Managing forests and water – workshop in China

The water budget of forest ecosystems depends heavily on climate, site and forest structure. Forest structure is strongly influenced by forest management measures such as tree species selection, stand structure and density management, and harvesting methods.

Although the water cycle in forest stands is well understood, the role of forests in sustainable management of water resources and flood mitigation is often debated, as is the development strategy of promoting afforestation.

To help ground the debate in reliable science, from 12 to 16 November 2007 the Chinese Academy of Forestry hosted the workshop "Water Management through Forest Management", jointly organized with the Forest Ecosytems Research Center of Goettingen University, Germany under the International Union of Forest Research Organizations (IUFRO) Division 8.01.04 – Water supply and quality. Held in Beijing, China, it was attended by 77 participants from 11 countries.

The workshop explored relations of forest management to two important aspects of water supply: provision of high-quality water to humans and water supply to the forest itself. The balance between available water and the water demands of forests has been less researched but is of great importance as many countries step up forest planting for carbon fixation, energy and wood supply and environmental restoration.

Presentations were grouped in five sessions:

- Impact of forest management on water quality and quantity;
- Soil water and water use;
- Forest and water management under changing climate;
- Application of ecohydrological models – including their potential use in development of decision-support tools;
- Strategy and research for integrated forest and water management.

The rapidly changing climate and forestry development may put the water-related functions of forests at risk. Increased drought stress may weaken the stability of the forest itself. Although answers are still needed on how to integrate management of forests and water to solve the varied problems of different regions, this workshop identified gaps in knowledge to help shape future research in integrated forest-water management, and represents a positive step in overcoming the prevailing monosectoral approaches.

Ministers responsible for forests in Europe adopt resolutions on wood energy and water

The fifth session of the Ministerial Conference on the Protection of Forests in Europe (MCPFE), "Forests for Quality of Life", concluded with a ministerial declaration and resolutions on promotion of wood as a source of renewable energy and forest's role in water protection in the context of climate change.

The conference, held in Warsaw, Poland from 5 to 7 November 2007, was jointly organized by Poland and Norway and attended by delegations from over 40 European countries, including

FAO/ FO-6585/M. KASHIO

16 ministers responsible for forests and forestry. Discussions emphasized the role of forests in modern life in the face of challenges from socio-economic development, human pressure on natural resources and the consequences of climate change.

Lech Kaczyński, President of Poland, opened the conference, drawing attention to the need to reconcile economic development with protection of the natural environment.

The report *State of Europe's Forests 2007,* jointly prepared by the MCPFE Liaison Unit Warsaw, FAO and the United Nations Economic Commission for Europe (UN-ECE), was presented at the conference. It indicates that both the area of forests in Europe and their productive potential are increasing. Over the past 15 years, the region has gained 13 million hectares of forest, an area the size of Greece. The quantity of wood resources is also steadily growing.

Forty MCPFE signatories adopted two resolutions for implementation at the national level. Warsaw Resolution 1, "Forests, wood and energy", obliges States to increase the forest sector's role in energy production and the use of forest biomass for renewable energy to reduce greenhouse gas emissions. Noting the increasing competition in demand for wood for energy and industry, it calls for enhanced partnership of public and private forest owners, wood industry and energy producers.

Warsaw Resolution 2, "Forests and water", stresses the role of forests in protecting the quality and quantity of water, preventing floods, mitigating the effects of drought and counteracting soil erosion. Countries make a commitment to manage forests sustainably in relation to water; to coordinate policies on forests and water; to develop knowledge and strategies related to consequences of climate change on forest and water interactions; and to further the economic valuation of water-related forest services.

In the Warsaw Declaration, countries pledge to undertake further activities towards implementation of sustainable forest management as an indispensable element of sustainable development. The declaration recognizes the importance of forests in improving quality of life, and commits countries to enhance the contribution of forests and sustainable forest management in combating climate change, conserving biological diversity, providing renewable energy and

wood products, ensuring quality water supply and mitigating natural hazards and environmental degradation. Furthermore, it emphasizes collaboration of MCPFE with other regional processes, with synergies to facilitate a consistent Pan-European input to international initiatives.

In addition, delegates adopted ministerial statements on forest fires in South Europe and on a Pan-European Forest Week, to be held in October 2008, organized jointly by FAO, the United Nations Economic Commission for Europe (UNECE), the European Union and MCPFE.

The previous Ministerial Conferences were held in Strasbourg (1990), Helsinki (1993), Lisbon (1998) and Vienna (2003).

Forests in evidence at Bali climate change meetings

The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), released in 2007, indicates that in the 1990s nearly one-fifth of greenhouse gas emissions resulted from land-use change, primarily deforestation. This awareness has raised the prominence of forest conservation and sustainable forest management in global climate change discussions, and in particular in recent negotiations under the United Nations Framework Convention on Climate Change (UNFCCC).

The United Nations Climate Change Conference, which included sessions of the Conference of the Parties (COP-13) to UNFCCC, its subsidiary bodies and the Meeting of the Parties to the Kyoto Protocol, was held in Bali, Indonesia from 3 to 14 December 2007. The combined meetings drew more than 10 000 participants. The role of forests was discussed intensively. COP-13 culminated in the adoption of the Bali Action Plan, which outlines actions to 2012 and beyond.

Forest-relevant decisions

The Bali Action Plan specifies an area for action related to forests: "Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries".

The COP also adopted a specific decision on reducing emissions from deforestation and degradation (REDD), which emphasized the urgency of taking further meaningful action to reduce emissions from deforestation and forest degradation in developing countries. Parties are encouraged to explore a range of actions to address the drivers of deforestation, including through demonstration activities. The UNFCCC Subsidiary Body for Scientific and Technical Advice (SBSTA) is requested to undertake a programme of work on methodological issues related to policy approaches and positive incentives.

Furthermore, the COP adopted a decision revising the limit for small-scale afforestation and reforestation project activities under the Clean Development Mechanism (CDM) – an effort to stimulate more small-scale projects of this type. The decision increases the upper limit of annual greenhouse gas removals eligible for emission reduction credits from 8 to 16 kilotonnes.

The conference approved an adaptation fund to improve the defences of poor and vulnerable countries against the effects of climate change. The fund is intended to finance adaptation projects such as improved water supplies for drought-prone areas and conservation and restoration of mangroves for coastal protection. The fund will be administered by the Global Environment Facility and overseen by representatives from both industrialized and non-industrialized countries. Funding will come from a 2 percent levy on revenues generated by the CDM and thus will not depend on aid budgets.

Forest Day

To draw attention to forest issues and inform the discussions related to forests under negotiation at COP 13, on 8 December 2007 the Center for International Forestry Research (CIFOR) organized a Forest Day which was co-hosted by the partners of the Collaborative Partnership on Forests (CPF). Four main sessions addressed methodological challenges in estimating forest carbon; market and governance; equity versus efficiency; and adaptation. In addition 25 side events focused on diverse climate-change related topics, including carbon emission abatement costs from reduced deforestation; the future of the land-use sector in carbon markets; funding for REDD; biofuels for climate change mitigation; and national experiences in baseline analysis of deforestation. Forest Day was attended by more than 800 people, including scientists, policy-makers and representatives of intergovernmental and non-governmental organizations.

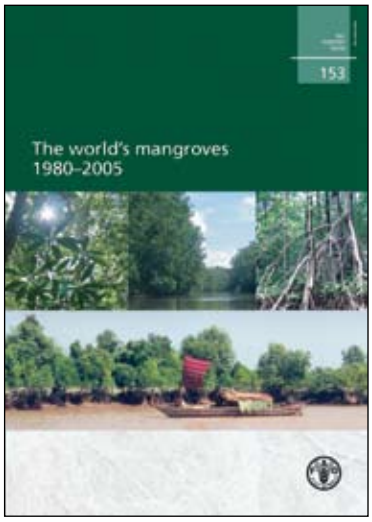
CPF presented key recommendations to the Executive Secretary of UNFCCC related to the role of forests in combating climate change, including the need for:

- addressing the drivers of deforestation, including those beyond the forest sector, for the success of mechanisms based on REDD;
- a combination of market and governance-based approaches;
- simple mechanisms with low transaction costs;
- clarified land rights and legal rights to carbon to ensure equity in the distribution of benefits from REDD;
- immediate adaptation focused on the most vulnerable, including forest-dependent people.

Initiatives launched in support of reducing emissions from deforestation and forest degradation

The World Bank launched the Forest Carbon Partnership Facility (FCPF), a ten-year initiative to establish a forest carbon market that economically favours forest conservation and benefits developing countries. Nine industrialized countries have pledged US$155 million to start. Currently, developing countries cannot sell carbon credits from avoided deforestation or degradation; however, FCPF will support pilot efforts intended to help inform related decisions for the post-2012 climate change regime and for a potential carbon market mechanism.

Also at Bali, the Government of Norway announced that it is ready to provide funding of 3 billion kroner (about US$570 million) per year over a five-year period to support REDD efforts.



Two new FAO books on mangroves: a global assessment...

The world's mangroves 1980–2005. 2007. FAO Forestry Paper 153. Rome, FAO.

Mangroves are coastal forests found in sheltered estuaries and along river banks and lagoons in the tropics and subtropics. The term "mangrove" describes both the ecosystem and the plant families that have developed specialized adaptations to live in this tidal environment. Mangroves fulfil important socio-economic and environmental functions: providing wood and non-wood forest products, protecting shores against wind, waves and water currents; conserving biological diversity; protecting coral reefs, sea-grass beds and shipping lanes against siltation; and providing habitat, spawning grounds and nutrients for a variety of fish and shellfish, including many commercial species. High population pressure in coastal areas has, however, led to the conversion of many mangrove areas to other uses, including infrastructure, aquaculture, rice and salt production.

This publication, prepared as a thematic study within the framework of the Global Forest Resources Assessment 2005, provides comprehensive information on the current and past extent of mangroves in all 124 countries and territories in which they exist. It presents both regional and global overviews of mangrove vegetation, species composition and distribution, together with an indication of the main uses and threats in each region.

FAO prepared *The world's mangroves 1980–2005* in collaboration with mangrove specialists throughout the world. It builds on a 1980 assessment by FAO and the United Nations Environment Programme (UNEP), the FAO Global Forest Resources Assessment 2000 (FRA 2000) and 2005 (FRA 2005) and an extensive literature search. Some 2 900 national and subnational data sets on the extent of mangrove ecosystems were collected during the process.

The results indicate that global mangrove area is currently about 15.2 million hectares, with the largest areas found in Asia and Africa, followed by North and Central America. An alarming 20 percent of mangrove area, or 3.6 million hectares, has been lost since 1980. More recently, the rate of net loss appears to have slowed down, reflecting an increased awareness of the value of mangrove ecosystems, but the annual rate of loss is still disturbingly high.

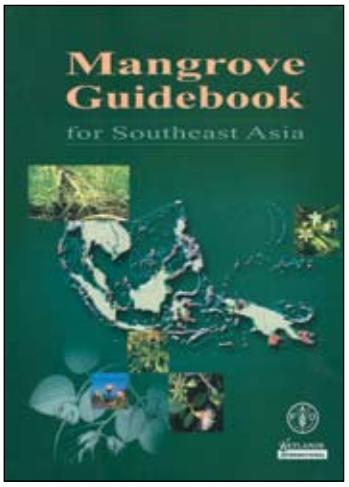
Removals of wood and non-wood forest products are rarely the main cause of mangrove loss. Human pressure on coastal ecosystems and the competition for land for other uses are the main causes of the decrease in area reported. The relatively large negative change rates that occurred in Asia, the Caribbean and Latin America during the 1980s, for example, were primarily due to large-scale conversion of mangrove areas to aquaculture and tourism infrastructure.

The information highlighted in the report, as well as the gaps in information revealed, will assist mangrove managers and policy- and decision-makers worldwide in ensuring the conservation, management and sustainable use of the world's remaining mangrove ecosystems.

...and a species guidebook for Southeast Asia

Mangrove guidebook for Southeast Asia. W. Giesen, S. Wulffraat, M. Zieren & L. Scholten. 2006. RAP Publication 2006/07. Bangkok, Thailand, FAO Regional Office for Asia and the Pacific & Wetlands International. ISBN 974-7946-85-8.

Southeast Asia is endowed with the world's largest expanse of mangroves which are at the same time the world's most biologically diverse and varied in structure. In the past few decades, however, much of the mangrove area has been degraded and destroyed. Many mangrove conservation and rehabilitation programmes have been launched in recent years. In the course of such activities, programme staff have faced continual difficulties in identifying plant species growing in the field. This field guide to the mangroves and associated plant species of the subregion was developed to fill an important gap.



This extensive guidebook – almost 800 pages long – represents the first attempt to cover all mangrove plant species in Southeast Asia. In the first part, it introduces mangroves in general and Southeast Asia's mangroves in particular. The second part provides descriptions of 268 plant species divided in seven groups – ferns; grasses and grasslike plants; other ground-dwelling herbs; epiphytes; vines and climbers; palms, cycads and pandans; and trees and shrubs. Skillfully drawn black-and-white illustrations of the plants greatly enhance the usefulness of the book.

This book will help more people, especially students, learn about mangrove forests in Southeast Asia and will support further advancement of mangrove conservation and rehabilitation programmes. It is a useful tool for mangrove forest managers, foresters, coastal resource managers, scientists, educators, students and interested lay people, not only in Southeast Asian countries, but in all countries where mangroves grow.

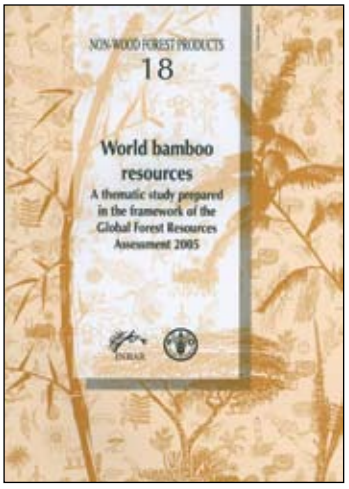
Global assessment of bamboo resources

World bamboo resources. M. Lobovikov, S. Paudel, M. Piazza, H. Ren & J. Wu. 2007. Non-Wood Forest Products No. 18. Rome, FAO. ISBN 978-92-5-105781-0.

Bamboo is a woody grass widely distributed in tropical, subtropical and mild temperate zones in all regions of the world. As a major non-wood forest product and wood substitute, it has always had an important economic and cultural role across Asia. Now the use of bamboo is growing rapidly in Latin America and Africa as well. In some countries, the processing of bamboo is shifting from low-end crafts and utensils to high-end, value-added commodities such as housing, pulp, paper, panels, boards, veneer, flooring, roofing, fabrics, oil, gas and charcoal (for fuel and as an excellent natural absorbent). The bamboo shoot is also a nutritious vegetable. Bamboo is an increasingly important economic asset in poverty eradication and economic and environmental development.

Bamboo is a forest plant but is also widespread outside forests, including on farmlands and riverbanks, along roads and in urban areas. Taxonomists still debate the total number of bamboo species and genera – an estimate is about 1 200 species in some 90 genera.

This study, prepared by FAO jointly with the International Network for Bamboo and Rattan (INBAR), was undertaken as one of seven thematic studies within the Global Forest Resources Assessment 2005 (FRA 2005) process and is a first attempt at systematic reporting of the best available information on bamboo resources and utilization at the global level. The study is the result of a three-year process of data collection and validation involving many partners from participating countries and international organizations, in line with the FRA 2005 philosophy of global partnership. Although data availability and quality are often weak, the main value of the study is that it established a systematic methodology and launched the most comprehensive assessment of global bamboo resources to date.



Sixteen countries in Asia reported a total of 24 million hectares of bamboo resources. Five African countries reported 2.8 million hectares. It is estimated that ten Latin American countries may have over 10 million hectares of bamboo resources, bringing the world total to some 37 million hectares or roughly 1 percent of the global forest area. However, the figures represent only rough estimates. They also include bamboo mixed with other species (in which bamboo is not necessarily predominant) and bamboo on non-forest land (including mixed with other trees or crops).

The publication also reports on species diversity, growing stock, biomass, removals, ownership and health status of the resource, and on bamboo products and trade.

It is hoped that the information and knowledge generated by this study will be useful to national policy processes, and that feedback from users will help improve future global resources assessments.

Tracing the causes of illegal logging

Illegal logging: law enforcement, livelihoods and the timber trade. L. Tacconi, ed. 2007. London, UK, Earthscan. ISBN 978-1-84407-348-1.

Illegal logging is widespread – accounting for more than 50 percent of all timber in some countries – and causes great damage. Once cut, illegal logs feed the great demand for exotic hardwoods in developed and developing countries. The result has been an enormous loss of both revenue and forest resources. Consequently the issue has risen to the top of the global forest policy agenda as one of the major threats to forests, and donors and national governments are starting to develop initiatives to combat illegal logging. Yet considering the magnitude of the problem, surprisingly little is known about the causes of illegal logging and its impacts on biodiversity, people's livelihoods and national economies.

Paradoxically, despite the negative impacts, illegal logging also benefits many stakeholders, including some marginalized

communities. How can illegal logging be tackled without causing poverty in local communities? This book, published with the Center for International Forestry Research (CIFOR), examines the key issues including legislation and law enforcement, supply and demand, governance and corruption, forest certification, poverty, local livelihoods, international trade and biodiversity impacts. It includes key case studies from forest-rich regions in the Americas, equatorial Africa and Asia.

Illegal logging can only be tackled by addressing the underlying economic, political and social causes. While there are clearly no easy answers, this book explores the many dimensions of the causes, impacts and implications of illegal logging for forests, people, livelihoods and forest policy. While much is still unknown about the subject, *Illegal logging* adds to the growing literature, highlighting the key issues that must be understood in order to develop policy that can make a difference.

Revisiting the state of the environment

GEO-4: Global environment outlook – environment for development. 2007. Nairobi, Kenya, United Nations Environment Programme (UNEP). ISBN 978-92-807-2836-1 (paperback), 978-92-807-2872-9 (hardback)

The 1987 report of the United Nations World Commission on Environment and Development report, *Our common future* (also known as the Brundtland Report), is widely credited for introducing sustainable development into the public consciousness. The fourth edition of *Global environment outlook (GEO-4)* takes stock of how far society has come in the 20 years since. The picture is grim, showing evidence of decline almost all across the board: more greenhouse gases, more widespread pollution, declining availability of freshwater, deforestation, degradation of farmland, depletion of natural resources, acidification of oceans.

Compiled and written by hundreds of researchers from a great variety of disciplines, *GEO-4* provides an overview of global social and economic trends and the state and trends of the global and regional environment over the past two decades, as well as the human dimensions of these changes. The publication reminds readers that issues of forestry, freshwater supplies, agriculture, biodiversity and desertification are connected to each other and to climate change. It also explores the links between social trends and environmental decline, examining how increasing population pressure and the increasing divergence between rich and poor influence the environment – resulting for example in more deforestation.

As defined in *Our common future*, "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs". *GEO-4* finds, however, that current human society tends to focus on meeting the needs of the present, and in doing so is indeed compromising the ability of future generations to meet their own needs.

The nearly 600 page publication is divided in six sections. The first summarizes the evolution of issues since 1987. The second section describes the state and trends of the environment from 1987 to 2007, with separate chapters devoted to atmosphere, land, water and biodiversity. The state of forests is extensively explored in the chapter on land.

Section C presents the environmental status and trends from a regional perspective. Section D explores the human dimensions. One chapter probes areas of vulnerability and identifies opportunities for improving human well-being, while another examines environmental interlinkages and governance needs. The fifth section looks forward to 2015 and beyond; and the last summarizes options for action, categorizing possible solutions along a continuum from proven to emerging.

GEO-4 provides an outlook for the future and policy options to address present and emerging environmental issues. It will be of interest to policy-makers, professionals and academics in many sectors, as well as to the wider public.