Preface

We understand importance of forest ecosystem, which has maintained the majority of terrestrial biodiversity. As the CBD target year approaches, the time has come that 191 CBD member parties have to evaluate their achievement of the goal that they agreed to in 2002.Since changes in biodiversity are not simple but complicated with different kinds of organisms, environments, and ecosystems, scientific approaches are essential to help in this evaluation. However, not all regions or countries have worked with this or other approaches because of the difficulty in measuring biodiversity and the undervaluing of its important contribution to ecosystem goods and services. At the same time, forests and forest biodiversity are under tremendous threats by recent changes of the world.Thus, for both assessment of the CBD target and sustainable use of the components of biodiversity, scientific support is greatly needed.

FFPRI with international collaborators (the organizing committee) organize a symposium to promote conservation of biodiversity by education to scientists, policy makers, and societies. In particular, the symposium will try to reach a consensus on key ways to indicate change in biodiversity through various monitoring mechanisms, and provide a unified suggested post-2010 targets or perhaps set of targets to be discussed at the COP 10 meeting of the CBD.

The Policy Context for Global Forest Biodiversity Targets Beyond 2010

Tim Christophersen
CBD Secretariat

The global community has set several policy targets at the multilateral level which are directly or indirectly related to the conservation and sustainable use of forest biodiversity. Such targets currently include the Strategic Plan and the 2010 Biodiversity Target set by the Parties to the Convention on Biological Diversity (CBD), the four Global Objectives on Forests agreed upon under the auspices of the United Nations Forum on Forests (UNFF), and the Millennium Development Goals. There is a high degree of complementarity between these targets. The International Year of Biodiversity (2010) and the International Year of Forests (2011) offer several opportunities to review these targets, and several new targets for the time beyond 2010 have been suggested.

1. Background information on current biodiversity targets

1.1. The Strategic Plan and 2010 Biodiversity Target

The Parties to the Convention on Biological Diversity (CBD) committed themselves 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. In 2002, the Sixth Meeting of the Conference of the Parties to the Convention on Biological Diversity adopted, in decision VI/26, a Strategic Plan for the Convention on Biological Diversity, which sets the goal "to effectively halt the loss of biodiversity so as to secure the continuity of its beneficial uses." This 2010 Biodiversity Target was subsequently endorsed by the World Summit on Sustainable Development in 2002 and was incorporated as a new target under the Millennium Development Goals[1].

Sub-targets of the 2010 Biodiversity Target were later specified in decisions VII/30 in 2004 and VIII/15 in 2006. Decision VIII/15, in particular, outlined specific forest-related indicators for the 2010 target, including:

- *At least 10% of each of the world's forest types are effectively conserved;*
- *Areas of particular importance to forest biodiversity protected in the most threatened and vulnerable forest ecosystems through comprehensive, effectively managed and ecologically representative national and regional protected area networks;*
- *Populations of forest species of threatened and most vulnerable taxonomic groups restored, maintained, or their decline substantially reduced;*
- *Conservation status of threatened forest species substantially improved;*
- *Genetic diversity of valuable forest species, and other species providing non-timber forest products, conserved and associated indigenous and local knowledge is protected and maintained;*

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[1] Under Goal 7: "Ensure environmental sustainability", cf.
http://www.un.org/millenniumgoals/environ.shtml

- *Forest goods and services are derived from sources and concessions managed according to the principles of sustainable forest management including conservation of biological diversity;*
- *Unsustainable consumption of biological resources, and its impact upon forest biological resources, reduced;*
- *No species of forest flora or fauna, including timber species, endangered by international trade;*
- *The current rate of forest loss, degradation, and conversion to other land uses are substantially reduced and the impact on forest biodiversity of human-induced uncontrolled/unwanted forest fires substantially reduced;*
- *Pathways for major potential invasive alien species in forest ecosystems identified and controlled;*
- *Management plans in place and implemented for invasive alien species that are considered a significant threat to forest ecosystems, habitats or species;*
- *Resilience of the components of biodiversity to adapt to climate change in forest ecosystems maintained and enhanced;*
- *The adverse impact of pollution on forest biodiversity substantially reduced;*
- *The impact on forest biodiversity of human-induced uncontrolled/unwanted forest fires substantially reduced;*
- *Capacity of forest ecosystems to deliver goods and services maintained or improved;*
- *Forest biological resources that support sustainable livelihoods, local food security and health care, especially of poor people dependent upon forests, maintained;*
- *Measures to protect traditional knowledge, innovations and practices associated with forest biological diversity implemented, and the participation of indigenous and local communities in activities aimed at this promoted and facilitated;*
- *Traditional knowledge, innovations and practices regarding forest biodiversity respected, preserved and maintained, the wider application of such knowledge, innovations and practices promoted with the prior informed consent and involvement of the indigenous and local communities providing such traditional knowledge, innovations and practices, and the benefits arising from such knowledge, innovations and practices equitably shared;*
- *Benefits arising from the commercial and other utilization of forest genetic resources shared in a fair and equitable way with the countries providing such resources in line with the Convention on Biological Diversity and its relevant provisions;*
- *New and additional financial resources from public, private, domestic and/or international sources are transferred to developing country Parties, to allow for the effective implementation of their commitments under the expanded programme of work on forest biological diversity, in accordance with Article 20;*
- *Environmentally sound technology is transferred to developing country Parties, to allow for the effective implementation of the expanded programme of work on forest biological diversity under the Convention, in accordance with its Article 20, paragraph 4, and Article 16.*

1.2 Other forest-related international targets

The United Nations Forum on Forests (UNFF), at its sixth session (UNFF-6) in February 2006, agreed on four 'Global Objectives on Forests':

1. to reverse the loss of forest cover worldwide through sustainable forest management (SFM), including protection, restoration, afforestation and reforestation;
2. to enhance forest-based economic, social and environmental benefits and the contribution of forests to the achievement of internationally agreed development goals;
3. to increase significantly the area of protected forests worldwide and other areas of sustainably managed forests;

4. and to reverse the decline in official development assistance (ODA) for SFM and mobilize significantly increased new and additional financial resources from all sources for the implementation of SFM.

The members of the Forum, in the framework of the Multi-Year Programme of Work of the UNFF, are scheduled to report on progress towards these objectives by 2015. A high degree of overlap and complementarity between the four global objectives and the 2010 CBD Biodiversity Target and indicators exist, for example in the aim to increase the area of protected forests worldwide.

The Millennium Development Goals (MDGs) were adopted by the UN General Assembly in Resolution 55/2 "United Nations Millennium Declaration". Goal 7 of the MDGs aims to 'ensure environmental sustainability', and includes target 7b to achieve, by 2010, a significant reduction in the rate of biodiversity loss, with one of the indicators being the proportion of land area covered by forest. At the country level, indicators have been set by several countries, including Mongolia, which aims to increase forest cover from 8.2% to 9.0% from 2000 to 2015, and Bhutan, which aims to maintain at least 60% of the country under forest cover in perpetuity. The Global Forest Resources Assessment of FAO is the predominant source of data for the evaluation of such targets related to the quantity and quality of the world's forest resources.

At a regional level, the European Union adopted at the Gothenburg EU summit in June 2001, a target to "restore habitats and natural systems and halt the loss of biodiversity by 2010."

2. Post-2010 Processes

A preliminary evaluation of the 2010 Biodiversity Target in the third edition of the Global Biodiversity Outlook (GBO-3) suggests that while the overall target has not been met, significant achievements have been triggered by the 2010 political commitment and the resulting public and decision-maker awareness of the importance of biodiversity. Therefore, setting new political targets on biodiversity beyond 2010, including on forest biodiversity, will be important. The third meeting of the CBD Ad-Hoc Open Ended Working Group on Review of Implementation of the Convention (WGRI 3) will be held from 24-28 May 2010, in Nairobi, and will aim to identify post-2010 targets as part of new Strategic Plan, prior to the tenth meeting of the Conference of the Parties (COP-10), to be held in Nagoya, Japan, from 18-29 October 2010. The Conference of the Parties will presumably adopt the new Strategic Plan at COP-10. Moreover, the UN General Assembly Session in September 2010 may also discuss the post-2010 target.

3. Suggested Forest Biodiversity Targets for Beyond 2010

At the ninth Conference of the Parties, in May 2008, the representatives of 67 countries and others including the Executive Secretary of the CBD, signed a WWF-initiated target to achieve '**Zero Net Deforestation by 2020.'** WWF subsequently worked through its country offices to encourage inclusion of the target into national policies.

The European Union, at the Council conclusions of December 2008, adopted a target to 'halt global forest cover loss by 2030 at the latest and to reduce gross tropical deforestation by at least 50 % by 2020 compared to current levels'.

Other similar targets have been suggested and may be further discussed at WGRI-3, SBSTTA-14, COP-10, and other fora.

4. Needs for Scientific Information

Monitoring the achievement of a political target requires sufficient scientific data and knowledge. Monitoring of the 2010 biodiversity target initially suffered from a lack of data a lack of methodologies to analyze available data, and a lack of agreements on clear indicators.[2] However, the scientific community has responded to the need for scientific information corresponding to the political targets, for example through the establishment of the 2010 Biodiversity Indicators Partnership (www.twentyten.net) and similar initiatives, projects, and fora. Several international research projects and consortia, as well as the review of the National Biodiversity Strategies and Action Plans (NBSAPS) of the CBD, were conceptualized to focus on the 2010 targets.[3]

Despite the improvements in data availability and criteria and indicators to measure the achievement of the three objectives of the CBD, further research and development needs exist. In relation to forest biodiversity, these include:
- further improving the monitoring of forest biodiversity at the national level (in particular in developing countries), using easy-to-use yet robust methods;
- refining and/or operationalizing the definitions of certain terms, such as forest degradation and the classification of forest types;
- analyzing the patterns of success or failure at the national and local level in reducing or halting the trend of forest biodiversity loss;
- providing early indications of the feasibility of medium- or long-term political targets related to forest biodiversity, such as the potential for large-scale forest landscape restoration.

Opportunities for the scientific community to provide policy-relevant information to decision makers in a timely manner in 2010 and 2011 include providing information on above listed aspects to CBD SBSTTA-14 (13-21 May 2010, Nairobi), WGRI-3 (24-28 May 2010, Nairobi), COP-10 (18-29 October, Nagoya, Japan) and UNFF-9 (24 January - 4 February 2011, New York City). Inputs may be provided in the form of side events or information papers submitted through the CBD Secretariat or through Parties. There may also be opportunities to comment on draft documents for the new CBD Strategic Plan or

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[2] See inter alia report Balmford A., Crane P., Dobson A., Green R.E., and G.M Mace. (2005) The 2010 challenge: data availability, information needs and extraterrestrial insights. *Philosophical Transactions of the Royal Society B*. 360: 221–228

[3] See UNEP/CBD/NBSAP/CBW-CA/1/3 on Updating National Biodiversity Strategies and Action Plans, Mainstreaming Biodiversity, Communication and Reporting

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the main messages of the International Year of Biodiversity (2010) and the International Year of Forests (2011).

Forest biodiversity networking: experience in urban context from Aichi Nagoya

Ryo Kohsaka
Nagoya City University

Environmental activities at local and global levels are increasingly regarded as a key for the sustainability. Issues related to biodiversity are not exception. The 2010 target under the framework of Convention on Biological Diversity calls for actions at all level of the global, regional and local stage.
The challenges facing local level, in particular at individual cities level, were highlighted during the city and biodiversity conference in Bonn, held as part of the 9th meeting of the Conference of the Parties to the Convention on Biological Diversity.

Challenges are important also from global perspective as the number of urban residents increase worldwide. According to the State of the World's Cities 2006/7 prepared by the United Nations Human Settlements Programme (UN-HABITAT), 2007 marks the year in which, for the first time in history that more than half of the world's population lives in cities.
      In this paper, experiences of developing local biodiversity strategy and possible index in Nagoya, Japan, are presented in order to share experiences for developing the City Biodiversity Index (CBI) (spearheaded by the Singaporean government and other partners).

Assessment of sustainable forest management, biodiversity and human health aspects in forests and forestry

Jari Parviainen
Finnish Forest Research Institute

The modern concept of forest sustainability will soon be 20 years old. Based on the UNCED Rio Declaration (1992) sustainable forest management (SFM) simultaneous respects to ecological, economic and social aspects. There exists a tight connection between the SFM and Convention of Biological Diversity 1992 (CBD) ecosystem approach (EA) definitions. The SFM can be considered as a means of applying the ecosystem approach to forest, as it is applied in the pan-European region.

Based on the sustainability concept the basic criteria and indicators has been created in order to assess the state of forests and to monitor the changes in the forests as the result of the implementation of the forest policy. To date, a total of nine intergovernmental regional sets of criteria and indicators for various forest zones and in Total 185 countries have been developed. The seven criteria included in the SFM are: Extent of forest resources, Forest health and vitality, Productive functions of forests, Biological diversity, Protective functions of forests, Socio-economic benefits and needs, Policy and institutional framework. Biological diversity is seen as one important component of SFM, and can be evaluated in pan-European area as a bundle of nine indicators from the total 35 SFM indicators: tree species composition, regeneration, naturalness, introduced tree species, deadwood, genetic resources, landscape pattern, threatened forest species and protected forests.

The **national reports** based on criteria and indicators provide a balanced compendium of information on the status and trends of sustainable forest management. The national forest reports provide information for forest policy, forest management as well as for forest research and education purposes regarding all elements of sustainability. While demand for this kind of reporting is increasing, the aim should be that the forest indicators information can be reported and verified, and then used for many different purposes. The use of forest indicators for other sectors' uses and reports such as water, energy, mining, biodiversity, agriculture and public health is very important for synergies and awareness of forest issues.

The human health aspects should be logically linked on the same manner as the other forest functions with the forest sustainability. However, the physical and mental aspects of human health as well as diseases depending on the forest structures and conditions are not covered comprehensively and an operational way by the present assessment tools. The health aspects in the forest context need more multidisciplinary research and clarifying the cause factors between forest management, biodiversity and human health. By combining the health indicators of Health Impact Assessment (HIA) and forest indicators of SFM an integrated health assessment tool for forests can be developed.

A result of Japanese forest biodiversity assessment and suggestion of potential indicators from long-term field researches

Kimiko Okabe
Forestry and Forest Products Research Institute

Today, biodiversity loss is occurring in ecosystems all over the world. Regarding forests, 3.1% of total forest cover was lost between 1990 and 2005 (FAO report), suggesting that many forest-dependent species were also lost. The Convention on Biological Diversity commits 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 (the 2010 target). The target implies that there is an ultimate goal for biodiversity conservation, but how to achieve the goal is a huge challenge for society. The first step is to assess past biodiversity loss at the global, regional and national level and to continue monitoring biodiversity.

The biodiversity of Japanese forests has not been assessed before. For both chronological and spatial analyses, we decided to use the Living Planet Index (LPI) developed by WWF because the index clearly demonstrates average trends in populations of organisms, can be used at the national level, and not only population density data but also several other types of ecological information (population size, biomass or number of nests) can be used for the analysis. We analyzed data of the distributions of medium- to large-size mammals and birds yielded by the Ministry of the Environment's national survey of the natural environment, which was conducted twice (1970s and 1990s) to ensure reliability of species identification. While the distributions of mammals increased from the 1970s to the 1990s, those of migrating and young-forest (< 8 yr) dependent birds decreased. We suspect that the distributions of mammals increased because of the decline in the number of hunters. Regarding birds, we estimate that young-forest-dependent species decreased but mature-forest-dependent species increased because Japanese forestry has been in decline since the 1970s and many forests have become mature. Migrating birds decreased probably due to the loss of other habitats, such as forest cover in Southeast Asia. We conclude that not only forestry but also social activities bring changes in biodiversity.

Based on our researches including these analyses, and criteria and indicators reported by FFPRI, we recommend using ecological information of forest ecosystems for monitoring trends in biodiversity, forest types, ages (successional level), and area of each, which are indicators of the criteria for conserving forest biodiversity under the Montreal Process.

Beyond Timber: Making Multiple-Use Forest Management in the Tropics

Robert NASI
Manuel Guariguata
Center for International Forestry Research

Multiple-use forest management is considered by many as a preferable alternative to single-use (generally timber-dominant) management models. In the Tropics, integration of timber and non-timber forest resources plays a key role in the subsistence and market economies of rural communities, enhancing their well-being and reducing economic risk. This is however largely happening as an informal sector economy. Managing for multiple use in "legal" designated land-use types (industrial logging concessions, protected areas or cash-crop plantations) appears hampered by the spatial overlap of different interests and bargaining power, the multiple-uses of some favorite timber species, inadequate institutional support, inappropriate policies and incentives, poor law enforcement and unclear (or at least unrecognized) tenure and use rights. This paper explores the main land-use and management models in various tropical forest ecosystems. Most of the current land-use types and associated management models focus on only one or two goods or services in one management unit while, for the most advanced, trying as much as possible to reduce disturbance and degradation of the other non-managed forest goods and services. The only 'true' multiple-use management system appears to be traditional shifting cultivation but this is not a forest land use and it induces important changes in the flora and fauna. A few promising but yet 'unfinished' examples of multiple-use management models do exist. We contend however that true multiple-use could be realized through new innovative land-use units, integrated production and conservation territories, allowing a spatial cohabitation of the interests of local people, conservation proponents and extractive industries in the same land-use unit.

Among many processes, targets, and indicators used for forests, which ones are actually useful?

Ian Thompson
Canadian Forest Service

To be 'useful' an action should contribute to the long term conservation and sustainable use of forests, locally, regionally, or globally. Useful also means helping to maintain forest biological diversity. Governments develop policies, protected areas and legislation as a means to halt the decline of biodiversity. International processes attempt to provide advice and expect parties to act. However, results of using these tools are most often not monitored to determine whether or not they are effective. A CBD expert group reviewed and proposed various indicators for measuring the use and protection of biodiversity in forests and found very few for which data were available and suggested that the FAO was the best data source for the majority. Similarly, the Biodiversity Indicators Partnership developed global indicators, again noting the FAO as the main data source for most. Indicators from the Montreal Process deal with sustainable forest management but the process seems moribund at present. The so-called footprint calculations are subjective and correlated with population density. Indicators applied at a regional scale are only partly helpful because there are no national implications. What is needed is clear targets for goods and services in forest ecosystems, based on the MEA, at national scales, with indicators that are measurable to provide trend data on sustainable use. The CBD AHTEG suggested as the main indicators: number of threatened species, change in forest area, amount of primary, semi-natural, etc. forest, fragmentation, production forest area, % area forest protected, and area certified. From among these the BIP uses 5 of these 7, and FAO can provide national level data for all. These are useful indicators, but the material needs to be assembled and provided to national governments as a sort of audit function. Among the CBD targets, the most imperative is from 8.1: *"Capacity of ecosystems to deliver goods and services maintained."* Elevating this as the main CBD target is useful because it implies conservation and sustainable use to protect ecosystems.