needs to be resolved before 2010.

Brazilian Minister of Environment and current CBD COP President, **Marina Silva** underlined the links between biodiversity and poverty alleviation, and stressed the ethical responsibility to future generations related to the implementation and follow-up of the CBD. She focused on the need for improved implementation - the 2010 is only three years away - and reminded the participants of the common but differentiated responsibilities that all countries have. She also underlines the potential of south-south cooperation..

The CBD need progress for objective no. three; the fair and equitable sharing of benefits from the utilization of genetic resources. Progress for this objective is urgent and relevant in order to stimulate implementation of the CBD, and for the fight against poverty.

Silva highlighted the challenge of mainstreaming environmental policy across government sectors and among all actors. This is a difficult and long term, but necessary task. It is necessary to set aside the false dichotomy between environmental conservation and the economic growth so as to overcome the historical isolation of the environmental sector from the centre of planning and decision-making of the State.

Silva also underlined the need to harmonize the implementation of multilateral environmental agreements, and the urgency of making progress in the UN Convention on Climate Change on the issue of reduction of emissions from deforestation, particularly in the context of providing positive incentives to developing countries which reduce their emissions.

Further underlining that south-south cooperation has a huge potential in this respect.

Finally Marina Silva suggested a global pact to achieve 10 feasible and possible objectives by 2010:

1. Completion of an international regime on access and benefit sharing;
2. Adoption of a system to protect traditional knowledge;
3. Approval of an ambitious strategy for the mobilization of financial resources for the implementation of the CBD;
4. Significant enlargement of the CBD financial mechanism in phase 5 of the Global Environment Facility (GEF-5);
5. Enhanced mainstreaming of biodiversity in global, regional and national public policies as well as in the private sector;
6. Consolidation of national and regional Systems of Protected Areas, with mechanisms of financial sustainability;

7. Consolidation of sustainable forest management systems in public and private forests and the opening of market access that allows value to be added to timber and non-timber products in the country of origin;
8. Creation of mechanisms in a global and national scale that value the conservation of natural ecosystems in private and community lands, including the payment for ecosystem services and incentives for reduced deforestation;
9. Definition of a global and national adaptation strategy for climate change which focuses on the consolidation of ecological corridors and the protection of the variability of genetic resources;
10. Consolidation of a system of global environmental governance that articulates and optimizes the existing mechanisms and processes.

Bakary Kante, Director of the Division of Environmental Conventions of UNEP, on behalf of Achim Steiner, UNEP Executive Director, highlighted the work undertaken by UNEP on ecosystem services for fighting rural poverty, and on maximizing benefits of biodiversity for human well-being. He called for improved knowledge on economic values of biodiversity and the identification of pragmatic solutions to address the problem of biodiversity loss.

Climate change is high on the global agenda. Adaptation strategies for biodiversity are more difficult, loss of biodiversity is an irreversible process and the challenge is to raise awareness and focus on biodiversity.

Global Environmental Governance must be an issue. The link between biodiversity and poverty is relevant for many Multilateral Environmental Agreements, and we must continue to stimulate interlinkages among the conventions.

Ahmed Djoghlaf, Executive Secretary to the CBD, underlined the linkages between climate change and biodiversity. It is necessary to keep attention on both these issues. The effects from climate change might also aggravate the negative impacts of alien invasive species and cause economic loss.

Djoghlaf underlined that loss of biodiversity will affect all sectors in society but the poor will suffer the most. The decision to integrate the 2010-target on biodiversity as a part of the Millennium Ecosystem Goals is important, and we must use the Conference of the Parties in Bonn next year for sustainable development drawing upon the results from the Trondheim Conference.

Kristian Øien, UNEP's TUNZA program, Junior Board reminded the participants at the meeting on the obligations towards the future generations. He also strongly urged activities to control climate change.

SESSION 2

SETTING THE STAGE

Session Chair: **Peter J. Schei**

Communicating the issues

Frits Hesselink
HECT Consultancy, the Netherlands

In his presentation, ”Communicating the issues”, Fritz Hesselink stressed the need for change in the way we communicate biodiversity issues. A “business as usual” approach will not get the message across in a world where unprecedented amounts of information and entertainment opportunities are competing for our attention. Hesselink identified three main key actions for positive change:

1. **Get down off our mountain tops**. To make an impact in a fast changing world, we have to realize that we can only reach our objectives through others. That means we have to work in partnerships. In order to do so the biodiversity community has to come out of its niche. Instead of talking to each other, we have to talk and engage with other sectors, other ministries and other levels of government. Our scientific reports are not the end but the beginning. We have to put biodiversity intelligently on the agendas of other sectors: at the right time, at the right place, in the right language, with the right action perspectives.

2. **Walking the talk**. Change is an individual and emotional event – that depends on collective actions for success. If we want to provide leadership towards change in conservation and sustainable use of biodiversity, we have to make an effort towards personal change that will inspire others. Our offices should be sustainable, the ecological footprint of our meetings minimal, our activities a source of inspiration for how things can be done differently. If we want people to follow our scientific advice, we should walk the talk.

3. **Analyse the chemistry of change**. Most of our communication is still based on the mistaken idea that knowledge will lead to change. Nothing is further from the truth. We have to understand that between knowledge and change a process of ‘chemistry of change’ takes place. To be effective we have to start paying attention to that ‘chemistry’. This is the domain of branding, framing, marketing, change management and learning. We need to bring together the best expertise to brand biodiversity, reframe major biodiversity issues, find motives and methods of learning for change in a range of sectors and cultures and use the results of this analysis when we formulate objectives, measures and actions.

The state of our ecosystems – a presentation of the Millennium Ecosystem Assessment – seen from the sub-global assessments

Doris Capistrano
Centre for International Forestry Research (CIFOR), Indonesia

Dr. Capistrano gave an overview of the sub global assessments (SGAs) from the Millennium Ecosystem Assessment. The SGAs use the same methodological framework as the MA and studies have either been undertaken or are in progress on all major continents. The scope of the SGAs range from inter-regional to the local levels, and cover most ecosystems and a wide range of ecosystem services. The SGAs have engaged a broad cross section of stakeholders and also to varying degrees tried to incorporate different systems of knowledge.

A majority of the sub global assessments are still under way; hence the findings are still partial and preliminary. Findings so far do however indicate that the SGAs are broadly consistent with global results in that the overall trends in the state of ecosystem services are not promising. The sub global perspective does however inform us that the conditions and trends of ecosystems may depend on scale of analysis. Hence it is important to understand that global forces significantly affect magnitude and quality of ecosystem services down to farm and household levels. The forces that are particularly influential include global markets and trade, climate change and shifts in global political and economic order. In her conclusion, Dr. Capistrano commended the CBD for helping to open up spaces at the global level that is transforming global environmental governance. Further she emphasised that from the sub global perspective it is particularly important to keep addressing the key drivers of ecosystem change, and to reduce inequities in sharing benefits and burdens.

SESSION 3

LOOKING TOWARDS 2010 AND BEYOND

Session Chair: **Jon Hutton**
UNEP-WCMC

Preparing a global study on the economic significance of biodiversity

Mark Schauer
Federal Ministry of the Environment, Nature Conservation and Nuclear Safety, Germany

At the meeting of the G8 Environment Ministers in Potsdam, Germany, in March this year a declaration was adopted, in which the participants committed themselves to create a study, with which "the process of analysing the global economic benefit of biological diversity, the costs of the loss of biodiversity and the failure to take protective measures versus the costs of effective conservation should be initiated." The aim of the study is creating sound economic arguments for the conservation of biodiversity and the related ecosystem services.

The German Ministry for Environment, Nature Conservation and Nuclear Safety in close cooperation with the European Commission answered this call and started the process for such a report.

At present, the report is in the phase of evidence collecting and coordination. Interested partners from various backgrounds have been successfully integrated in the process and others will be engaged in the next months. Member states from the G8+5 and the European Union, UNEP, OECD, various centres' of excellence and other bodies have already contributed expertise and existing data to the study. Additionally new support-studies on the economic valuation of ecosystem services in different sectors have been initiated to provide a comprehensive information base for economic valuation.

Together with the European Environment Agency and IUCN a robust methodology for the valuation of a broad range of ecosystems and ecosystem services is being developed.

First results will be presented at the 9th Conference of the Parties of the Convention for Biological Diversity in May 2008 in Bonn, Germany. The process will be continued after this with the aim of presenting results of an extensive valuation of ecosystem services on a global scale in two years time. The long term goal of this exercise is to establish a continuous process whereby regular reports at certain intervals can be produced.

The Role of Biodiversity in Reaching the MDGs and the Issue of Trade-offs: How to "Win More and Lose Less"

Charles McNeill
United Nations Development Programme (UNDP)

The presentation covered 5 issues: (1) Biodiversity and the MDGs, (2) Halfway to 2015: Progress towards the MDGs, (3) Trade-offs: What do we know? (4) How to 'Win more and lose less' through Trade-offs, (5) The Way Forward. McNeill elaborated on the linkages among the 2010 Biodiversity Target and the MDGs, showing how success toward these targets depends directly on each other. He also described the recent evolution of the 2010 and 2015 targets leading up to the formal integration of the 2010 Biodiversity Target into the MDG framework in December 2006.

McNeill also reported on progress towards the MDGs since mid-2007 is half-way to 2015. Progress is being made in all regions towards goal 1 on eradicating poverty, and each of the other goals, but there are significant regional and national differences; with most progress in Asia and least in Sub-Saharan Africa. Importantly, real progress towards the MDGs is even being made by some of the poorest countries. Key factors in this progress include: national leadership, clear plans and strategies, transparency at all levels, public debate, CSO engagement and donors lining up behind national priorities. Climate change risks severely exacerbate the challenges facing developing countries, further highlighting the importance of ecosystem services for livelihoods, and creating some key opportunities for synergies with the biodiversity agenda.

The Millennium Ecosystem Assessment (MA) contributed significantly to our understanding of 'trade-offs' and how investments in one type of ecosystem service can result in a decreased supply of another. McNeill distinguished among 3 main types of trade-offs: (1) Temporal Trade-offs: 'Benefits now, Costs later', (2) Spatial Trade-offs: 'Benefit here, Cost there', (3) Beneficiary Trade-offs: 'Some win, others lose', and discussed examples of each. He asserted that we can move towards "winning more and losing less" through trade-offs if we pay careful attention to 4 priority areas: (1) Valuation and improved access to information on ecosystem services, (2) Mainstreaming biodiversity into global, national and local planning, (3) Tapping into and catalyzing new environmental markets, (4) Strengthening rights of local people and giving them voice. He gave examples of programs and approaches that will advance each of these priority areas, including: follow-up to the Millennium Ecosystem Assessment (MA II), MDG Support, PEI, The CBD's NBSAP capacity building workshops, Strategic Environmental Assessment, the Equator Initiative, Community Knowledge Services, etc.

In discussing the way forward and how and where the biodiversity community can most effectively intervene, McNeill pointed to the need (1) to link biodiversity and the climate change agenda by making the case for the role of ecosystem services to resilience and genetic diversity for adaptation, (2) to pursue Reduced Emissions from Deforestation and Land Degradation (REDD) for 'win-win-win-win' benefits to GHG reduction, adaptation, biodiversity, and livelihoods, (3) to direct carbon finance for land restoration and for local communities to engage in payment for ecosystem services. Fortunately, world leaders and the public are beginning to pay attention to global environmental challenges – but we need to be vigilant and compelling in ensuring that biodiversity issues remain in focus.

Progress on achieving "a significant reduction of the current rate of biodiversity loss"

Neville Ash
Head of Ecosystem Assessment, UNEP-WCMC

Mr. Ash focused on the 2010 Biodiversity target and measures to detect biodiversity change. The CBD provides an indicator framework with 22 headline indicators. Important questions to consider include: What constitutes a significant reduction of loss? Most work has been carried out on indicators like protected areas, species, habitat loss and threats to biodiversity, because the focus has been on currently available data. Other indicators require more development, in particular socio-economic indicators relating to indigenous knowledge, access and benefit sharing, biodiversity for food and medicine, health and well-being and sustainable use. In addition lack of knowledge, data and approaches, limits monitoring of trends across the framework. Existing biodiversity data are insufficient across the range of global and sub-global indicators, and leave gaps in geographical, thematic and taxonomic coverage. Lack of resources constrains progress in further developing indicators.

A range of indicator initiatives have been created at national, regional and global levels. At the global level, the 2010 Biodiversity Indicators Partnership (2010BIP) is facilitating collaboration between organisations and agencies from around the world involved in indicator development and delivery, communications and outreach, information management, and use of indicators. The intention is to create a leading source of global indicator information to help decision-makers reduce biodiversity loss.

Working on these matters beyond 2010 will mean that longer-term targets and indicators must be developed, also beyond the MDGs. There will be a need for addressing the drivers (indirect and direct) of change. More robust monitoring networks are required to track change in biodiversity at global and sub-global scales. Those need to be more representative, comprehensive and continuous, and better connected and resourced.

Quantifying trade-offs related to biological diversity

Robert (Bob) Scholes
Council for Scientific and Industrial Research (CSIR), South Africa

(not present – abstract only)
What do we need to know about biodiversity, and how can we find it out? 'What gets measured gets done' is a modern-day mantra. There has been a flurry of activity trying to put measurements in place for biodiversity, but a coherent system has yet to emerge. Part of the problem is that an emphasis on near-term targets has lead to a focus on what can be quantified, given the data already at hand, rather than what is needed as part of a sensible adaptive management approach. It is necessary to be minimalist if a biodiversity observing system is to be sustainable, but at the same time the set of measurements must be sufficient; in other words, sensitive to the changes is intended to detect, unambiguous, and providing a basis for action. It is wishful thinking that a topic as multi-faceted as biodiversity will be amenable to reduction to a single value, but it is possible to express it meaningfully in a small number of mutually-supportive indices.

Taking a 'top-down' approach to a biodiversity observation system, rather than a 'bottom-up' approach based on what is readily available, there are three broad groups of questions that need to be answered: what biodiversity is located where; how is it affected by human activities; and what are the consequences of those impacts. The first broad question can be addressed by a fusion of museum collection, field observation and map data. The second is answered using a combination of in-situ observation data and remote sensing. The third is addressed largely using models, based on experimental data and knowledge of ecosystem function. A blueprint is suggested for an integrated and iteratively-improving biodiversity observation system that could deliver these answers in the foreseeable future.

SESSION 4

BIODIVERSITY AND POVERTY: OBSTACLES AND OPPORTUNITIES

Session chair: **Charles McNeill**
UNDP

Ecosystem services for rural poverty reduction

Balakrishna Pisupati
United Nations Environment Program (UNEP)

Dr Pisupati challenged the conventional understanding of the links between poverty, development and environmental degradation. While inequalities are the ultimate cause of poverty, exacerbated by market and institutional failures, the poor often act as environmental stewards and even activists. With the dependence of the poor on natural resources for their livelihoods, environmental sustainability becomes a strategy for poverty alleviation.

Scientific data on economic and social benefits of ecosystem services are scarce. Beneficiaries of ecosystem services depending on natural capital are different from those who would benefit from liquidation of the capital. In addition, markets typically reward short-term values of natural resources underestimating or not capturing the real value. These shortcomings could be addressed by a number of mechanisms, such as payments for ecosystem services, alternate management practices, direct and indirect investments, and compensation. A concrete example is the emerging opportunity from REDD (reducing emissions from deforestation in developing countries).

Dr Pisupati gave the following Guiding Principles for Ecosystem Services and Rural Poverty Reduction:
- Adopt and use an ecosystem approach;
- Reduce the 'Resource Curse' focusing on national action with better environmental governance;
- Assess economic footprints using criteria and indicators to evaluate environmental activity;
- Develop national and local policies to integrate economic and conservation planning where conservation is not a spin-off but a mainstay;
- Develop economic policies that take into consideration full values of negative externalities which lead to inefficiency; and
- Focus on equity in addition to efficiency.

Dr Pisupati concluded with the following points:
- Make policy makers and negotiators understand the role of ecosystem services in contributing to reducing biodiversity loss and reducing poverty;
- Link processes on setting targets and agendas on biodiversity conservation, including post 2010 issues related to ecosystem services;
- Make economists re-define GDP and HDI to consider natural resource capital in addition to manufactured capital and human capital;
- Discuss welfare economics, development economics, and environmental economics in terms of mainstreaming biodiversity and natural resource management;
- Assess the role of current and emerging opportunities in enhancing means to deal with ecosystem services and poverty reduction;
- Deal with ecosystem management and poverty reduction using the principles and modalities of management science.

How important is biodiversity in the development agenda – a view from the north

Maria Berlekom
Swedbio, Sweden

Ms Berlekom emphasised the very compelling reasons for closely linking biodiversity and development**.** She highlighted the importance of the 2010 Biodiversity Target being part of the MDG Framework.

She presented some observations on Swedish development aid, as an example of a development cooperation agency (Sida):

- Roughly 60% of Sida-channelled ODA is relevant to the environment/natural resources;
- Biodiversity/ecosystem services is one of four priority issues for the environment policy work;
- Only approximately 3% of aid is allocated to biodiversity-relevant projects;
- Sida supports SwedBio-initiative and is a strong supporter of follow-up to the Millennium Ecosystem Assessment.

She pointed to some *challenges with monitoring biodiversity-funding flows*: The lack of reporting as well as potential "over-reporting" and the question of what to monitor (what is "biodiversity-related"?).

With regard to mainstreaming, she pointed to Sida's experience that biodiversity is rarely referred to in country and national, including sectoral, strategies and policies or programming instructions.

Some reasons for the low priority of biodiversity-relevant aid include the following:

- Development is often defined as economic growth and biodiversity is perceived as "*protecting nature from development and people*".
- Challenges (for the non-priority issues): The declining project support and increased focus on budget/sector funding. Country ownership is therefore critical.
- People fail to make the connection between healthy ecosystems and socioeconomic de-

cisions; local people lack rights and influence.
- Economic/financial incentives are not aligned with sustaining ecosystem services.

Ms Berlekom concluded that focus has to be on sustaining ecosystem services for development. Critical issues like the climate - ecosystem services - livelihood linkages and the ecosystem services - security linkages have to be addressed. New aid modalities (budget/-sector support) could work in favour of the ecosystem services agenda provided they are part of the dialogue and follow-up. They should use and build on the Millennium Ecosystem Assessment (MA).

How important is biodiversity in the development agenda – a view from the south

Adriana Ramos
Instituto Socioambiental (ISA), Brazil

Ms Ramos drew on the Brazilian experience. Brazil's unsustainable development has generated several environmental impacts. Despite that, the country still has one of the biggest tropical forests of the world and other very rich biomes. Biodiversity should then be a valued asset.

Proper consideration should be given to biodiversity in effective sustainable development initiatives, A major challenge is to find new approaches in order to integrate social, economic and biological issues, and to establish an appropriate basis for planning economic initiatives. It requires integrating the peoples perspective into the development agenda. The infrastructure planning processes should face this in order to establish priorities. The consultation processes established by ILO 169 provides another important opportunity to find appropriate ways forward. The right to say "no" to those initiatives that put into risk the traditional way of living must be ensured to local populations.

Ms Ramos gave an outline of the new initiative "The Deforestation Reduction Pact" (National Agreement to Acknowledge the Value of the Forest and to end Amazon Deforestation):

Objective:

Reduce deforestation rate to zero within Amazonia by 2015, through a regime of Targets at the level of the States

Requirements of the Pact

- Strengthen forestry governance (actions of monitoring, control, environmental enforcement, implementation of protected areas; efficiency of areas already deforested).
- Payment for environmental services rendered by the forest.
- Compensated reduction of deforestation

Destination of economic incentives to payment for environmental services

- States – Forest governance strengthening
- Social Actors responsible for forest conservation (indigenous and traditional communities, local communities, small holders - family producers)
- Producers (rural, forestry, corporations e agriculture) that assume strategies of reduction of deforestation and conservation of forestry

Ms Ramos concluded that long-term and intangible benefits of biodiversity are difficult to see and measure. Biodiversity conservation protects humanity against critical problems such as diseases, plagues, climate phenomena, genetic vulnerability of crops and lack of water between others. These benefits must also be considered when making choices facing development.

Dryland management for poverty alleviation

Walter J. Lusigi
Global Environment Facility (GEF) / World Bank

Dr. Lusigi used examples from Kenya to exemplify his analysis and conclusions. The pastoralists in Kenya were made to live in one place instead of moving around with their herd. Modernisation = formal settlement = overgrazing = land degradation/desertification

Lusigi stressed that dryland always have been associated with poverty and low productivity of both human and natural resources. Dryland populations in Africa are economically marginal with poorly developed or limited physical and economic infrastructure. The people are often politically marginal, being poorly represented in the governmental and other power structures and often physically at the periphery of the nation states. Although these problems have been appreciated for a long time, solutions attempted through various development interventions have had mixed results. This is due to scant regard given to the human factor leading to a breakdown in the structures and functioning of these societies. Wherever there exist a human population, it is certain that there will also exist a complex of ethnic, biological, and social influences which must be understood and incorporated in the development plans and interventions.

Development of drylands must be based on a proper and realistic appraisal of socio economic and ecological factors and the populations must be empowered to undertake that development themselves. That development must take into account the changed circumstances due to modernization and seek to remove drylands from their isolation and link them to high potential areas in the country and the rest of the world. While there is need to alleviate the suffering of people who derive their livelihoods from drylands in the short term, priority must be given to restoration of the structure and functioning of social and ecological systems and this will naturally result in the conservation of biodiversity and delivery of essential ecological services. A com-

munity based approach to natural resources management is proposed as a possible way forward. It originates from disillusionment with the ability of central governments to mange common property resources, assess local conditions and priorities, and design and implement a successful conservation and development program. This has created an increasing appreciation of the need to decentralize ownership and mobilize local initiatives and energies through a more participatory and integrated mode of operation.

Biodiversity, traditional medicine and health

Peter Furu
Centre for Health Research and Development, University of Copenhagen (DBL), Denmark, and the World Health Organization (WHO)

Mr Furu emphasised the importance of biodiversity for human health, and the various linkages between biodiversity and health. He pointed to today's globalized and fast developing world that is putting tremendous pressure on the environment, its natural resources and ecosystem services.

An important threat to human health relates to biodiversity loss induced by habitat change and degradation as a result of overexploitation of natural resources. Millions of people, primarily in the least developed countries, depend partly or fully on plant, animal or mineral based products collected from ecosystems for medicinal purposes. Thus, acknowledging that many countries in Africa, Asia and Latin America are much dependant on the use traditional medicine (TM) to help meet some of their primary health care needs, the World Health Organization (WHO) launched its first comprehensive traditional medicine strategy in 2002. The strategy is designed to assist countries to develop national policies on the evaluation and regulation of practices related to TM or to so called complementary or alternative medicine (CAM); to create a stronger evidence base on the safety, efficacy and quality of the TAM/CAM products and practices; to ensure availability and affordability of TM/CAM including essential herbal medicines; to promote therapeutically sound use of TM/CAM by providers and consumers; and to document traditional medicines and remedies.

The intimate inter-linkages between development, environmental change and human health have been the objects of epidemiological research for decades. The burden of disease suffered by individuals and populations and its relation to biological, environmental, social and institutional health determinants are thus well described for many conditions. However, to fill the remaining knowledge gaps, the study of global and local ecosystem changes including biodiversity degradation and their respective impacts on human health needs a continued, determined and joint cross-disciplinary effort by researchers and subsequently by policy makers, health professionals and citizens translating new knowledge into action.

Recognizing, that with development an increasing pressure is put on fragile ecosystems and biodiversity resulting in degradation and possibly extinction of valuable plant and animal species, the role of well tested development planning instruments such as environmental impact assessment and newer tools like biodiversity impact assessment and health impact assessment may become increasingly important as intersectoral action tools in safeguarding high biodiversity, traditional medicines and ultimately the health of human populations.

Biodiversity, grassroot innovations and poverty alleviation

Anil K Gupta
Indian Institute of Management, India

Dr Gupta started by asking the question why regions of high biodiversity invariably have the poorest people. He then pointed to some examples of places where new options have emerged, new initiatives have been taken and new innovations have evolved through creation of a bridge between excellence in informal and formal science. Dr Gupta said we have to question the assumption that the poor are only to be treated as consumers of advice, aid and assistance. Instead, we should treat economically poor people as providers of rich knowledge, informal institutions and ideas for grassroots entrepreneurship.

Dr Gupta highlighted five key lessons:
a) Building a regional, national, and international registry of traditional knowledge and innovations based on biodiversity may help in reducing transaction costs for potential entrepreneurs, investors, fellow learning communities and even traders;
b) There is a need for compliance with the Prior Informed Consent of the communities to respect their knowledge rights for eventual benefit sharing, keeping in mind the not only individual knowledge holders, but also their communities, nature conservation, and the ones who add value and innovation in a transparent manner;
c) The best traditional practices and grassroots innovations should be pooled where necessary to develop new natural products for diffusion through commercial and non-commercial channels. This could happen through small and medium scale enterprises;
d) Lateral markets need to be developed instead of reliance only on vertical markets, so that many of the self help groups/micro finance groups move towards micro-venture finance groups, and
e) Open source technology pools to support livelihood options of disadvantaged communities should be created.

The Honey Bee Network in India has been trying to reverse a process set in place by globalisation: the squeezing of spaces for small innovators and entrepreneurs. It is trying to create a new ethics and institu-

tional culture in which grassroots innovations are developed by the often uneducated or less educated or valorised to address global as well as local demands. The successful entrepreneurs can mentor the start-ups whether in the formal or the informal sector. However, the mechanism of mentoring small, scattered and disconnected innovators with little or no access to education, banking or communication systems remains a major problem.

Distributed mentoring is a challenge that we have to meet, if Grassroots to Global (G2G) is to become an international reality. In other words, if a triangle linking innovation, investment and enterprise can be formed across the world, then the transaction costs of each actor will be reduced considerably when using online platforms.

SESSION 5

LOCAL GOVERNANCE IN BIODIVERSITY MANAGEMENT

Session Chair: **Maria Berlekom**
Swedbio, Sweden

Policies to support local management

James Murombedzi
World Conservation Union (IUCN), Regional Office for Southern Africa, South Africa

Historically, conservation initiatives entrenched poverty in southern Africa through land dispossession, curtailment of rights and access to resources, and threats to livelihoods and native culture. Most policies are implemented in the context of unresolved colonial property rights. The focus of policies has been on devolution/decentralisation, natural resource use and tenure, access and benefit sharing, institutional arrangements for resource management, micro and macro-political dynamics of resource use and management. Most policies do not critically address the underlying causes of unsustainable resource use: e. g. unequal terms of trade, institutional failures, debt and debt servicing, valuation of natural resources, bio prospecting. Current policies have not resolved the spatial dimensions of resource tenure, use and management, e.g. the use of cadastral approaches to mapping ignoring community understandings and regulation of space and there is little integration with technology (i.e. GIS) to enable communities to interact more effectively with policy processes.

New policies are being implemented in a context of environmental insecurity characterised by: unresolved historical claims over national-boundaries and land; conflicts over the definition, security and realisation of rights to land, water and other natural resources; conflicting authority and relations of governance between the state and civil society groupings and the application of extra-economic regulations that render agriculture inefficient, especially on customary land. Policies that have aimed to devolve control over resources to local communities have largely failed which has been ascribed to imperfect policy processes but the focus of the policies may also have determined the lack of success. Communities are no legal entities; therefore rights to use natural resources are given to other institutions (counties and other administrative levels). There are serious challenges around the institutional arrangement for natural resource management. Another important challenge to devolve the rights of use to the communities is the lack of capacity by the communities to transform the natural capital.

Local communities and biodiversity management

Hazell Shokellu Thompson
Birdlife Africa, Kenya

BirdLife international coordinates a network involving 20 autonomous NGOs in 20 African countries. The network's activities are based on Site Support Groups (SSG) which is a mechanism for engaging local communities in biodiversity management. An SSG is a local group of relevant stakeholders living close to an area of high-biodiversity importance, who aim to manage their own environment in a sustainable way - mainly through the implementation of income-generating activities that will improve their standard of living without compromising biodiversity. The main support activities are development/livelihoods (including training), education and awareness, habitat protection and monitoring. Means of supporting SSG work in Africa include: development of tools and guidelines, documentation and dissemination of lessons learnt and monitoring and evaluation.

Among the lessons learnt in the program, it arises that democracy and governance are essential to the success of SSGs and that monitoring impacts rather than processes is important. The main challenges faced by the SSG Program include the monitoring of socio-economic impacts and demonstrating the linkages between biodiversity conservation and livelihoods improvements. The opportunities in the SSGs approach rely on the potential for replication, the scaling up and multiplier effects through a coordinated approach to community level work across Africa, the continuity in collaboration and support (projects do not work, programs do) and greater recognition of heterogeneity of audiences and targets. SSGs differ from other community-based organisations in that they are site specific, they rely on both a national and global support system, and they build on long-term relationships and are based on volunteerism.

Specifically in South Africa, SSGs have supported avitourism. The key components of this activity include training, socio-economic benefits, conservation benefits with support from BirdLife South Africa. Avitourism has made a large contribution to the South African economy and has created jobs with a cost/job ratio some 13 times less than the national average in the tourism industry.

Culture, rights and biodiversity

Lucy Mulenkei
African Indigenous Women's Network, Kenya

Biodiversity is the indigenous people's food; it is strongly linked to their cultural identity, and is the basis of medicinal care. We need to re-ask the question about who the resources belong to. The indigenous communities have been marginalised, maybe due to the perception that they are not able to manage the resources properly. Indigenous communities have been displaced from forestry for agriculture, becoming environmental refugees. It is imperative that they are involved in resource management planning and that they have access to information. Information is empowering.

Climate change is at the top of the environmental agenda. But who is directly affected by the change? For communities living in drylands, drought destroys livelihoods. The linkage between climate change, rural – urban migration, the disruption of culture and tradition and how natural resources are used is a key issue.

Recommendations:

Communication:

- Promote information and information sharing with indigenous people.
- Communicate the issues of biodiversity to indigenous people.
- Translate the outputs of the CBD into their own languages.

Energy:

- We should not look into the urban areas alone. The rural areas are important.

Development:

- Important to consider the rights of the indigenous communities for development. It has to be involving and participatory.
- Important to recognise traditional knowledge, of the elders.
- Capacity building, so that they have the capacity to change.

SESSION 6

CLIMATE CHANGE, ENERGY AND BIODIVERSITY

Session Chair: **Reidar Andersen**
Norwegian University of Science and Technology, Norway

Climate change, biodiversity and resilience of socioecological systems

Thomas Elmqvist
University of Stockholm, Sweden

In 2007, the Secretary General of the United Nations pointed out the need for building resilience thinking into policy and practice as a major task for all of the world's citizens. Resilience here is understood as the capacity to buffer disturbances, to implement renewal and reorganization, and to learn and adapt.

Historical records show that over the last 500 million years species extinction and deviation of temperature from average have been positively correlated. Our understanding of the interactions between changes in climate, land use and biodiversity are, however, very limited. One key question is to which extent ecosystems can absorb the increasing frequencies and intensities of disturbance while continuing to generate desired services.

The presentation introduced a number of ecosystems (coral reefs in the Caribbean, rangelands in New South Wales, boreal forests in Canada) that have undergone huge changes, often following human-induced disturbances. Ecosystems may flip into different states, with varying thresholds. A number of questions arise:

- How frequent are systems with thresholds and multiple states?
- How can we assess how far from a threshold ecosystems are?
- Are the regime shifts reversible?
- Ho do we design appropriate management that takes these thresholds into account?

Urgent research needs in this regard include experiments, realistic models, and the design of smart restoration schemes. Understanding resilience of ecosystems will help to design management regimes. In a system with high response diversity we need less knowledge for management.

Biodiversity stakeholders should take resilience into account when working at the level of integrated socio-ecological systems and designing policies. Some basic rules include the maintenance of diversity, the maintenance of modularity, the tightening of feedback loops, building social capital, encouraging innovation, and building adaptive governance.

Climate change, land degradation and biodiversity in Africa: the challenge remains: how do we reach out?

Juliane Zeidler
Natuye – Institute for the Environment, Namibia

The presentation focused on the way Namibia is taking up the challenge of implementing the Rio Conventions (CBD, UNCCD and UNFCCC) in an integrated way, in the context of efforts to achieve the Millennium Development Goals and declining international funding. At the community level, the underlying issues – biodiversity conservation and sustainable use, land degradation, and climate change – are all part of the same package. Long droughts, for example, impact on water supply, food, local income, health and the state of land at the same time.

Environmental sustainability – with biodiversity as one element - has been included in the draft for the 3rd National Development Plan, which also provides for links with the National Biodiversity Strategy and Action Plan. Various ministries have strategic plans, as have the regional (sub-national) administration levels.

However, the key challenge is how to deliver at the local level. Since 1990, Namibia has had a strong community-based national resources management (CBNRM) programme, which has resulted in increases of game populations. A number of bottlenecks exist with CBNRM: there is a lack of capacity at all levels; the CBNRM approach is very wildlife-focused; initiatives are often not harmonized; CBNRM is very resource-intensive, and the revenue of CBNRM is often not large enough to compete with other incentives.

A number of messages for the CBD process emerge from the national experience: What are the joint implementation mechanisms for the Rio Conventions? How can the CBD connect better with the GEF and its Implementing Agencies? Where are the entry points for biodiversity into the Poverty Reduction Strategy Papers? How can biodiversity be integrated with development ministries? How can developing countries demonstrate success towards the 2010 target?

Biofuels – opportunities and challenges

Per Ove Eikeland
Fridtjof Nansen Institute, Norway

With 1%, the global market share of biofuels is currently very small, but in countries such as Brazil it is already much higher. Production of biofuels is highly concentrated, with Brazil and the US providing for some 90% of global production. The European Union has set a target of 5.75% market share by 2010, and similar targets exist for a number of countries.

The energy balance of biofuels varies among different types of biofuel due to variation in acreage needed, in the use of nitrogen fertilisers, and in soil fertility and local climate. Biofuels are less problematic when grown on degraded and arid land with little carbon already stored in the soil. Dangers arise in particular from destruction of natural habitats, spreading of monocultures, high use of pesticides, and the spread of invasive species. While biofuels might provide economic benefits to local people, critical issues are the potential concentration of land ownership with its threats to traditional ways of living; competition for land use; increases in food, feed and fibre prices; and poor working conditions on biofuel plantations.

The key challenge is to develop a global regulatory system for biofuels. Such a system should address the following aspects:

- Making standards and certification truly international and binding on companies
- Better monitoring of land use and impacts on food prices
- Support for implementation of standards in developing countries
- Support to programmes conserving carbon stores and areas rich in biodiversity
- Overcoming barriers to the commercialisation of technologies using cellulose-based materials.

SESSION 7

FOREST RESOURCES AND BIODIVERSITY

Session Chair: **James Griffiths**
World Business Council for Sustainable Development (WBCSD), Switzerland

Forest and good governance

Andy White
Rights and Resources Initiative (RRI), USA

Mr. White introduced his presentation by stating that as the Millennium Development Goals (MDG) are overtaken by pressing issues as insecurity and climate change, the underlying causes of the MDG's are the same as those behind insecurity – political marginalization, poverty, inequity, lack of respect for human rights and democratic processes.

The relations between rights, governance and major global challenges were highlighted, with special attention to human and civil rights, poverty, conflicts, climate change and conservation. He demonstrated that forest people are often denied their rights and are marginalized politically. Exclusionary models of scientific forestry were identified as an important cause of the problem.

On poverty, the bottom billion was used to exemplify the "resource curse". The poorest have become poorer since the 70's, while the rest of the world is growing. The rural areas are falling behind. Forest countries are no more poorly governed than non-forest countries. But the countries with focus on export of primary forest commodities under-perform on governance.

Almost 10 % of all forest is affected by human conflicts, and while there is a decrease in armed conflicts, human rights violations increases. The role of the forests in conflicts is diverse, from being a cover or source of income fuelling the conflict to be the cause of conflicts itself. In the latter role, access and ownership and disputed tenure are identified as underlying causes.

Concerning climate change, there is a broad consensus that forest can play a role. There is however a risk that Unless robust and proactive steps are taken to clarify and strengthen property rights of rural and forest peoples, forest related climate change activities will benefit the wealthy, and reinforce economic disparities.

Mr. White concluded by underlining the centrality of the recognition of rights, establishment of democratic processes and laying basic conditions for development and the need to put current thinking on its head. Focus should shift from forest to development in forest areas. He also pointed out that there are possible to see positive signs. Several countries are undertaking tenure reforms, and there seems to be a shift in thinking that forests are not landscapes that happen to have people but are "humanscapes" that happen to have trees. He

called for recognition of the challenge, opportunities and urgency of this situation.

Measuring and monitoring the flow of forest ecosystem services

Manuel Guariguata
Centre for International Forestry Research (CIFOR), Indonesia

Mr. Guariguata reminded participants of the diverse goods and services provided by forests, ranging from material commodities such as food and timber to cultural and spiritual values and regulatory services. It is for the latter services that new forms of management have been developed, including systems for conservation through contingent contracts. Compensation and reward for ecosystem services are becoming prominent for several reasons, notably the increased demand for such services, the need for alternative conservation finance, corporate investments and changes in natural resources governance.

As a conceptual framework, the organization of compensation and reward for ecosystem services can be split into three parts. The beneficiaries are those benefiting from the services, intermediaries are those entities that shape the interactions among ecosystem stewards, beneficiaries and the ecosystem itself and finally the stewards, the ones that modify the quantity or quality of the services.

To be able to design and implement compensation and reward schemes there is a need for better measurements of the flow of ecosystem services. Mr. Guariguata presented examples on the current situation on water and animal pollination, showing that the present assumptions on the flows of ecosystem services need to be elaborated further.

On water services, many assumptions are based on conventional wisdom that differs significantly from scientific findings. This represent a challenge as there may be a risk for establishing schemes compensating for services that do not exist, or at least do not meet the expectations. On animal pollination, the complexity of this service represents challenges in measuring its flow. There are local differences and the pollination is only good as a service for fruit production if the fruits can be harvested.

The presentation concluded by stressing the need for compensation and reward schemes to rely less on perceptions and untested assumptions on biophysical flows, but rather to use knowledge and tools already available. Further, today's supply-led flows should be re-placed with demand-driven flows. There is also a need for implementing cost effective approaches for monitoring.

Russian forestry and the Millennium Development Goals

Anatoly Petrov
All-Russian Institute of Continuous Education in Forestry, Russian Federation

Mr. Petrov presented an overview on the vast forest resources of Russia and the challenges managing these forest resources represents. From his own experiences, he underlined that a good economic situation is a precondition for being able to protect the ecology. Russia faces severe problems associated with illegal logging, which is estimated to be 25 million cubic meters annually. To combat this activity, focus should be on actions aiming to eliminate the market for illegal logs, and increased living standard for people in affected regions.

Recently, the forest policy has been revised, resulting in a more decentralized structure for the forest administration and management. The goals of the new Russian forest policy is to increase the gross domestic product through economic development based on forest resources, to establish a new balance of power between the federation, regions and private companies, to separate forest administration and management and to establish a competitive environment in the forestry sector.

The forest administration is carried out at both federal and regional levels, but as a consequence of the new forest policy the new forest code is delegating power from the federation to the regions. The regions now have the competence to make laws and to make decisions in forest related issues, while the federation has the responsibilities for the making and supervision of federal laws.

The management of the forests is carried out by private companies on either long term contracts (10-49 years) with full management responsibilities or on one year logging permissions. The companies have to bid in auctions in order to get the right to lease a forest area. Companies wishing to obtain the right to lease a forest area have to go through many offices, and there is obviously a risk that this system could encourage the payment of extra fees for speeding up the process.

Mr. Petrov did not express concern about the biological situation of the forests, as the forest area is increasing, and that natural regeneration takes place on 80% of the harvested forest area. If the economical situation is solved there will be good chances for protecting the natural resources.

Local forest governance and the role of community-based forest management

Yam Malla
Regional Community Forestry Training Centre for Asia and the Pacific (RECOFTC), Thailand

Mr. Malla introduced the Regional Community Forestry Training Centre for Asia and the Pacific (RECOFTC), an international organization in Asia committed to community-based management of natural resources. With 20 years of experience in designing and delivering training courses and capacity building services, and the ability to attract participants from across the Asia Pacific region and beyond, RECOFTC is a regional hub for community forestry knowledge and information.

As the perceived role of forests is broadening in society, there is an increasing involvement of local communities in forest management. Community based forest management can contribute to protect existing forests and restore degraded forest lands. It may also contribute to the improvement of forest quality and the flow of benefits to the local community. Strengthening of forest institutions and facilitating investments are other possible contributions from community based forest management.

Elements of good forest governance were identified as enabling policy and legislation, transparency, public participation, accountability and the combating of illegal logging. Mr. Malla stressed the need for separating the terms governance and government, in order to highlight the role of local governance.

Among the challenges mentioned were the issue of equitable sharing of benefits, power relations between the different administrative units from community to the national level, and the effect on forest depended people and environmental sustainability.

While debates on forest policies on the international and national level are important, the key to effective forest governance is how these policy legislations are translated on the ground. Community based forest management plays an important role in forest governance which is transparent, participatory and accountable. It is an effective way to place the local community in the development agenda, and it represents an important path to sustainable forest management.

Market-based biodiversity conservation and the rights of indigenous peoples, local communities and women

Simone Lovera
Global Forest Coalition, Paraguay

Ms. Lovera presented a critical assessment of the introduction of payments for ecosystem services (PES), mainly based on examples from Paraguay, where this kind of mechanisms have been used with the aim of reducing land use changes. The concept of PES was described as a neo-liberal approach to biodiversity conservation, with focus on market values and free trade. The theory behind PES goes back to the 1960's when the concept of tradable rights to pollute was introduced. The carbon trade introduced in the Kyoto protocol is an example of putting these theories into practice. PES schemes may be area based, use restrictive, product based or based on human induced change. They may be public or private, ranging from subsidies to marked based systems.

In theory, markets will be effective and equitable, but there are a lot of preconditions to be satisfied to make this assumption valid. First there is the challenge of proper valuation; high level of uncertainties makes this very difficult. Finding a baseline for measurements and the alternative development under a business as usual regime for verification purposes has also proved to be a challenge.

In Paraguay the Law on the Valuation and Retribution of Environmental Services was adopted in September 2006. The law requires a valuation of all environmental services in the country, and promotes biodiversity offsets for, amongst others, soy expansion. The law gives the owners of land providing environmental services the right to compensation corresponding to the value of the services. According to Ms. Lovera, no calculation of the total budget requirements have been carried out and the funding mechanisms may give incentive for allowing projects with negative impact on the environment. Further, the new legislation allows soy producers to buy environmental services instead of restoring forest cover.

The expansion of soy production in Paraguay has brought severe negative impacts on environment and society, and several examples were provided in the presentation. While biodiversity offsets may benefit land owners, the situation is different for indigenous people and other marginalized groups. This is both caused by the lack of recognition of traditional rights, but also because of the lack of capacity to participate in this kind of market. Introducing a monetary economy also represents a threat for some communities. Overall, indigenous people would be the losers of this system, and the negative effects can only be avoided trough strictly regulated initiatives.

The presentation questioned the success of the Costa Rican PES scheme, by pointing out that some of the markets proved economically unviable as soon as the official development aid (ODA) and the governmental support was removed. Some of the success should also be explained by the fact that deforestation was illegal.

The conventional subsidies were said to be the best of the PES schemes, but reclassifying conventional subsidy schemes and other forms of public support for biodiversity conservation as "Markets for Environmental Services" could put the systems to risk. Through international trade agreements these systems could be challenged as "discriminatory" by large corporations and foreign conservation organizations.

Concluding the presentation, there was a reminder of the 1992 agreement on funding the increased costs of providing global environmental benefits, by contribution of 0,1 per cent of GNP from the developed countries. Ms. Lovera emphasized that time has come to implement this agreement.

SESSION 8

BIODIVERSITY AND FOOD PRODUCTION

Session Chair: **Bente Herstad**
Norwegian Agency for Development Co-operation (Norad), Norway

Agro-biodiversity and Food security

Angeline Munzara-Chawira
Community Technology Development Trust, Zimbabwe

Agro-biodiversity is a component of biodiversity which is the combination of life forms and their interactions with one another, and with the physical environment. It encompasses diversity of genetic material in traditional varieties and modern cultivars, crop wild relatives and other wild plant species. It provides basic necessities of life (food) and is a foundation for human culture-contact with biodiversity around the farmland. It is critical for food security, nutrition and sustenance of livelihoods.

There is a tendency to focus on major food crops in work on this topic, which masks the array of crop diversity maintained by farming communities, which can be adaptive to a wide range of ecological regions and climatic zones. The Community Biodiversity Development and Conservation Programme (CBDC) promote community efforts to address these concerns in several African countries. This provides an important platform to help African countries to fulfil their international commitments on agro-biodiversity.

The CBD programme of work on agricultural biodiversity, developed and adopted in 2000, recognizes the multiple dimensions of agro-biodiversity and the range of goods and services provided. As the 2010 target, this PoW is expected to contribute to poverty alleviation.

The international debate on agro-biodiversity and food security tend to be centred on issues of Intellectual Property Rights and indigenous knowledge protection, Access and Benefit Sharing arrangements; Genetic Use Restriction Technologies (GURTS) and contamination of local seed materials. As a result of these challenges, there is need for the international community to cooperate and commit to collectively conserve and sustainably use agro-biodiversity whilst ensuring that they will be available for use by future generations.

Conserving crop biodiversity for a food secure future

Ola Westengen
The Global Crop Diversity Trust, Italy

Use of the diversity found within and among crops, and in their wild relatives, underpins the continued production of food, adaptation to climate change and sustaining culture. This diversity is known as PGRFA – Plant Genetic Resources for Food and Agriculture. It is a

resource as important as the air we breathe and the water we drink.

The Green revolution showed that production boost is not sufficient in itself to reach food security for all. Enough *available* food on the market did not ensure *access* to food, and there were environmental problems, such as soil erosion, chemical pollution and genetic erosion due to the uniform and few varieties used. This has left modern crops vulnerable to pests and environmental changes, like climate change, which is likely to hit the poor hardest. Genetic diversity is thus needed to develop modern varieties. Yet this diversity is eroding, endangering our future food security. There is a pressing need to conserve PGRFA, both *ex situ* and *in situ.*

No country in the world is self-sufficient in PGRFA. Interdependence is everywhere. Conservation efforts thus need to be global. This has been difficult in the past, but there is reason to be optimistic about the future. An international, legally binding treaty entered into force in 2004 to help ensure the conservation of PGRFA, their sustainable use and the fair and equitable sharing of the benefits arising from their use. This international policy framework – The International Treaty on Plant Genetic Resources for Food and Agriculture - has allowed the establishment of the Global Crop Diversity Trust by FAO and Bioversity, on behalf of the CGIAR.

The vision of the Trust is to create a rational global system for the efficient and effective conservation and use of PGRFA held in *ex situ* collections. The Trust is working to raise an endowment, the interest from which will guarantee funding of the global system in perpetuity. An important part of the global system is the Svalbard Seed Vault, which will safeguard a complete set of world's most important PGRFA.

Potential Impacts of Genetically Modified Organisms in Food Production and Agricultural Biodiversity

Corazon de Jesus
Southeast Asia Regional Initiatives for Community Empowerment (SEARICE), the Philippines

The partners of Southeast Asia Regional Initiatives for Community Empowerment (SEARICE), specifically those in the Community Biodiversity Development and Conservation – Biodiversity Use and Conservation in Asia Programme (CBDC-BUCAP), have been working with farmers for the past 10 years in strengthening their capacities to manage local agricultural biodiversity (conservation, development and use). The CBDC-BUCAP partners in Bhutan, Lao PDR, Thailand, Philippines and Vietnam recognize the important role of agricultural biodiversity as sources of food, income, and medicine, and recognize the inherent capacities of farmers to manage these resources.

Genetically Modified (GM) food crops have been promoted widely in Asia, e.g. the *LLRice 62,* with the perceived benefits of ensuring food security and saving the world from hunger; increasing yield production and farmers' income; control of pests and diseases in crops; reducing dependence on chemical agricultural inputs; and improving the nutrient quality of crops.

The reality in the region, however, is that poverty and hunger is still prevalent, in spite of the developments and advances in food production. The GM crops commercialized on a large scale in a few countries in the world since 1996 have not addressed the main agricultural problems and challenges facing farmers in most countries of the world. These crops have also been released quickly and widely without an adequate evaluation and understanding of their performance, or of their health, environmental and socio-economic impacts. A number of initiatives are planned to better control GM food crops.

Other important issues are handling of Intellectual Property Rights, mainstreaming the importance of biodiversity in food production in policies and compliance with international treaties and agreements.

Integrating Biodiversity Conservation and Ecosystem Function in Agricultural Landscapes

Fabrice DeClerck
Columbia University and CATIE, Costa Rica

To address today's challenges in achieving the Millennium Development Goals it is important to focus on the central task of poverty alleviation. Consequently, we should see biodiversity conservation as a tool for poverty alleviation.

Ecologists have a distinct role to play in the alleviation of global poverty, restoration of ecosystems functions and processes, and conservation of biodiversity by working in the agricultural landscape. The tradition of elucidating complex systems and relationships and working across scales and disciplines enables ecologists to guide management so as to build on synergies between rural livelihoods, environmental sustainability, and food security. Integration of ecology and a host of additional disciplines can be used to alleviate poverty, while maximizing conservation within the landscape.

Functional diversity is important in order to sustain ecosystem services but this diversity is reduced through land use change. In agricultural ecosystems this affects the nutritional value of crops. A study of nutritional value of agricultural biodiversity concludes that important nutritionally valuable crops are lost if diversity is reduced. Thus diversity is important for proper nutrition.

The issue of diversity is complex, but carries a simple warning: loss of diversity may not affect us immediately but will eventually when vital functions are lost.

Biodiversity, nutrition and health

Emile Frison
Bioversity International

The conventional view of agricultural biodiversity is as a source of plant and animal genetic resources that can be used to improve the agronomically valuable traits of crops and livestock. However, Dr. Frison focused on a few case studies to show that agricultural biodiversity is the foundation also of dietary diversity, which in turn can be promoted to deliver better nutrition and better health.

Such efforts are a vital component of the fight against hidden hunger, the lack of essential vitamins and micronutrients that currently afflicts about 2 billion people worldwide, mostly women and children. It is often caused by dietary simplification through moving away from traditional foods. There is evidence that dietary diversity reflects diet quality.

Dr. Frison reported that many of these efforts focus on so-called neglected or orphan species that are locally important but hitherto ignored by research scientists. In sub-Saharan Africa, traditional leafy vegetables contain considerably more nutrients than "exotic" options such as cabbage and kale. A concerted campaign to promote traditional African leafy vegetables resulted in an increase of 1100% in sales in just two years, with impacts on the livelihoods of the women farmers who grow the vegetables and the urban families who buy them. In India, work on nutritious millets has had similar impact, while in South America Andean grains are delivering the same sorts of benefits to local farmers and markets.

These pilot studies provide a basis on which other agencies could build scaled-up efforts to address hidden hunger in a sustainable and environmentally friendly manner. Dr. Frison called for attention to be paid to the nutrient values for crop varieties to provide an evidence base for further studies.

SESSION 9 – PANEL DEBATE

FOOD PRODUCTION, FOOD SECURITY AND BIODIVERSITY

Session Chair: **Ruth Haug**
University of Life Sciences, Norway

Corazón de Jesús highlighted the role of farmers as seed keepers and therefore have a crucial role in preserving diversity of plant varieties and species. The control by and the access of the farmers to varieties should be strengthened for food security. As long as they have full access and control of the material biodiversity will be ensured.

Devin Bartley stated that aquaculture constitutes a tremendous sector for food security and production. The development of aquaculture is still incipient in this sense. It needs to grow within sustainable forms and for this purpose its development has to be integrated with other sectors and other stakeholders.

Emile Frison argued that we have to go beyond the traditional antagonism of agriculture *versus* conservation. Large portions of the biodiversity are found in agriculture systems. We need to use the arguments of biodiversity conservation to make agriculture more sustainable. This is particularly important in the more marginal areas were the magnitude of the threats to sustainability are larger. The use of biodiversity should be the key tool to intensify agriculture into more resistant and resilient agricultural systems. The MDG need also to go beyond the focus on quantities of food and pay attention to qualities. What matters is the health outcome of the nutrition and biodiversity has a key role to play.

Fabrice DeClerk noted that it is not possible to neglect the role of the Green and Gene Revolutions in agriculture including the development of hybrids and agrochemicals. We are not able to sustain populations on organic cultivation alone. The challenge is how to hit the balance with judicious use of fertilisers and other technological improvements without compromising sustainability. To address this issue, it is important to bear a focus on processes that take place at the scale of the landscape.

Jackie Alder emphasized that if we wish to maintain the aquatic systems we need to consider the entire ecosystem. Biodiversity in aquatic systems has a large potential for food production. There has been little domestication but the goods from marine ecosystems constitute a large portion of the international trade. It is necessary to keep the biodiversity of aquatic systems and capitalise on that potential.

Issues arising in the discussion

I) Interrelationship between terrestrial and aquatic ecosystems and their relative importance for food security

It is important to maintain a focus on the interrelationship between terrestrial and marine environments since the way terrestrial systems are used (e.g. use of fertilisers and wastes from intensive production) affects marine systems. At larger scales and for aquaculture systems along coasts it is important to keep forest coastal systems, and also to have a focus on the ecological linkages between marine and freshwater ecosystems.

2) We need to shift the language and our thinking in the environmental community. How do we overcome the barriers between the environmental/biodiversity conservation sector and those of health, agriculture and fisheries?
We integrate sectors by changing the language so that communication is possible. Integrated coastal management provides good examples were both terrestrial and marine perspectives are taken on board. For communication, it is important to have a shared geographical area, to focus on processes and on the trade-offs that will take place. Also linkages among sectors can be established if the value of the services and goods provided to the different sectors are adequately valued and considered under the process of government decision making.

Regarding interdisciplinary work, it is a challenge to strike the balance between specificity and generality. There is a struggle between being too general and not getting enough disciplinary depth or being too specific and not being able to integrate across disciplines.

3) Low resource farmers lack choices regarding technologies.
The availability of fertilisers for example, increases the capacity of the famer to choose. When people cannot produce enough food, fertilizer is an access to choice because there is a need of economic backing to make choices. Farmers can use any food variety, wild or not. Local landraces are important in providing resistance to certain diseases and other desirable traits and it is important to breed them to further enhance these traits. However, heterogeneous varieties can bring problems in relation to seed quality certification, and therefore choices by farmers become determined also by legislation. It is a challenge to maintain diversity while also meeting the need of quality controls, which requires standards and uniformity for registration. But there are examples, as in Nepal showing that it is possible to register landraces that are less homogeneous.

4) *Biotechnology and food security*
The use of GMOs and biotechnologies offer opportunities to improve food security (e.g. the ingression of desirable traits without the undesirable ones, and GMOs in sterile crops such as banana). The stress should not be put on the particular technology, GMOs represents just one approach and all biotechnology changes the species. There is no option than applying this technology to feed the growing population. Particularly in marginal areas it is necessary to exploit the biodiversity available together with the technology. It would be unwise to dismiss the possibilities that these technologies could provide. What makes the GMOs complicated is the access of the material by the low resource farmers. There is a significant work in this area done by the public sector that can provide materials that are of public domain. It is imperative to be cautious and due attention needs to be given to what happens with the changes in the organism and in the environment into which the organism is let. There is still a poor understanding of the effects and what is known is often being contended. The problem of food insecurity goes beyond biotechnology; it has to be looked holistically.

5) How can we get the funding agencies to acknowledge the importance of biodiversity in food production systems?
Agricultural biodiversity has a potential in achieving the MDGs. The GEF seems to have dropped the whole issue of agricultural biodiversity from its agenda. It is important to have the voice raised; only a few countries have spoken up. It is important that the countries that are sitting in the GEF-council advocate for this question.

6) *How do we deal with conflicts between scientific and traditional knowledge?*
Most scientists have not been trained in participatory approach and therefore think that the farmers should receive and adopt the technological packages provided. A participatory approach builds on the knowledge that is in the communities and looks at its various dimensions. A problem in accessing and integrating the local knowledge in a wider management planning perspective is that often people that have knowledge are marginalised. Women, participate in the entire food handling process but these knowledge does not get to statistics.

7) Conservation of biodiversity as an option value.
Much of the diversity of services and goods provided by ecosystems originate and are maintained by ecological interactions, e.g. aspirin occurs in plants to deter herbivores. We need to focus on the maintenance of functioning ecosystems to keep biodiversity. The genetic variability is not developed in laboratories. We need to maintain living interacting organism to keep functional (and genetic) diversity.

SESSION 10

WETLANDS AND FRESHWATER RESOURCES

Session chair: **Gabriele Obermayr**
Austria

Wetlands for water and people

Nick Davidson
Ramsar Convention on Wetlands Secretariat

Over the past decades a growing concern over wetlands destruction has been prevailing. According to the Millennium Ecosystem Assessment degradation and loss of inland and coastal wetlands are degrading more rapidly than in any other systems. Services provided by ecosystems are extremely important for people and also contribute to the global hydrological cycle. According to an assessment of 227 major river basins of the world, 37% were strongly affected, and 50% of the world's 50 major rivers are heavily polluted.

At present approximately 70% of available water is already taken by irrigation; meeting the MDG on hunger will mean a doubling of food production by 2050. What effect will this have on the remaining wetlands? When wetlands are converted, especially the poorest people in the least developed countries are affected. These people are often also those that are most dependent on wetlands for their livelihood.

Despite the high value of wetlands in terms of the services they provide, wetlands are still to often viewed by policy-makers as of little value. There are major needs for more evaluations to better inform decision makers. There is a need to shift the focus towards maintaining and rehabilitating wetland ecosystem services and highlighting the role of wetlands in human health, *inter alia* in view of reaching the 2010 target on biodiversity. This requires a change in policy, from making decision on water allocation and use of wetlands sectorally to cross-sectorally. Water resource management and spatial planning need to be based on an integrated ecosystem-based approach, rather that demand-driven governance.

River control and biodiversity

Terje Tvedt
University of Bergen, Norway

The presentation concentrated on two major points: demonstrating the critical role of biodiversity and ecosystems in securing sustainable development, and presenting and considering the difficult trade-offs that countries have to make.

River ecosystems and development: River and water systems give life not only to aquatic life, but to all animals, all birds, all plants and are very important to people in terms of drinking water etc. This means there will always be competing interests for the various uses or ecosystem services that the river and water systems provide. What is considered as an "ideal" river system will depend upon the trade-offs between different interests.

Half of the rivers are transnational or transboundary, meaning that states compete with each other for water. Conflicts exist between ecosystems upstream or downstream, decisions on one ecosystem will affect the other. Rivers are always in a flux, and will therefore change the ecosystems. For example, melting of ice in the Himalayas as a result of climate change will drastically change the ecosystems downstream. Normally 30% of Bangladesh is under water, some years more, some years less. What is the ideal ecosystem? All sectors of society will want services from the river ecosystems and they will have different views on what they want.

Dams are viewed as modern temples in India, China, USA, etc. The river ecosystems have been changed by human interference in more or less radical ways for thousands of years. Managing or maintaining ecosystems means that you have to know all the conflicting views of the various sectors, reach agreement and make decisions calculating the pros and cons of the various solutions, deciding on what ecosystem and biodiversity that should be maintained and what should be made supportive to development, at the same time maximizing ecological sustainability. Manmade ecosystems also need maintenance, e.g. the lagoon in Venice is manmade, but so shallow that further silting from the rivers will dry and ruin the lagoon.

Biodiversity aspects of the EU water framework directive

Wouter van de Bund
European Commission Joint Research Centre, Italy

Biodiversity is a theme linking many policies relevant to catchment management. Its management poses opportunities to achieve synergies in meeting requirements of EU directives such as the Water Framework Directive, the Habitats Directive, the European Agricultural Fund for Rural Development and the EU's Biodiversity strategy. The implementation of the Water Framework Directive (WFD) is an important driver towards biodiversity conservation in Europe. The WFD includes legal requirements for long-term sustainable water management and to reach good quality status (i.e. good ecological and chemical status) of all European waters by 2015. Good ecological status means that biological communities are close to their natural state in absence of human disturbance ('reference conditions'), and biodiversity is its key components. There is also a direct link through the requirement to protected areas under the Natura 2000 network of sites (i.e. sites designated under the Habitats Directive and Birds Directive to ensure conservation status of habitats and species of high importance. There are, how-

ever, also some potential conflicts between the requirements of these three Directives in particular regarding a potential mismatch between the WFD 'good ecological status' and the HD and BD 'favourable conservation statuses.

The WFD by itself does not address all aspects of biodiversity conservation, but the ambitious environmental objectives can not be achieved without addressing key problems that go far beyond direct catchment management. There is a need for close integration of policy objectives in catchments in order to achieve a sustainable use of Europe's environment and conserve biodiversity. While urgent action to stop habitat fragmentation and destruction is needed to meet the objective of halting biodiversity loss, further development and testing of indicators of conservation success, system biodiversity and water quality is needed.

SESSION 11

MARINE RESOURCES AND BIODIVERSITY

Session chair: **Isabel Sousa Pinto**
University of Porto, Portugal

The state of the world's marine biodiversity and ecosystems

Jackie Alder
University of British Columbia

The last decades have seen a large increase in marine areas that are being fished to their maximum; fisheries have been entering areas further offshore and in ever-deeper waters. This has impacted on biodiversity. Genetic marine biodiversity is poorly understood, in particular within non-commercial species and deep-sea species, but it is certainly at risk throughout all oceans and coasts. Some 500 fish species, 60 of them marine, have been domesticated but the number of domesticated breeds is unknown. At the species level, the most recent IUCN Red List has added or reassessed 240 marine species; for example corals have been assessed for the first time. 71% of marine species are at risk. The Living Planet Index also demonstrates the dire status of marine species. 87 of 737 marine species on the IUCN Red List are affected by invasive species. Under conditions of reduced predator occurrence, invasive species have found to promote lower trophic producers, such as algae. At the ecosystem level, increasing fertilizer input, resulting in harmful algal blooms and subsequent biodiversity and economic losses, are of particular concern.

The presentation looked at the three specific marine 2010 biodiversity indicators and related targets. Firstly, the establishment of Marine Protected Areas shows a rate too low for succeeding with achieving the target of 10% of EEZ (exclusive economic zone) being protected by 2010, although good progress has been made in some countries. Secondly, the trends in fish stocks remain vastly negative, with more than 50% of commercially exploited fish stocks being either overexploited or having crashed. Thirdly, the Marine Trophic Index is negative for many areas of seas, but recovering for others.

Climate change and acidification in the oceans add concern, resulting in major impacts such as the poleward migration of species, in particular in temperate sea areas, and a higher risk of invasive species becoming established. Exact impacts of calcification of organisms and acidification are poorly understood.

Large Marine Ecosystems (LME), resource management and biodiversity conservation

Kenneth Sherman
National Oceanic and Atmospheric Administration (NOAA)

A number of driving forces have reduced the adaptability of marine systems: fishing, pollution, mechanical habitat destruction, introductions and climate change. In order to respond to the resulting threats, 64 Large Marine Ecosystems (LMEs) have been identified, using criteria such as bathymetry, hydrography, productivity and trophodynamics. LMEs are global centers of efforts to reduce coastal pollution, restore damaged habitats, recover depleted fish stocks and conserve biodiversity. Many countries cooperate in the provision of information on indicators for sustainable development in marine areas, in particular on pollution and ecosystem health, fish and fisheries, governance, and socio-economic productivity. For many of these indicators, useful long-term data exists. More recently, climate change is impacting heavily on marine conditions including fish stocks, resulting in winners and losers among fish species.

A paradigm shift in ecosystem management is paramount for addressing the threats to marine ecosystems. The focus needs to be on ecosystems instead of species; the scale of management needs to be multiple instead of small spatial; a long-term perspective is needed that views humans as an integral part of ecosystems. Management needs to be adaptive, taking research results into account, and ensure sustaining the production potential for goods and services.

The Plan of Implementation adopted by the World Summit on Sustainable Development in Johannesburg in 2002 includes a number of marine ecosystem-related targets in relation to land-based sources of pollution, an ecosystem-based approach, marine protected areas, and the restoration and sustainability of fisheries. For many of those areas, the targets are currently not being met.

Integrated ecosystem assessment and adaptive management should include two planning actions: transboundary diagnostic analysis and strategic action programmes. An ecosystem-based assessment and management strategy should be the major implementation action for those two planning approaches.

Conservation and utilization of biodiversity on seamounts

Ricardo Serrão Santos
University of the Azores, Portugal

Seamounts are undersea mountains of geo-volcanic genesis, rising from the sea floor to below sea level. The number of seamounts is estimated to be around 100,000 of which 15% have been mapped. Seamounts generate upwells, which provide for localised blooms of primary production, resulting in an increase in plankton and a subsequent increase in higher-level species. Seamounts support rich benthic communities with corals, sponges and others, and they host a large number of endemic species. Large fish aggregations are found at seamounts, as well as large numbers of sharks, tunas, seabirds, sea turtles and some cetaceans.

Seamounts also attract fisheries. With fisheries increasingly migrating to the deep sea, some catches have only been sustained because hitherto unexploited seamounts have been discovered and are fished. Many seamount fish are, however, susceptible to damage by fisheries. Trawling has been found particularly detrimental to benthic communities, including cold-water coral reefs.

In combination with the lack of knowledge of seamounts, the identification of bottom fishing as a major threat requires a highly precautionary approach to future seamount management. This should include changes to, and in some cases abandonment of industrial fishing practices. Small-scale fisheries, however, have long been found to be sustainable and are of major importance to local island communities as exemplified in the following quote from Jennings *et al* (2001): *Fishing is not just about catching fish and making money; rather it is bound up in the culture of coastal societies*.

Genetic resources of the deep sea: what is the potential?

Salvatore Arico
United Nations Educational, Scientific and Cultural Organisation (UNESCO)

The world oceans are rich in life and perhaps nowhere more so than in the deep sea with organism's properties offering potential for development of new enzymes, drugs and other industrial and research applications. Products based on deep sea and other marine organisms have already found their way onto the market. Today there are almost no legal restrictions on exploiting the deep sea for the purpose of research or financial gain regarding living resources. Scientific research related to deep sea genetic resources, whether purely academic or commercially-oriented, is restricted to those very few who own the necessary technological capacity and the financial resources to access these

remote areas. Partnerships between public and private research organizations are common, if not the norm, which makes it difficult to discriminate between pure and directed marine scientific research. Information on the origin of the samples for developing practical applications of deep sea genetic resources in the context of the current patent classification system is generally not disclosed. At a time when oceans are increasingly impacted as a result of human activities and fisheries depleted, bioprospecting of deep sea genetic resources may represent a sign of a shift in the economic use of the oceans

Future Policy Challenges where CBD could assist are 1) Regime of the 'Area'/common heritage of humankind vs. regime of living resources in the High Seas under UNCLOS, 2) Lack of international definition of bioprospecting and of Marine scientific research (MSR) under UNCLOS, 3) Possible conflicts between the provisions on the way in which UNCLOS addresses treatment of research results from MSR and those of IPRs instruments, 4) The legitimacy of asserting intellectual property rights over resources deemed of public interest, and what constitutes a patentable invention with regard to genetic resources and 5) The principle for, and modalities of, sharing of ensuing benefits, including through technology transfer, capacity building, information sharing and disclosure requirements within patent applications

An Ecosystem approach to management of aquatic resources: integrating fisheries, aquaculture and biodiversity

Devin Bartley
United Nations Food and Agriculture Organisation (FAO)

Dr. Bartley outlined the driving forces of changes in aquatic resources: The world will experience one extra 1 billion people, an increase in fish consumption (except in Africa), marine fish production plateaus, the number of depleted and overfished stocks is increasing, aquaculture is the fastest growing food production sector. Nearly half of fish consumed are farmed and both sectors criticized for adverse environmental impacts. The management of capture fisheries and aquaculture requires that natural biodiversity be conserved. An ecosystem approach to fisheries and aquaculture will be necessary to ensure responsible use of aquatic resources. Examples were given on how to build an ecosystem approach building on the single species management concept.

We are not making good progress to reach the WSSD goal to reduce the number of hungry people by 50% by 2015. More needs to be done e.g. on technical & social solutions to by-catch, feeds and aquaculture systems that reduce impact, improved feed conversion in farmed fish, adaptive management systems and governance and understanding and valuing ecosystem goods and services. But we should not forget that progress is being made regarding essential fish habitat, community involvement, ecosystem processes (some), on the role of mangroves, involvement of local user groups and good partnerships are emerging.

Management of coastal resources: their role in supporting and protecting livelihoods

Anne Martinussen
World Wildlife Fund, Norway

Ms. Martinussen presented the experience of a project carried out in Mozambique on conserving global biodiversity values through local level initiatives using the ecosystem approach. The coastal marine area consists of a high number of species in an area were fishing is the main commercial activity. The project focused on increasing the involvement of local communities, establishing systems for distribution of revenues generated from tourism taxes, better monitoring and protection of biological resources through developing management plans and decreasing unsustainable fishing methods and development of alternative livelihoods. Mozambique is one of the few countries in Africa where people are allowed to live within protected areas and have the right to use resources. Oil and gas exploration in the area may pose threat if production starts.

Lessons learned were, among others, the necessity for long term investments, that capacity building often starts from scratch, and the need to build on traditional structures, institutions and organizations. Stakeholders need to realize the importance of biodiversity and there must be a balance between conservation and consumption and human needs.

SESSION 12 – PANEL DEBATE

HOW DO WE SECURE MARINE BIODIVERSITY BEYOND NATIONAL JURISDICTION?

Session chair: **Peter Bridgewater**
UK Joint Nature Conservation Committee/Global Garden Consulting, Switzerland

Panel members: **Jackie Alder**, UBC, Canada
Kenneth Sherman, NOAA, USA
Salvatore Arico, UNESCO, France
Stefan Leiner, EU DG-ENV, Belgium
Devin Bartley, FAO, Italy
Jeffrey McNeely, IUCN Switzerland

The debate raised several themes on how to secure marine biodiversity ranging from international cooperation between UN-processes to the need for more knowledge, the need for better regulation and the impacts on high seas from climate change, chemical runoff and garbage.

One of the basic issues raised was the need to implement what we already have agreed on in different conventions like CBD, UN Convention on Law of the Sea (UNCLOS), UN General Assembly-resolutions (UNGA) and regional fisheries management organizations (RFMO`s).

Cross-sectoral cooperation at national level and cooperation between CBD and relevant institutions was mentioned by several speakers. UNGA-resolutions have impact on RFMOs, and FAO. A question was raised on the role of SBSTTA, should they do more on the high seas issue? A first step could be informal discussions between CBD and other UN bodies like UNCLOS, FAO, etc.

In general there were addressed gaps in regulations, knowledge (e.g. mapping of areas), information and public awareness. Despite limited knowledge about the deep seas we know enough to take action. Destructive fishing methods were mentioned as having large impacts. Harmful subsidies in the fisheries cause excess of vessels and employees and lead to overfishing.

The question was raised on the need for a new regime to regulate the genetic resources beyond national jurisdiction. Several agreements already have competence that should be combined like UNGA, FAO and CBD. CBD has a role to play on scientific input on vulnerable areas. Other options were the establishment of a new agreement under UNGA and utilizing the ideas from the mineral regime under UNCLOS which governs access and benefit sharing.

Other concerns raised regarding negative effects on biodiversity were climate change, examples on **"**Geo-engineering" in the form of spreading iron into the sea for carbon sequestration, chemical runoff (e.g. flame retardants) from the industry and growing concerns of marine garbage. The establishment of peace parks was mentioned as a possibility to avoid conflicts across borders. GEF was another forum were biodiversity concerns would benefit from more cross-sectoral co-operation. Conservation of genetic resources is important for the aquaculture industry since they need their wild relatives as a resource base.

SESSION 13

GLOBAL GOVERNANCE AND BIODIVERSITY

Session chair: **Maria Mbengashe**
South Africa

Strengthening the scientific basis for the CBD - improving the interface between science and policy

Ivar Baste
United Nations Environment Program (UNEP)

This year the Nobel Peace Price was shared between Al Gore and the Intergovernmental Panel on Climate Change (IPCC). This really underlines that knowledge and science are playing an important role for the society, and that it contributes to peace and stability.

The CBD contains a number of provisions for scientific and technical cooperation which has evolved into its current scientific base. Credible and legitimate international assessments have proven effective in bridging science and policy, and calls have been made for a biodiversity equivalent to the IPCC. Such an equivalent is one of the options considered under the international consultations on an International Mechanism on Scientific Expertise on Biodiversity (IMoSEB).

Based on experience from other assessments the following aspects must be addressed when we are dealing with new biodiversity assessments. Strengthened assessment processes must be policy relevant and legitimate, and must be scientific independent credible and must avoid proliferation. There is a need for improved environmental data and capacity building to ensure data and information. We need to do networking and link the capacities available. New assessments have to be multidimensional; (i) science – policy, (ii) environment – development, (iii) multiscale (local-global) and (iv) time (changes, trends).

The scientific base of CBD could be strengthened through a mechanism that: 1. facilitate programme cooperation among a consortium of adaptive institutions, 2. is scientifically independent and credible. 3. responds to policy needs at multiple scales (not policy prescriptive), 4. is modular and multi-scaled, 5. is supported by capacity building, 6. is supported by a network of scientific and national capacities, 7. uses indicators and short and medium term projections to assess trends, time-lags, tipping points and interlinkages, 8. focuses on human well-being and value of ecosystem services as basis for trade offs, and 9. assess effects of response measures and best practices

Mr. Baste underlined that this could be done through a regular inter-governmental and multi-stakeholder assessment process, which would not necessarily need the establishment of a new panel. One challenge is to design a conceptual framework for environmental change covering the multidimensional character of the task.

Mr. Baste encouraged the participants to actively use the opportunities offered by inter-linkages, and asked the governments to push institutions to work together!

The role of private business in ecosystem management

James Griffiths
World Business Council for Sustainable Development (WBCSD), Switzerland

The WBCSD is a coalition of 210 leading global companies from 35 countries. 25 major sectors are involved; i) ecosystem based – forestry, water, agriculture, and ii) Ecosystem impacting – mining, oil & gas, cement, construction. The mission of the WBCSD is to provide business leadership as a catalyst for sustainable development.

Ecosystem degradation and loss of ecosystem services is a risk to the business community. Ecosystems are a pre-requisite for sustainable development. Sustainable companies can support biodiversity conservation and help reverse ecosystems degradation by: i) measuring, minimizing and mitigation impacts, ii) innovating new technologies & products that serve as substitutes, reduce degradation or increase efficiency use and iii) catalyzing development of new businesses and markets based on sustainable ecosystem stewardship, management and restoration

Griffiths underlined that partnerships, projects & tools in order to help: 1) Assess, measure & value ecosystems, 2) Reduce business impacts on ecosystems, 3) Explore new business opportunities associated with ecosystem stewardship, 4) Advocate ecosystem governance & policy frameworks to include flexible market approaches and 5) Promote actions leading companies that are addressing ecosystem impacts and better mobilizing their ecosystem assets.

Market-based instruments can achieve some environmental objectives at lower economic cost than conventional approaches, such as uniform pollution standards or technology mandates.
Such mechanisms can supplement conventional approaches to biodiversity conservation and ecosystem management - for instance:

- Direct payments - creating new incentives for resource managers to supply ecosystem services on a sustainable basis
- Tradable permits - using the market to manage new ecosystem rights & liabilities
- Certification - helping customer and consumers make informed choices on the ecosystem based goods & services

To be a good trader of ecosystem services, you need to know that you are selling and buying ecosystem services at full cost, you need to ensure clear ownership and accountability of the ecosystems services that are to be traded, and there must be competition among buyers and sellers.

Finally Griffiths gave a quote from Björn Stigson, WBCSD President: "The value and sustainable use of ecosystem services must be part of economic planning and decision making in society; otherwise nature will always be treated as a second priority compared with economy".

The role of developing countries in global biodiversity governance

Adil Najam
Tufts University, USA

Biodiversity governance is a part of global environment governance (GEG). Najam said that the GEG is in fact a success story, and that we have to i) identify the challenges, ii) analyze the problems and iii) propose reforms to further develop the system.

Najam highlighted the motors of growth (more money, more actors and more rules and norms) and the challenges related to this (-lack of coordination & cooperation, - proliferation, fragmentation, duplication, - Lack of implementation and effectiveness, - ineffective use of resources, - GEG outside environment arenas and – a system that remains state-centric.

The differences (knowledge, resources and "amount" of biodiversity) between north and south should be taken into account in the work on governance. Does GEG take focus and resources away from implementation?

In addressing why the reform-process is slowing down, and what is needed to design reforms Dr. Najam underscored the need for long time vision and strong leadership as well as knowledge, coherence, performance and mainstreaming.

He challenges the participants be quoting Albert Einstein "Imagination is more important than knowledge" and underlined "Don't let the perfect be the enemy of the good!"

SESSION 14 - PANEL DEBATE

THE ROAD TO 2010 AND BEYOND

Session chair: **Jeffrey McNeely**
The World Conservation Union (IUCN), Switzerland

This panel discussion, held on Friday morning, included the following panellists: John Hutton, UNEP WCMC; Maria Berlekom, SwedBio; Sebastian Winkler, IUCN Countdown 2010; Alfred Oteng-Yeboah, IMoSEB; James Griffiths, WBCSD; and Maria Mbengashe, South African Ministry of Environmental Affairs and Tourism.

The panel first discussed scientific information. McNeely said that we may not be on track to reach the 2010 target, but our strategy should be to emphasize the considerable progress that has been made. Oteng-Yeboah elaborated on the IMoSEB process, calling for ideas on how to combine all relevant kinds of knowledge and how to present it in a coherent, policy-relevant and applicable manner. Mbengashe stressed that scientific information needs to be simplified and communicated in a way that is useful at the local and provincial levels. Berlekom underscored the need for indicators that: communicate the link between ecosystems and human well-being; are contextually relevant; and are developed in consultation with the relevant sectors to ensure ownership. Hutton argued that the kind of information that is generated should depend on the specific question that needs to be answered. Griffiths noted that businesses need scientific information that is credible, timely, cross-sectoral, and relevant in the sustainable development context.

Discussion then focused on the 2010 target. McNeely cautioned against dwelling on our failures to achieve the 2010 target. We should instead focus on the many achievements that reflect national commitment to the 2010 target. Numerous processes have begun and capacity has been built in many countries. In moving beyond 2010, we need to involve a broader cast of actors in setting targets, including the private sector, civil society, scientific bodies, and many others in the process.

Winkler said achieving the target requires partnerships, communication and assessment, and drew attention to the need for response indicators. Hutton called for a prioritization of funding and said targets beyond 2010 need to be innovative in order to remain credible. Griffiths underlined efforts to bring ecological issues into the business scenario planning process. Oteng-Yeboah emphasized that the drivers of biodiversity loss need to be addressed, and called for capacity building and improved communication. Mbengashe underlined the importance of cross-sectoral cooperation and mainstreaming biodiversity into all national development issues. Winkler said conservation is traditionally focused on areas outside of cities, despite ongoing urbanization.

Berlekom cautioned against the perception that the 2010 target only concerns the intrinsic value of biodiversity, calling for increased emphasis on ecosystem services, and suggested holding decision makers accountable, both in the North and in the South.

SESSION 15

CLOSING SESSION

Session chair: **Peter J. Schei**

Presentation of Chairman's report with conclusions and recommendations

Peter J. Schei
Fridtjof Nansen Institute, Norway

Chair Schei introduced the conference conclusions and recommendations and a call to interaction, to be taken to the UNFCCC's Bali meetings in December 2007. Denoting that both human wellbeing and development depend on biodiversity and ecosystem services, he underlined steps to respond to current and emerging challenges and opportunities, addressing the climate change, food and health, fisheries and oceans agendas as well as the road to 2010 and beyond. He said the call concludes that the objectives of the UNFCCC, the CBD and the MDGs can only be achieved if there is close cooperation amongst the actors within the regimes.

Closing address by the 2007 chairmen of CBD's Subsidiary body on scientific, technological and technical advice (SBSTTA)

Christian Prip, Denmark and Asghar Mohammadi Fazel, Iran

A closing address was delivered by Christian Prip, Denmark, outgoing Chair of the CBD's SBSTTA. He highlighted discussions held during the 2007 SBSTTA meetings, including: further application of ecosystem approach; implications of the findings of the MA for the CBD; economic incentives for biodiversity conservation; links between climate and biodiversity; and emerging issues, such as biofuels. He said the more challenging discussions had been related to interdisciplinary issues and ecosystem services, including valuation and economic incentives. He expressed confidence that the discussions held at the Trondheim Conference would help take these issues forward, particularly those on the relationships between biodiversity and ecosystem services, and between biodiversity and climate.

In his closing address, Asghar Fazel, Iran, incoming SBSTTA Chair, noted that issues covered in Trondheim will be deepened at the upcoming SBSTTA meeting in Rome. He underscored the take-home messages on health, food, governance and the opportunities that biodiversity brings, urging each delegate to take these home and divulgate them widely to other sectors, be it governments, civil society, the health and food sectors, or business. He said it is everybody's ethical responsibility to find the right communications means to voice these outcomes. He expressed hope that SBSTTA would resume a scientific role and move away from its

current “mini-COP” format, and that the next Trondheim Conference would be held before the 2010 COP.

Closing address

Erik Solheim
Minister of the Environment and International Development Co-operation, Norway

Erik Solheim, Norwegian Minister of the Environment and of International Development, elaborated on the importance of the Conference theme, highlighting the linkages between climate change and biodiversity and the importance of the MA. He welcomed the call from the Conference to the Bali Climate summit in December about the need for closer cooperation between the climate convention and CBD.

He made a tribute to Brazil’s recent environmental achievements and advocated schemes for support from the developed nations to the biodiversity-rich countries in the South. He highlighted the Norwegian Government’s combined portfolio of environment and development, noting their close linkages. Naming the example of climate change, he stressed that the poor are not the ones who are causing climate change, yet they are the ones who suffer most from its consequences. He also elaborated on the linkages between environment and peace. He said the challenge in the South lies in raising living standards without making the same mistakes that have been made in the North.

The Trondheim Conferences on Biodiversity have since 1993 provided an opportunity for policy makers, managers and scientists to have an open and constructive dialogue on key issues being discussed under the Convention on Biological Diversity (CBD).

The title of this fifth Trondheim Conference on Biodiversity will be "Ecosystems and people – biodiversity for development – the road to 2010 and beyond".

The conference is hosted by the Norwegian Ministry of the Environment, in collaboration with the United Nations Environment Programme (UNEP) and the Convention on Biological Diversity Secretariat and with the Ministry of Food and Agriculture, the Ministry of Coastal Affairs and Fisheries and the Ministry of Foreign Affairs.

The conference is organised by the Directorate for nature management, which is the executive and advisory agency on biodiversity issues under the Ministry of the Environment, in collaboration with the Norwegian Institute for Nature Research and the Norwegian University of Science and Technology. These institutions are all based in Trondheim, which is a stronghold on biodiversity research and management in Norway.

Further information is available on the conference home page at: www.trondheimconference.org

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