



Forests for the New Millennium

MAKING FORESTS WORK FOR PEOPLE AND NATURE

EDITORS

Gerardo Mery

René Alfaro

Markku Kanninen

Maxim Lobovikov

Heidi Vanhanen

Charlie Pye-Smith

LAYOUT

Jaakko Pesonen

PUBLISHED BY

Ministry for Foreign Affairs of Finland

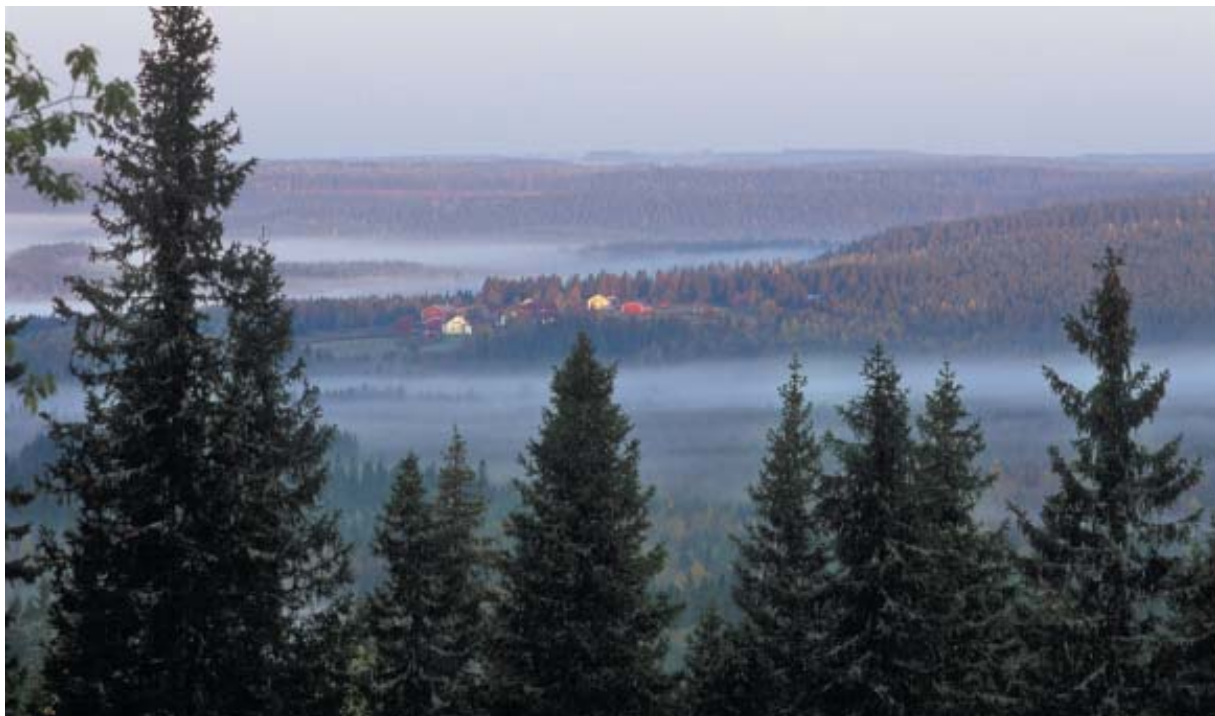
International Union of Forest Research Organizations

ISBN 951-724-487-8

PRINTED BY

F.G. Lönnberg 2005

1. THE WAYS IN WHICH FORESTS ARE PERCEIVED AND USED HAVE CHANGED DRAMATICALLY OVER RECENT YEARS. FORESTS ARE NO LONGER SEEN SIMPLY AS A SOURCE OF TIMBER, BUT AS COMPLEX ECOSYSTEMS WHICH SUSTAIN LIVELIHOODS AND PROVIDE A RANGE OF PRODUCTS AND ENVIRONMENTAL SERVICES. IT IS NOW WIDELY RECOGNISED THAT FORESTS CAN CONTRIBUTE TO RURAL DEVELOPMENT AND POVERTY ALLEVIATION.



1.

TABLE OF CONTENTS

Foreword	4
Why Forests Matter	7
Improving Livelihoods and Human Well-being	10
Maintaining Healthy Ecosystems	16
Integrating Forestry with Other Sectors	20
Sharing the Benefits of Forests and Trees	26
Towards Better Forest Governance	30
Afterword and Credits	36



2.

Forests for the New Millennium is based on the activities of the Special Project on World Forests, Society and Environment of the International Union of Forest Research Organizations (IUFRO). Since 2002, the project has been working with experts from around the world on a major analysis of the changes which are taking place in the world's forests, and the links between forests, human society and the wider environment. Over 100 authors - foresters, ecologists, economists, anthropologists, policy scientists - have contributed to the project's main output, a book titled *Forests in the Global Balance - Changing Paradigms*. This policy brief, *Forests for the New Millennium*, is the result of a long creative debate, and it provides a consensus view of the policies which are required if forested land is to be managed more sustainably for the benefit of both people and nature.

2. NATURAL RESOURCES CANADA AND IUFRO'S SPECIAL PROJECT ON WORLD FORESTS, SOCIETY AND ENVIRONMENT (WFSE) JOINTLY ORGANISED AND CO-HOSTED A SCIENCE AND POLICY WORKSHOP IN VICTORIA, BRITISH COLUMBIA, CANADA, IN JANUARY 2005. THIRTY-FIVE SCIENTISTS FROM 16 DIFFERENT COUNTRIES WORKED TOGETHER TO FORMULATE THIS POLICY BRIEF.

AUTHORS: RENÉ ALFARO, CARLOS BAHAMONDEZ, JOHN BEER, BRUCE CAMPBELL, JOSÉ J. CAMPOS, LIU CAN, BENJAMIN CASHORE, CAROL COLFER, JIM FARREL, MIKE FULLERTON, GLENN GALLOWAY, DENIS GAUTIER, PETER GLÜCK, LUIS GONZÁLEZ, MORAIA GRAU, HARTMUT HOLZKNECHT, MARKKU KANNINEN, PETER KANOWSKI, YEMI KATERERE, SEBASTIAO KENGEN, MICHAEL KLEINE, DON LEE, MAXIM LOBOVIKOV, MARTIN LORENZ, BASTIAAN LOUMAN, CONCEPCIÓN LUJÁN, GERARDO MERY, FLORENCIA MONTAGNINI, JOHN PARROTTA, CHARLIE PYE-SMITH, HIROYASU OKA, ANDREAS OTTITSCH, JEREMY RAYNER, JEAN-MARC RODA, JUSSI SARAMÄKI, JEFFREY SAYER, RISTO SEPPÄLÄ, BRAD STENNES, DIETMAR STOIAN, ILPO TIKKANEN, JORGE TREVIN, HEIDI VANHANEN, PAUL VANTOMME, MARTTI VARMOLA, JARI VARJO, SEN WANG, BILL WILSON AND JIM WOOD.

The proposals contained in this policy brief are based on research into a broad range of topics related to the welfare and survival of forest ecosystems and the people who depend on them. By putting this information into the hands of decision-makers - at the international, national and local levels - we hope that the booklet will contribute, albeit in a modest way, to better forest management. We also hope that it will help to close the gap between policy and research.

Foreword

The Ministry of Foreign Affairs of Finland decided to support the international networking and collaborative forest research from the mid 1990's in cooperation with such pioneers as the Finnish Forest Research Institute METLA, the United Nations University (UNU) and the European Forest Institute (EFI). Later, other institutions joined the network. Most recently, the project formulated a collaborative network composed by nine partner institutions: Tropical Agricultural Research and Higher Education Center (CATIE), Costa Rica; Center for International Forestry Research (CIFOR), Indonesia; Centre de coopération internationale en recherche agronomique pour le développement (CIRAD-forêt), France; European Forest Institute (EFI), Finland; International Network for Bamboo and Rattan (INBAR), China; Federal Research Centre for Forestry and Forest Products (IWF/BFH), Germany; the Finnish Forest Research Institute (METLA), Finland; Natural Resources Canada/ Ressources naturelles Canada (NRCan/RNCan), Canada; and the United Nations University (UNU), Japan.

Under these circumstances, the International Union of Forest Research Organizations (IUFRO) decided to continue the pioneering work and made the WFSE one of its global research projects. Globalization and changing

paradigms call for global research. It is currently recognized that the global community of forest dependent states, civil societies, indigenous peoples, and enterprises alike, urgently need the independent contribution by the scientific community to inform and enrich the continuous dialogue and debate on sustainable forest management. Such a contribution must be impartial and well structured to support policy decisions. Moreover the results must be suitably placed to produce and deliver timely information and new knowledge. It therefore must be capable of establishing a sustained science-policy interface. This publication, while not representing the official opinion of the Government of Finland, offers an excellent opportunity to bring to the attention of policy makers from all over the world the most recent findings and recommendations of the scientific community.

As one of the financiers of the IUFRO-WFSE, we hope that this policy brief, *Forests for the New Millennium*, will contribute to bridging the gap between policy and research by helping us all to learn.

Markku Aho
Counsellor
International Environment Policy
Ministry for Foreign Affairs of Finland

IUFRO's primary niche and mission is to provide platforms where scientists can meet. Although this fostering of international scientific collaboration is the *raison d'être* of IUFRO, the Union has in recent years become more and more involved also in international forest-related processes. Actually, IUFRO is uniquely positioned to organize the scientific community to influence forest policy issues based on its scientific findings. The policy brief in hand demonstrates this in an excellent way.

World Forests, Society and Environment (WFSE) has been an IUFRO Special Project since 2001. *Forests for the New Millennium* is largely based on material to be published as a book at the IUFRO XXII World Congress in Brisbane, Australia, in August 2005. Over a hundred authors representing different disciplines have contributed to the book, and their work is also behind the policy brief. I am very delighted that such a great number of scientists have participated in an effort to strengthen the interface between science and policy, one of the strategic goals of IUFRO.

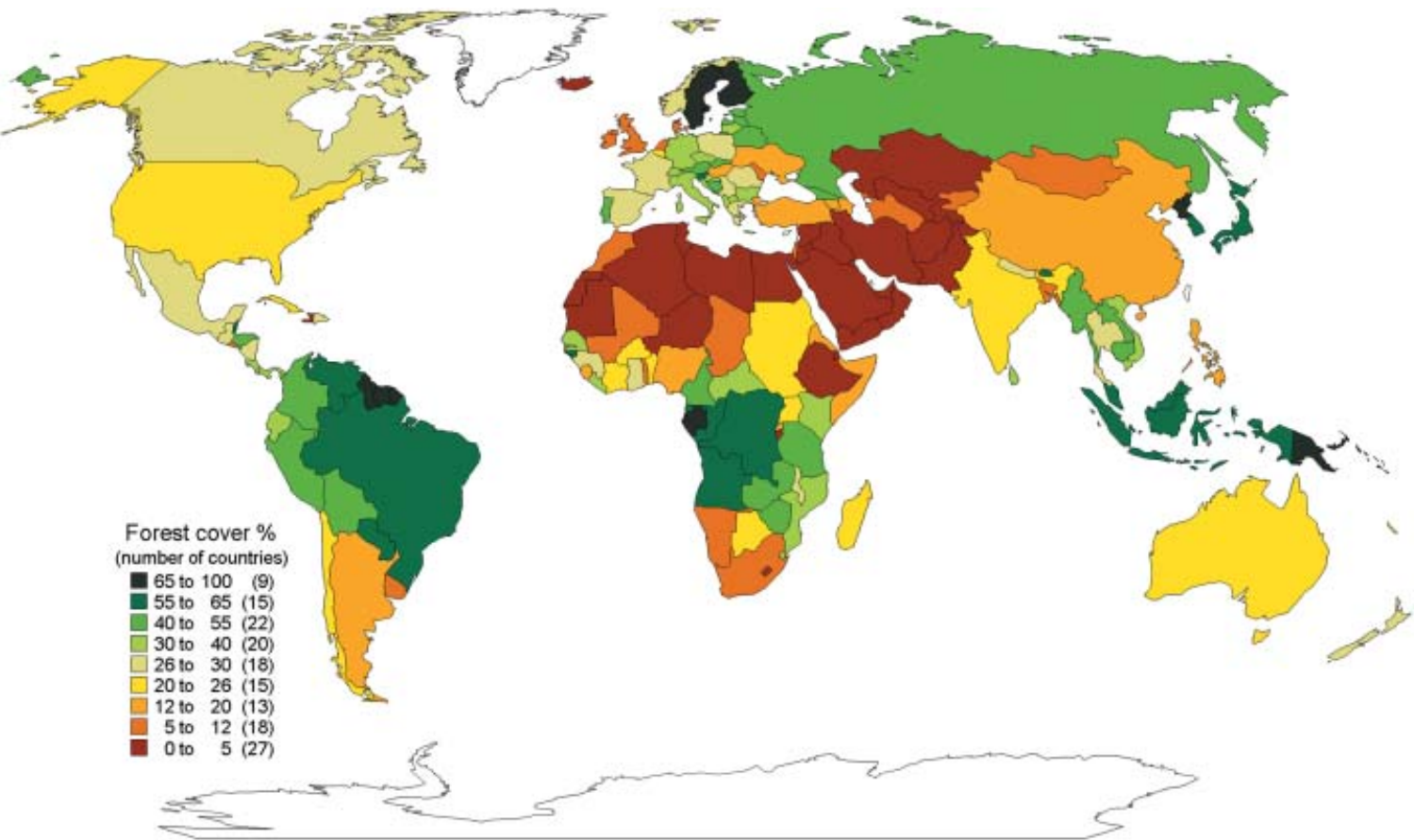
This policy brief has been edited by an international team led by Gerardo Mery who is also the Coordinator of the WFSE Project. The team has been working very hard in compiling the report. On behalf of IUFRO, I thank the

Editors for their dedicated contributions. I also wish to extend my sincere thanks to the Ministry of Foreign Affairs of Finland for its financial support for the Project and publishing of the policy brief.

Risto Seppälä

President

International Union of Forest Research Organizations



IN 2000, FORESTS COVERED 3.87 BILLION HECTARES, OR AROUND A THIRD OF THE PLANET'S LAND AREA. HALF THE FORESTS ARE LOCATED IN THE TROPICS AND HALF IN TEMPERATE AND BOREAL REGIONS. HALF ARE IN DEVELOPING COUNTRIES AND HALF IN DEVELOPED COUNTRIES. THE MAP SHOWS FOREST AREA AS A PERCENTAGE OF LAND AREA BY COUNTRY LARGER THAN 1.5 MILLION HECTARES.

(DATA SOURCE FAO 2000)

Why Forests Matter

It is almost impossible to exaggerate the importance of the world's forests. According to the World Bank, 1.6 billion people rely heavily on forests for their livelihoods. Over 2 billion people, a third of the world's population, use biomass fuels, mainly firewood, to cook and heat their homes, and billions rely on traditional medicines harvested from the forests. In some 60 developing countries, hunting and fishing on forested land supplies over a fifth of protein requirements.

Forests, both natural and planted, make an important contribution to national and local economies. In 2003, the international trade in sawn wood, pulp, paper and boards amounted to almost US\$150 billion, or just over two per cent of world trade, with the developed world accounting for two-thirds of production and consumption.

In many developing countries, forest-based enterprises provide at least a third of all rural non-farm employment and generate income through the sale of wood products, enriching private companies, governments and rural communities. The value of the trade in non-wood forest products – for example, pharmaceutical plants, mushrooms, nuts, syrups and cork - has been estimated at US\$11 billion. There is no doubt that many more useful forest and tree products will be discovered in the future.

Just as significantly, forests provide a range of environmental services fundamental to the planet's well-being and environmental sustainability. For example, they play an important role in stabilising soils and protecting

land from erosion by wind and water, and they help to maintain a steady supply of clean freshwater. Trees and forest soils also lock up atmospheric carbon, and forests thus have an important role to play in reducing the concentrations of one of the main greenhouse gases which cause global warming.

Forests also support much of the world's biodiversity. Although tropical forests cover less than 15 per cent of the planet's land surface, they contain over half the world's terrestrial species. Forests are equally important for biodiversity in temperate and boreal regions. Wild animals and plants have an economic value. They also have an intrinsic and aesthetic value. As a result, forests in many developed countries are frequently valued as much, if not more, for their conservation and recreation potential as their ability to supply timber.

The ways in which forests have been perceived and used have changed over time, and will continue to change. Many forest-dwellers have recognised, and continue to recognise, that forests provide them with their livelihoods. Others have seen forests primarily as a resource to be exploited, and cleared to make way for agriculture. Such a view still prevails in some parts of the world and is partially responsible for the high rates of deforestation.

However, during recent years there has been a paradigm shift in our attitudes towards forests, and it is now widely recognised that forests can provide much more than timber, fuelwood and non-wood forest products. Forests are increasingly being seen as part of the human



3.

4.

3. IN NATIONAL BALANCE SHEETS THE FOREST SECTOR PLAYS A MEANINGFUL ROLE MAINLY BY ADDING VALUE THROUGH MANUFACTURING ACTIVITIES, FOR EXAMPLE IN THE WOOD INDUSTRIES AND IN THE PRODUCTION OF PULP AND PAPER. THE SHARE OF MANUFACTURING IN FOREST SECTOR GROSS NATIONAL PRODUCT IS LESS THAN ONE HALF IN THE DEVELOPING WORLD – WITH WIDE VARIATIONS BETWEEN COUNTRIES – AND WELL OVER 80 PER CENT IN THE DEVELOPED WORLD.

4. AROUND A BILLION PEOPLE IN CHINA AND 800 MILLION IN SOUTH ASIA RELY PRINCIPALLY ON PLANT-BASED MEDICINES FOR THEIR HEALTH CARE, AS DO MOST AFRICANS. MANY HIGH-VALUE NON-WOOD FOREST PRODUCTS (INWFPS) ARE NOW DOMESTICATED AND GROWN IN INTENSIVE PRODUCTION SYSTEMS ON FARMS.

and natural landscape, and this has led to a more holistic approach to their management, an approach which recognises the complex links between environment and society.

Population growth, migration, urbanisation, changes in technology and advances in science are among the many factors which have helped to shape, and sometimes transform, the ways in which we perceive, manage, conserve and use forests. The same factors have meant that we expect far more of our forests than previous generations. Rural communities in many countries expect forests to provide the traditional range of products, from building timber to fuelwood, livestock fodder to medicinal plants. Others value them for their aesthetic and recreational value. While conservationists emphasise the vital role forests play in sustaining biodiversity, enlightened politicians, under pressure to tackle global warming and regional water shortages, look to the forests to provide a range of environmental services. And in many parts the world, the forest industry expects natural forests



5.



6.



7.

to provide roundwood and other raw materials, although an increasing share of the global wood supply now comes from plantations.

Such high expectations make it all the more imperative that we formulate coherent policies, integrating many different interest groups, to encourage conservation and sustainable forest management. Forests have a vital role to play in developing new approaches to rural development, both in the North and the South. Their wise use will help us to achieve at least two of the United Nations' Millennium Development Goals: those of reducing extreme poverty and hunger, and ensuring environmental sustainability.

This policy brief explores the scale of our current forest and land-use crisis, and suggests how politicians, policy-makers and researchers could work together for the benefit of both people and nature.

5. FORESTS ARE IMPORTANT FOR HUMAN WELL-BEING. IN EUROPE AND NORTH AMERICA, AND INCREASINGLY ALSO IN THE DEVELOPING WORLD, FORESTS ARE OFTEN VALUED MORE FOR RECREATION AND THEIR AESTHETIC BEAUTY THAN FOR THEIR POTENTIAL TO PRODUCE RAW MATERIALS, ESPECIALLY BY THE POLITICALLY DOMINANT URBAN MAJORITY.

6. BIODIVERSITY IS ESSENTIAL FOR HUMAN LIFE. MANY LINKS EXIST BETWEEN HUMAN WELFARE AND THE ECOSYSTEM DYNAMICS OF FORESTED LANDSCAPES. BIODIVERSITY MAY BE AN IMPORTANT DISEASE BUFFER, PARTICULARLY AGAINST VECTOR-TRANSMITTED DISEASES SUCH AS MALARIA.

7. 1.1 BILLION PEOPLE LIVE ON LESS THAN US\$1 A DAY, AND AROUND 840 MILLION PEOPLE ARE UNDERNOURISHED. POVERTY MANIFESTS ITSELF IN MANY DIFFERENT WAYS: A LACK OF DECENT WORK; LOW INCOMES OR NONE AT ALL; POOR ACCESS TO HEALTH CARE AND EDUCATION; AND EXCLUSION FROM DECISION-MAKING PROCESSES. ALMOST HALF THE POPULATION OF SUB-SAHARAN AFRICA ARE "DOLLAR POOR," AS ARE A THIRD OF ALL SOUTHERN ASIANS.

Improving Livelihoods and Human Well-being



8.

8. THREE-QUARTERS OF THOSE CLASSIFIED AS EXTREMELY POOR – SOME 900 MILLION PEOPLE – LIVE IN RURAL AREAS. THEY INCLUDE WAGE LABOURERS, ESPECIALLY THE LANDLESS, MARGINAL FARMERS AND THE MAJORITY OF INDIGENOUS PEOPLE. TREES ARE OFTEN VITALLY IMPORTANT FOR THE RURAL POOR.

KEY ISSUES

*At least 1.2 billion people in developing countries use trees on farms, or manage remnants of forests, to generate food and cash. The degree to which they depend on forests and trees varies from place to place and across time. It is thought that as many as 350 million people who live in, or next to, dense forests rely on them to a considerable degree for subsistence or income. A further 60 million indigenous people are almost entirely dependent on natural forests.

*Many small farmers depend on trees and forest products on public land for subsistence, income and to supply livestock fodder and other farm inputs. Public land is particularly important for landless families, especially for the poorest of the rural poor. More and more trees are being planted on public and private land, under a variety of tenure arrangements. Secondary and degraded forests are also a valuable resource for rural communities.

*There have been significant changes in the nature and scale of forest-related industries over recent years. There has been a gradual shift in industrial forestry activity, particularly wood fibre production, from natural forests to plantations, and from developed countries to developing countries, frequently supported by foreign investment.

*Up to 60 million people are employed in the forestry and wood industries. The number of jobs in large-scale forestry and forest-related industries is declining in the North and in many countries in the South. However, the small-scale and informal sector, which also includes casual labourers and the self-employed, has become increasingly important, both in terms of providing jobs and contributing to the economy in rural areas.



9.

9. BAMBOO IS WIDELY USED AS A SUBSTITUTE FOR WOOD IN THE PRODUCTION OF VALUE-ADDED INDUSTRIAL PRODUCTS SUCH AS PULP, PAPER, PANELS, BOARDS, ROOFING, CHARCOAL AND CLOTH. IT IS ALSO FASHIONED INTO TRADITIONAL IMPLEMENTS AND ITS YOUNG SHOOTS ARE EDIBLE. BAMBOO IS OFTEN AN IMPORTANT ELEMENT IN RURAL ECONOMIES. FOR EXAMPLE, THE PRODUCTION AND PROCESSING OF BAMBOO EMPLOYS MORE THAN 5 MILLION PEOPLE IN CHINA.



10.

10. AGROFORESTRY NEAR SOLAN, HIMACHAL PRADESH, NORTHERN INDIA. IN LANDSCAPES LIKE THIS, TREES PROVIDE FRUITS, NUTS, BUILDING TIMBER, FUELWOOD AND LIVESTOCK FODDER. THEY HELP TO SATISFY SUBSISTENCE NEEDS AND FREQUENTLY PROVIDE FARMING FAMILIES WITH AN INCOME. THEY ALSO PREVENT EROSION AND MAINTAIN SOIL PRODUCTIVITY.



11.



12.

★ In the developing world in particular, terms of employment and working and living conditions in forestry and wood-based industries are often poor and unregulated.

★ Large, capital-intensive forest industries, such as those producing pulp and paper - one of life's essential products - require comparatively small amounts of labour. However, small- and medium-sized forest-related enterprises provide large numbers of jobs, and have the potential to significantly improve the livelihoods of small farmers, agricultural workers and the landless. The indirect employment created by small- and medium-sized enterprises is often not recognised or fully valued.

11. FORESTRY AND WOOD-BASED INDUSTRIES ARE DOMINATED BY SMALL- AND MEDIUM-SIZED ENTERPRISES. FOR EXAMPLE, IN BRAZIL OVER 80 PER CENT OF FIRMS INVOLVED IN HARVESTING, PRIMARY PROCESSING AND FURNITURE MANUFACTURE HAVE LESS THAN 30 EMPLOYEES. IN THE EUROPEAN UNION, OVER 90 PER CENT OF FIRMS INVOLVED IN WOOD-BASED INDUSTRIES HAVE LESS THAN 20 EMPLOYEES.

12. THE PRODUCTION AND TRADE OF FUELWOOD AND CHARCOAL PROVIDES MANY MILLIONS OF JOBS. IN INDIA ALONE, THE TRADE INVOLVES UP TO 3 MILLION PEOPLE; IN DAR ES SALAAM, 125,000 PEOPLE WORK IN THE FUELWOOD AND CHARCOAL TRADE. THE DEMAND FOR FUELWOOD IS EXPECTED TO RISE BY 25 PER CENT BY 2010.



13.

13. WITHIN THE MUNICIPAL BOUNDARIES OF 26 EUROPEAN CITIES WOODLANDS COVER 19 PER CENT OF THE AREA, OR ABOUT 100 M² FOR EACH INHABITANT. IN CONTRAST, THE AVERAGE FOR SEVERAL LARGE CITIES IN LATIN AMERICA VARIES FROM 7 AND 11 M² PER INHABITANT. IT IS NOT JUST THE EXTENT OF URBAN GREEN SPACE THAT MATTERS, BUT ITS AVAILABILITY. IDEALLY, ALL CITY-DWELLERS SHOULD HAVE ACCESS TO GREEN SPACE AND THE OPPORTUNITY TO USE IT.

✧ Non-wood forest products (NWFPs) are vitally important to hundreds of millions of rural people, mainly for subsistence and local consumption. However, the trade in the commercially more valuable NWFPs is seldom fully recognised in official statistics. Markets for NWFPs tend to be poorly developed, and urban traders, rather than rural harvesters, tend to capture most of the profits.

✧ Fuelwood accounts for approximately half of the world's wood felling, and the demand is expected to grow, especially in Africa and Asia. The production, trade and transport of fuelwood and charcoal are well-established businesses in many countries. They operate mainly at the local level and employ large numbers of people.

✧ Agroforestry, which involves the integration of trees with other agricultural activities at the farm level, is a significant land use with a long tradition in many parts of the world. The trees generate cash through the sale of timber, fruit and other products. They also provide medicines and fibres, which are often harvested by women, and critically important livestock fodder during the dry season. Farmland trees make significant contributions to the productivity of small- and medium-sized farms and to the welfare of poor families.

✧ Forests often have a cultural value and contribute to human well-being and health. In some parts of the world, forests have become increasingly important for recreation, especially around large urban centres.

POLICY RECOMMENDATIONS

- Policy-makers increasingly recognise that forests and trees can play an important role in creating a more prosperous society and alleviating poverty in rural areas. Governments should encourage and support the sustainable management of all forest and tree resources. Policy-makers should promote the active participation of rural communities when deciding how to use and manage natural resources.
- The long-term prerequisite for sustainable rural development is an adequate level of basic health care, education and infrastructure.
- Increasing off-farm employment and agricultural productivity are the key to rural development and poverty alleviation. Policies should encourage the development of small- and medium-sized forest-based enterprises. For example, governments could encourage co-operation and partnerships among small-scale producers and between producers and processors, and help them develop their entrepreneurial skills.
- Improving market access for small-scale enterprises will enhance the livelihoods of many people who use forests and trees. This could be done by reducing bureaucracy, by providing better market information, by investing in infrastructure, and by increasing the bargaining power of small-scale producers and processors. Governments could also provide assistance to improve production processes of wood and non-wood forest products in order to increase their market value.
- More research and data on non-wood forest products is required by policy-makers, not least because of the significant role NWFPs play in supporting livelihoods - especially for women - and enhancing rural development. Forestry education should include NWFPs on the curricula.
- Policies should facilitate and encourage the creation of markets in forest-related environmental services in such a way that the new markets provide real livelihood benefits for rural people. This is a long-term task, and it will involve a range of measures, from establishing institutions which link buyers and sellers to reducing the transaction costs for small farmers.
- Much greater attention should be paid to improving the safety and health of forestry workers, both male and female, and ensuring that they receive adequate training and supervision.
- Wherever possible, governments should ensure that rural communities have access to public land. Tenure disagreements between traditional communities and governments need to be resolved.
- Governments should recognise the importance of secondary and degraded forests, which provide wood and non-wood products for a large proportion of the rural population, and also make a contribution to environmental services and environmental sustainability.
- Institutions involved in the research and development of forest resources should pay greater attention to secondary forests, and to trees outside forests, including smallholder plantations.

Maintaining Healthy Ecosystems



14. INTENSIVELY MANAGED PLANTATION FORESTS, MAINLY IN SUBTROPICAL AND TROPICAL DEVELOPING COUNTRIES, ARE LIKELY TO SUPPLY OVER 60 PER CENT OF INDUSTRIAL ROUNDWOOD BY 2050, AND COVER 5-10 PER CENT OF THE PRESENT FOREST AREA.



15.



16.



17.

KEY ISSUES

*Forests cannot be considered in isolation. The health of other biological systems, and of human communities, is frequently linked to the health of forested land. Forests help to stabilise soils, have a significant impact on climate, regulate the flow and quality of freshwater and provide a habitat for many species which help to maintain healthy ecosystems.

*Decision-makers have frequently formulated policies which failed to take into account the complex links between forests, other biological systems and human activities. However, during recent years some countries have begun to adopt new approaches to land-use planning, bringing together a wide range of interests. Meeting the changing needs of society and the environment demands that land and forest managers consider local solutions to local problems.

*Degradation of forests and other habitats is a major problem in many parts the world. Declining land productivity as a result of erosion is detrimental to all rural activities. Tree planting has played a significant role in improving productivity and restoring degraded land in countries like India, China, the Republic of Korea and Chile.

15. THIRTY-THREE COUNTRIES HAVE LESS THAN 5 PER CENT FOREST COVER. OF THESE, 13 HAVE LESS THAN 1 PER CENT FOREST COVER. TREES ARE EXTENSIVELY USED ON FARMS IN COUNTRIES SUCH AS YEMEN TO PROVIDE WOOD AND NON-WOOD PRODUCTS LIKE LIVESTOCK FODDER. THEY ALSO HELP TO SUSTAIN AGRICULTURAL PRODUCTIVITY AND PREVENT EROSION

16. EVERY YEAR, SOME 14.6 MILLION HECTARES OF FOREST – AN AREA LARGER THAN GREECE – IS CLEARED OR CONVERTED TO OTHER LAND USES. IT IS NOT JUST THE POOR WHO LOSE OUT WHEN FORESTS ARE NEEDLESSLY DESTROYED: THEIR ABILITY TO PROVIDE A RANGE OF ENVIRONMENTAL SERVICES MATTERS TO ALL PEOPLE IN ALL PLACES. DEFORESTATION SHOULD BE PREVENTED!.

17. FOREST FIRES CAN HAVE DISASTROUS CONSEQUENCES, BOTH FOR FORESTS AND PEOPLE. HOWEVER, THE INTERRUPTION OF NATURAL FOREST FIRE CYCLES IN FIRE-ADAPTED ECOSYSTEMS, SUCH AS THIS ONE IN BRITISH COLUMBIA, CANADA, CAN LEAD TO A BUILD UP OF FLAMMABLE MATERIAL AND INCREASE THE LIKELIHOOD OF CATASTROPHIC FIRES. HERE, FORESTERS HAVE USED GROUND FIRES TO REDUCE THE FUEL LOAD.



18.

18. INTENSIVELY MANAGED MONOCULTURES OF EXOTIC EUCALYPTS ON FORMER AGRICULTURAL FIELDS ARE EASILY IDENTIFIED AS PLANTATIONS, BUT ENRICHMENT PLANTING OF INDIGENOUS SPECIES ON LOGGED-OVER FORESTS IS MORE DIFFICULT TO CLASSIFY. IN SLOW-GROWING TEMPERATE OR BOREAL FORESTS, A PLANTED, SEMI-NATURAL STAND, SUCH AS THE ONE SHOWN HERE, AND A NATURAL STAND MAY BE VIRTUALLY INDISTINGUISHABLE AFTER A FEW DECADES.

✱Tree plantations are forests, but they are not a substitute for natural forests. Plantations provide an increasing share of industrial wood and they are also important for local wood supply.

✱There are clear examples where plantations have caused environmental and social damage, and significantly reduced biodiversity by replacing natural forests. Plantations tend to cause damage when they are established on the wrong sites and when they are poorly managed. However, in other situations plantations and planted trees have helped to restore degraded land and provided an income for local people.

✱Large-scale plantations established as a source of industrial wood products are increasingly using genetically improved planting material. Gains in productivity are achieved partly at the expense of a reduced gene pool. This may increase the risk of attack by pests and diseases.

✱The development of genetically modified (GM) trees has given rise to heated debate. Those in favour argue that GM trees could improve growth rates, encourage pest resistance and make processing tasks less environmentally hazardous. Opponents fear that engineered genomes could have an adverse impact on native ecosystems. The jury is 'still out.'

✱Conservation strategies are often an emergency reaction to rapid habitat loss. When they focus purely on protected areas and ignore the broader landscape, they may fail to achieve their goals. There are several reasons for this. A lack of resources and political will frequently results in poor law enforcement. Just as importantly, habitat fragmentation, and the lack of biological corridors linking areas of high biodiversity, often leads to the loss of animal and plant species.

POLICY RECOMMENDATIONS

- Two main guiding approaches are recommended for sustainable forestry practices. One involves the use of the criteria and indicators for sustainable forest management already defined by international processes. The other is the so-called ecosystem approach to management. These approaches have common goals, yet there are differences which have yet to be resolved. All the same, the adoption of either approach represents a clear step forward.
- Preventing desertification and degradation, as well as restoring degraded land, should be seen as a priority. Policies should be designed to improve both the environmental conditions of degraded land, for example by planting trees and stabilising soils, and the social conditions which prevail in these areas. The two will often go hand in hand.
- Natural regeneration can often be encouraged and implemented at little cost to society. Forest policies and programmes should recognise the importance of natural regeneration, and the importance of secondary forests, when rehabilitating degraded land. Proper management systems should be developed and applied.
- Industrial plantations will continue to expand, especially in the developing world. However, the clearance of primary forest or other natural habitat to make way for intensively managed plantations should be strongly discouraged.
- Environmental issues should be fully taken into account when planning and managing plantations. The emphasis should be on designing 'biodiversity friendly' plantations which use a mixture of species, preserve and enhance native forest remnants and reduce the risk of attack by pests and diseases.
- The creation of markets in forest-related environmental services should be promoted and supported by appropriate policies. It should be recognised that markets can operate on many different levels, from the trans-continental - exemplified by the carbon market - to the very local, when farmers might be paid by a municipality to conserve forested areas within a watershed.
- Conservation strategies should look beyond the boundaries of protected areas. The creation of biological corridors can make an important contribution by connecting areas devoted to conservation. These corridor landscapes could consist of a diverse mosaic of farmland, including areas devoted to agroforestry or other integrated farming systems, as well as patches of natural vegetation.
- Foresters and other land-use professionals need to broaden their range of skills and think more creatively about land management. The direct involvement of local communities in land-use management is required if conflicting interests are to be reconciled. Good communication skills are therefore essential.

Integrating Forestry with Other Sectors



19.

19. DURING THE NEXT 30 YEARS, THE WORLD'S POPULATION WILL INCREASE BY 2 BILLION PEOPLE. THIS MEANS A FURTHER 120 MILLION HECTARES OF NEW LAND WILL BE REQUIRED FOR FOOD PRODUCTION. CLOSE COOPERATION BETWEEN DIFFERENT SECTORS AND AN INTEGRATED APPROACH TO LAND MANAGEMENT ARE ESSENTIAL



20.

KEY ISSUES

*The economic, social and environmental demands made on forests are continually increasing. Many social and environmental problems are a direct consequence of conflicts between different activities. For example, mining frequently opens up forests to exploitation by loggers and settlers; plantations are often established on land formerly used by peasant farmers and shifting cultivators. Many of these conflicts could be avoided if there was better integration between different sectors.

*A more integrated approach to land management is needed. Different sectors need to co-ordinate their activities and bring together a wide range of different interests to resolve conflicts.

20. A MIXED LANDSCAPE IN THE NANDI HILLS, KARNATAKA, INDIA, WITH REMNANTS OF NATURAL FOREST IN THE FOREGROUND, LINE PLANTINGS OF VARIOUS SPECIES BEYOND, AND POLE TIMBER PLANTATIONS IN THE DISTANCE.



21.

21. PASTURES AND ABANDONED PASTURES DOMINATE THE LANDSCAPE OF EXTENSIVE AREAS OF THE BRAZILIAN AMAZON. THE BEEF BOOM HAS BEEN RESPONSIBLE FOR AROUND FOUR-FIFTHS OF DEFORESTATION DURING THE LAST 25 YEARS. THIS REPRESENTS AN AREA THE SIZE OF GERMANY. IN SÃO FÉLIX DO XINGU, PARÁ, THERE WERE ABOUT 22,000 HEAD OF CATTLE IN 1980. NOW THERE ARE AROUND A MILLION. EACH ADDITIONAL ANIMAL MEANS ROUGHLY ONE HECTARE LESS OF FOREST. BEEF PRODUCTION CONTINUES TO INCREASE.

22. JUST OVER HALF OF THE WORLD'S FORESTS LIE WITHIN 10 KILOMETRES OF MAJOR TRANSPORT ROUTES. IN MOST COUNTRIES, COMMERCIAL TIMBER PRODUCTION IS THE DOMINANT FOREST USE AND INTEGRATING IT WITH OTHER FOREST-RELATED ACTIVITIES IS A MAJOR CHALLENGE. INTEGRATION MIGHT INVOLVE THE CREATION OF BUFFER ZONES ALONG ROADS OR LAKES TO RETAIN THEIR SCENIC VALUE.



22.

✦ Approximately 50 per cent of the world's population now live in urban areas, and practically all population growth over the coming decades will be concentrated in towns and cities. The loss of good agricultural land to urban development, and the expansion of the agricultural frontier to grow export crops or run livestock, has inevitably led to land-use conflicts far from the centres of population. This suggests that decision-makers need to consider the indirect, as well as the direct, impacts of development activities.

✦ Decision-makers often fail to pay sufficient attention to what FAO terms 'other wooded lands', which include the miombo woodlands, savannahs and cerrados. These are used by farmers, pastoralists, miners and others. They cover 10 per cent of the world's land surface and provide significant amounts of timber, fuelwood and various non-wood products, all of which are important for subsistence and local livelihoods. They also deliver a range of environmental services.

23. THIS PRISTINE STREAM IN CANADA IS AN IMPORTANT SPAWNING AREA AND NURSERY FOR *SALMONID* FISH. WHEN WATERSIDE VEGETATION IS DESTROYED BY LOGGING OR OTHER HUMAN ACTIVITIES, THE FISH INVARIABLY SUFFER. THIS IS ONE REASON WHY THE FORESTRY AND FISHERIES SECTORS NEED TO ADOPT AN INTEGRATED APPROACH TO LAND MANAGEMENT.



23.



24.

24. IN TANZANIA, FARMERS HARVEST HONEY AND OTHER FOREST PRODUCTS FROM THE MIOMBO WOODLANDS, WHICH PROVIDE THEM WITH AN ANNUAL INCOME OF UP TO US\$1,050 PER HECTARE. AT THE NATIONAL LEVEL, THE VALUE OF FORESTS IS ESTIMATED AT US\$750 PER HECTARE. THIS REFLECTS THE VALUE OF ROYALTIES AND THE INCOME FROM EXPORTS AND FOREST-RELATED TOURISM.

25. IN MANY COUNTRIES, LOCAL LAWS AND REGULATIONS DEMAND THE RESTORATION OF AREAS DEGRADED BY ACTIVITIES SUCH AS MINING AND QUARRYING. IN THIS WAY FORESTRY OFTEN COMPLEMENTS OTHER INDUSTRIAL ACTIVITIES. HERE, PINES ARE BEING USED TO REHABILITATE THE DEGRADED SOIL IN A COAL-MINING AREA IN LAUSATIA, EASTERN GERMANY.



25.

✧The many different definitions - and views - of forests, planted forests, plantations and woodlands have inevitably caused confusion in landscape planning and management. This means that it is often difficult to make comparisons between different regions, even within the same country, resulting in confusion and conflicts in analysis and policy.

POLICY RECOMMENDATIONS

- The successful implementation of forest-based sustainable development depends on good inter-sectoral coordination. Policies for agriculture, forestry and other land uses should be consistent and mutually supportive, and they should be formulated in a way that gives due consideration to the economic, environmental and social benefits of forests and trees. Such coordination is needed at the international policy level, as well as between national agencies.
- Designing and implementing well-coordinated policies requires capacity building and innovative development of new inter-sectoral actors.
- Various participatory and community initiatives have been devised to coordinate the activities of different sectors and resolve conflicts of interest, both at the local and national level. The Canadian-inspired Model Forest Concept is one example. The Adaptive Collaborative Management approach, pioneered by the Center for International Forestry Research (CIFOR), is another. These sorts of approaches should be pursued.
- Land-use planning should involve all stakeholders and promote local and regional programmes. The focus should be on diversified land uses, rather than on single crops or disciplines, and on the interactions between different land uses within the same landscape.
- Planted forests should always be seen as elements in the human and natural landscape. Policies need to recognise the interdependencies between planted forests and other landscape elements, and foster synergies between them.
- Research institutions should contribute more effectively to the development of partnerships between different sectors. Consideration should be given to increasing the number of partnership projects at the interface between science and policy.

Sharing the Benefits of Forests and Trees



26.

26. GOOD INTERACTION BETWEEN EVERYONE WITH A STAKE IN THE FORESTS IS THE KEY TO GOOD MANAGEMENT AND THE RESOLUTION OF CONFLICTS OVER NATURAL RESOURCES. FORESTRY PROFESSIONALS NEED TO BE EXCELLENT COMMUNICATORS AND SKILLED IN MODERATION TECHNIQUES. HERE STAKEHOLDERS ASSESS A WOOD LOT IN ETHIOPIA.

KEY ISSUES

★Forests provide significant economic, social and environmental benefits to a wide range of different groups. These include households and communities who use forest products; forestry and wood-related enterprises; local and national governments; conservation and recreation groups – to name the more obvious. Furthermore, society as a whole benefits from the many environmental services which forests provide.



27.



28.

*However, the benefits are frequently unevenly shared, with political processes and forest management strategies denying use and access to many of those who consider they have, or should have, a stake in the forests. For example, local communities frequently find themselves excluded from areas they previously used by development or commercial activities within the forests, or by conservation laws.

*Existing patterns of land ownership, access rights and tenure have a strong influence on who benefits from forests – and who loses out. However, there is no such thing as a right or wrong system of ownership or tenure.

*The nature of the relationship between indigenous societies and forests is often based on customary laws which are not recognised by modern states. This has frequently led to conflict with the authorities. However, it is possible to develop management regimes that recognise a wide range of traditional uses and interests, and at the same time allow sustainable forest-based development.

27. POVERTY REDUCTION HINGES ON INCREASING PRODUCTIVITY AND EMPLOYMENT. THERE NEEDS TO BE A STRONG FOCUS ON CREATING EQUAL INCOME OPPORTUNITIES, AND ON ENSURING THE FAIR DISTRIBUTION OF LAND AND GOOD ACCESS TO FOREST RESOURCES, DECISION-MAKING PROCESSES AND INFORMATION.

28. TRADITIONAL KNOWLEDGE IS LINKED TO PEOPLE'S SOCIAL AND CULTURAL IDENTITY. SECURING THEIR TRADITIONAL OR COLLECTIVE RIGHTS TO LAND AND RESOURCES AND RECOGNISING CUSTOMARY LAWS WILL HELP TO PROTECT AND ENHANCE TRADITIONAL KNOWLEDGE.



29.

29. BY 2010, THE EUROPEAN COMMISSION AIMS TO TRIPLE THE EUROPEAN UNION'S PRODUCTION OF BIOMASS ENERGY, FOR EXAMPLE BY USING WOOD PELLETS SUCH AS THESE. IF THAT HAPPENS, THEN BIOMASS FUELS WILL ACCOUNT FOR 8.5 PER CENT OF ENERGY CONSUMPTION. THE FOCUS ON PRODUCING RENEWABLE ENERGY FROM FORESTS COULD ALSO HELP EUROPEAN COUNTRIES TO MEET THE CARBON DIOXIDE EMISSION REDUCTION TARGETS AGREED UNDER THE KYOTO PROTOCOL. THIS COULD ALSO ENHANCE RURAL EMPLOYMENT AND PROVIDE FOREST OWNERS WITH ADDITIONAL INCOME.

30. BY PROVIDING EMPLOYMENT AND AN INCOME, FOREST-RELATED TOURISM AND CONSERVATION ACTIVITIES CAN BRING REAL BENEFITS TO RURAL AREAS. IN KENYA, FOR EXAMPLE, THE TOURIST SECTOR BRINGS IN OVER US\$500 MILLION A YEAR, AND EMPLOYS 480,000 PEOPLE. THE CHALLENGE LIES IN DEVELOPING MECHANISMS TO DIRECT THE INCOME FROM THESE ACTIVITIES TO RURAL COMMUNITIES.



30.

✳Illegal logging is a major problem in many developing countries, especially when practiced on a large scale. Relatively few people profit, but many lose out. Local communities are deprived of resources; governments fail to capture revenues from timber extraction; unfair competition reduces wood prices; critical habitats are often destroyed; and illegal logging and the illegal trade in wildlife frequently lead to violence and conflict.

✳Logging for subsistence is often 'illegal,' for the simple reason that it is proscribed by the law. The ability of small-scale operators and individuals to harvest timber may also be restricted by cumbersome bureaucracies and a lack of forestry development policies.

POLICY RECOMMENDATIONS

- As a general principle, the benefits of rural development and forestry should be more fairly distributed among all members of society. Measures which help the poor and marginalised should be encouraged. The promotion of market-based mechanisms could help local people to benefit from forests.
- At present, there is often confusion about land ownership and access to forests. Processes should be put in place which clearly establish who owns land and who has the right to use it, with a particular emphasis on empowering marginalised groups, including women.
- Appropriate provisions in logging-licence regulations, and a reduction of bureaucracy, could favour 'simple' procedures for local, small-scale logging operations. This, however, demands transparency, clear and consistent rules, and stable institutions.
- International efforts to restrict the trade in 'conflict timber' should be further strengthened. Efforts should also be made to clamp down on illegal forestry activities, such as the trade in protected wildlife. Expanding the area of forest under certification would help to hinder and reduce the trade in illegal timber.
- Systems which involve payments for environmental services should be developed and implemented. These could provide adequate incentives for the sustainable management of forests and a fair distribution of the benefits.
- The rights of indigenous people to control land which they have traditionally considered theirs, and to exercise their customary laws, should be recognised by governments. Policy-makers should consider new ways of ensuring that the benefits from forest-related activities are equitably shared. This can be done, to give one example, by establishing trust funds, whereby a percentage of profits from the use of local peoples' intellectual property rights are collected, and then distributed or used equitably, according to their wishes.
- To cope with today's demands, foresters and other professionals need to be not only technically proficient, but well versed in the skills of mediation and capacity development. Capacity development should promote multi-stakeholder learning to solve the complex problems of integrated resource management. This means that forestry curricula should integrate social, cultural and economic subjects, including traditional knowledge.

Towards Better Forest Governance



31.

31. AT THE 1992 UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT – THE RIO EARTH SUMMIT – THE INTERNATIONAL COMMUNITY MADE A FIRM COMMITMENT TO SUPPORT SUSTAINABLE FOREST MANAGEMENT. SEVERAL KEY INITIATIVES CAME OUT OF THIS PROCESS. FOR EXAMPLE, THE CONFERENCE LED TO REGIONAL COOPERATION TO DEVELOP CRITERIA AND INDICATORS (C&I) FOR SUSTAINABLE FOREST MANAGEMENT. IT ALSO PROMOTED AND FACILITATED THE IMPLEMENTATION OF SPECIFIC PROGRAMMES AT NATIONAL AND LOCAL LEVELS, SUCH AS THE DEVELOPMENT OF NATIONAL FOREST PROGRAMMES.



32.



33.

KEY ISSUES

★ Older models of forest governance, where decision-making is dominated by the state, are no longer acceptable in most parts of the world. It is now widely recognised that if we are to achieve the ambitious goals of maintaining healthy forests and sharing the full range of benefits among different interest groups, the task is too complex for 'top down' policy making.

★ New models of governance place a strong emphasis on participatory decision-making by civil society, with the state assuming the role of coordinator. This involves steering participants towards sustainable forest management, and helping to resolve conflicts, rather than create them.

32. THE IMPLEMENTATION OF THE EUROPEAN UNION'S NATURA 2000 NETWORK OF CONSERVATION AREAS ON PRIVATE LAND FACED FIERCE CRITICISM AND RESISTANCE FROM FOREST OWNERS ACROSS EUROPE. THEY FELT LEFT OUT BY THE TOP-DOWN DECISION-MAKING PROCESS. THIS ENCOURAGED NATIONAL FOREST OWNER' ASSOCIATIONS TO PRESS FOR GREATER REPRESENTATION IN BRUSSELS.

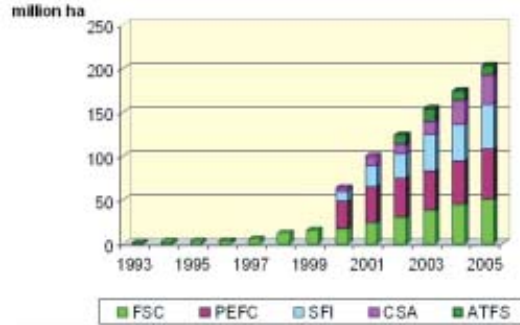
33. AS RURAL POPULATIONS DECLINE IN EUROPE AND NORTH AMERICA, THE NUMBER OF URBAN OR ABSENTEE FOREST OWNERS STEADILY INCREASES. THIS POSES A NEW CHALLENGE TO THE FOREST SECTOR, AS THEIR NEEDS CANNOT BE ADDRESSED WITH THE ARGUMENTS, POLICIES AND INSTITUTIONS WHICH WERE DESIGNED FOR A PREDOMINANTLY RURAL, FARM-DWELLING CLIENTELE.



34.

34. IN NUMEROUS COUNTRIES THE ILLEGAL PRODUCTION OF TIMBER FAR EXCEEDS LEGAL PRODUCTION. THE WORLD BANK ESTIMATES THAT ILLEGAL LOGGING RESULTS IN AN ANNUAL LOSS OF US\$10 BILLION IN TIMBER-PRODUCING COUNTRIES. CURBING THE TRADE IN ILLEGAL TIMBER HAS PROVED VERY DIFFICULT. THE EUROPEAN COMMISSION HAS COMMITTED ITSELF TO PREPARING A EUROPEAN ACTION PLAN ON FOREST LAW ENFORCEMENT, GOVERNANCE AND TRADE, INCLUDING MEASURES TO CONTROL THE IMPORT OF ILLEGAL FOREST PRODUCTS.

35. IN THE BEGINNING OF 2005, 200 MILLION HA OF FOREST HAD BEEN CERTIFIED AS SUSTAINABLY MANAGED. ALTHOUGH THE AREA OF CERTIFIED FORESTS HAS BEEN INCREASING RAPIDLY DURING THE LAST DECADE, IT STILL REPRESENTS LESS THAN 4 PER CENT OF THE TOTAL FOREST AREA OF OUR PLANET. ALMOST 90 PER CENT OF THE CERTIFIED AREA IS IN DEVELOPED COUNTRIES.



35.

✪International deliberations on forests have agreed on the global goal of improving sustainable forest management (SFM) and on the global approach of monitoring, assessing and reporting on the status of SFM using national criteria and indicators. The appropriate international governance regime for implementation is still under political negotiation.

✪In theory, the process of decentralisation should lead to the empowerment of local governments and more effective forest management. However, too many decentralisation programmes have been hampered by a lack of resources and training, corruption at many levels and central governments' unwillingness to give up authority. Nevertheless, some countries have made significant progress, and the process of decentralisation is set to continue.



36.

★Community forestry and joint forest management have had a significant impact, most notably in India, Nepal and the Philippines. Community forestry frequently adopts the customary management regimes which existed before the state assumed control of forest land. Local institutions may make better use of the forests, manage them more sustainably and contribute more equitably to livelihoods than central government agencies.

★The devolution of public rights over natural resources to civil society and the private sector may improve the effectiveness of forest governance. However, the shift may sometimes result in a reduction of the quality of resource management.

36. AN ESTIMATED 16-28 PER CENT OF THE WORLD'S FORESTS ARE IN COUNTRIES WHICH RECENTLY EXPERIENCED VIOLENT CONFLICT AND THE COLLAPSE OF GOOD GOVERNANCE IN FORESTED AREAS. VIOLENT CONFLICTS CREATE HUGE ECONOMIC AND SOCIAL COSTS, AND HAVE A SIGNIFICANT IMPACT ON THE ENVIRONMENT.

✧ Early 2005, nearly 200 million hectares of forest had been certified. Forest certification is a market-driven approach to improving forest management by linking consumer concerns about social issues and the environment to good practice. Certification schemes provide consumers – governments, retailers and individuals - with an assurance that they are buying products that come from forests which are sustainably managed in a socially responsible way.

✧ For many centuries, ‘traditional knowledge’ has guided the way hundreds of millions of people perceive and use natural resources. However, there has been a failure to link useful traditional knowledge with ‘mainstream’ knowledge. Those in power frequently know little about traditional knowledge or believe it to be of little value.

✧ Many remote forested regions suffer from high levels of violence and civil wars. The economic, environmental and social costs are often considerable, and affect both governments and local communities. Other forested areas suffer from social disruption and lawlessness or shelter large numbers of refugees. Poor governance provides a breeding ground which threatens national and world peace.

✧ Public resources available for research on forest-related issues have declined significantly during recent years. As a result, policy-makers may make decisions which are not based on reliable information or sound scientific evidence. There is currently no global mechanism, analogous to the Intergovernmental Panel on Climate Change (IPCC), to raise issues of importance and give expert advice on forest-related issues.

POLICY RECOMMENDATIONS

- Governments should recognise that they have a new role as catalysts in policy networks: as convenors, sources of expertise and providers of financial support. This role more than compensates for their loss of direct control over forest policy. At the same time, other parties need to understand that the co-ordinating role adopted by central governments does not come at their expense.
- Whatever the outcome of the current international deliberations on forests at the United Nations Forum on Forests (UNFF), national forest programmes (NFPs) or their equivalent will certainly be a core component of any international governance regime. However, careful monitoring and reporting must take place to ensure that the outcomes of NFP processes accomplish substantive and desirable policy change and are not purely symbolic.
- Decentralisation in developing countries and in countries with economies in transition should be pursued when the conditions are right. However, to be effective, decentralisation processes must overcome corruption and establish new structures of governance at the local level through participative democracy and self-management.
- International development agencies should provide local governments and communities with training and resources to improve their capacities for coordinated cross-sectoral rural development and sustainable forest management.
- Those involved with forest and development issues should recognise the importance of traditional knowledge. Mechanisms should be created to incorporate this knowledge into policy-making processes. Forest professionals should be trained to identify those individuals and groups who possess traditional knowledge, and they should work with them in a collaborative manner. Due respect must be given to intellectual property rights.
- If violent conflict and lawlessness are to be tackled in remote forested areas, governments need to invest in basic social services, as well as infrastructure.
- Research and development funding must be maintained if policies relating to natural resource management are to be based on sound scientific evidence and reliable information.
- Consideration should be given to establishing a special expert panel on forests, similar in nature to the IPCC, which could support international forest policy deliberations, provide a quick response to emerging regional or international forest-related issues, and bring them to global attention.

Afterword and Credits

The Special Project on World Forests, Society and Environment of the International Union of Forest Research Organizations (IUFRO-WFSE) has addressed the most crucial issues facing the forest sector at the global level. Needless to say, a short publication like this cannot possibly hope to cover every issue related to forests, people and the environment. The project was an innovative and unique effort to explore forest issues, based on objective, high-quality research and analysis. One of our aims has been to promote the exchange of knowledge through an open network of researchers and experts.

IUFRO-WFSE consists of a core group of nine institutions. Between them, they have mobilised the participation of the entire research community in the WFSE process by creating a forum for compiling and disseminating research results. WFSE's partners are located in different parts of the world and each, in its own way, has closely observed the changing paradigms in forest use and management. The partners are: Tropical Agricultural Research and Higher Education Center (CATIE), Costa Rica; Center for International Forestry Research (CIFOR), Indonesia; Centre de coopération internationale en recherche agronomique pour le développement (CIRAD-forêt), France; European Forest Institute (EFI), Finland; International Network for Bamboo and Rattan (INBAR), China; Federal Research Centre for Forestry and Forest Products (IWF/BFH), Germany; the Finnish Forest Research Institute (METLA), Finland; Natural Resources

Canada/ Ressources naturelles Canada (NRCan/RNCan), Canada; and the United Nations University (UNU), Japan. In addition, the project has collaborated with many other international organizations and universities.

I would like to express my sincere gratitude to the authors of this policy brief and to the partners of IUFRO-WFSE for their contribution; to the Ministry for Foreign Affairs in Finland for financing some of the activities and publications, and to the International Union of Forest Research Organizations (IUFRO) for backing our endeavours and providing access to research networks in numerous fields. Special thanks go to METLA for generously supporting the coordination and several other activities of the project.

I also gratefully acknowledge Jaakko Pesonen for the design and layout of this policy brief; the colleagues who provided photographs: René Alfaro, Glenn Galloway, Carol Golfer, Markku Kanninen, Pia Katila, Michael Kleine, Max Lobovikov, Martin Lorenz, Zenebe Mekonnen, Lauri Mäenpää, Matti Nummelin, Erkki Oksanen, John Parrotta and Jeff Sayer; and Samuel Chopou for the global map and the certification graph.

Gerardo Mery
Coordinator of IUFRO-WFSE
Helsinki, April 2005

PHOTOS

COVER: LAURI MÄENPÄÄ

1. METLA/ERKKI OKSANEN
2. NRCAN/LYNDA CHAMBERS
3. METLA/ERKKI OKSANEN
4. MATTI NUMMELIN
5. METLA/ERKKI OKSANEN
6. MARKKU KANNINEN
7. MATTI NUMMELIN
8. MATTI NUMMELIN
9. MAX LOBOVIKOV
10. JOHN PAROTTA
11. METLA/ERKKI OKSANEN
12. LAURI MÄENPÄÄ
13. GERARDO MERY
14. GERARDO MERY
15. JOHN PAROTTA
16. GERARDO MERY
17. BRITISH COLUMBIA MINISTRY OF FORESTS, CANADA
18. METLA/ERKKI OKSANEN
19. MATTI NUMMELIN
20. JOHN PAROTTA
21. JOHN PAROTTA
22. METLA/ERKKI OKSANEN
23. THE FORESTS OF CANADA COLLECTION. NRCAN,
CANADIAN FOREST SERVICE 2005
24. MATTI NUMMELIN
25. JOHN PAROTTA
26. ZENEBE MEKONNEN
27. LAURI MÄENPÄÄ
28. CAROL GOLFER
29. METLA/ERKKI OKSANEN
30. MATTI NUMMELIN
31. MARKKU KANNINEN
32. METLA/ERKKI OKSANEN
33. METLA/ERKKI OKSANEN
34. MATTI NUMMELIN
36. MATTI NUMMELIN



IUFRO-WFSE PARTNERS:



METLA





MINISTRY FOR FOREIGN
AFFAIRS OF FINLAND
DEVELOPMENT POLICY
INFORMATION UNIT

Box 176, 00161 Helsinki, Finland
<http://global.finland.fi>

IUFRO-WFSE

Unioninkatu 40 A, 00170 Helsinki, Finland
www.iufro.org/wfse