

SYNTHESIS PAPER¹ DEVELOPED BY MAJOR GROUPS ON UNFF3 ELEMENT 3 (A) (II)
“FOREST HEALTH AND PRODUCTIVITY”

Final draft – 15 05 2003

1. LESSONS LEARNED

- 1.1 Forest health and productivity continue to be issues of major concern. There is a broad array of factors that have a significant impact on forest health and productivity. Air pollution and climate change, forest fire, fragmentation of forests, pests and diseases, and invasive species all contribute to the deterioration of forests. In many cases, these factors are inter-linked.
- 1.2 In the light of recent developments, such as the increase of air pollution in rapidly developing countries in Asia, Africa, South and Central America, air pollution remains to be a factor of major significance. Science indicates that air pollution increases the vulnerability of trees and forests to drought, stress, frost, pests, and diseases, and constitutes a significant threat to biological diversity. Air pollution also has long-term impact on the vitality of soils and water quality.
- 1.3 Against this backdrop of changing atmospheric chemistry, there is strong evidence that the world's physical climate is changing. The changes in temperature and in the timing and frequency of rainfall negatively influence forest ecosystems particularly at the extremes of their ranges, like mountain slopes and at the tree line. Furthermore, global warming leads to more frequent and intense storms. At the same time, periods of intense drought have increased the amount and frequency of forest fires, especially in the tropics.
- 1.4 These more frequent forest fires cause changes to the structure of forests and their carbon sink strength. There is scientific evidence that fire suppression programs in temperate forests have resulted in a shift from less intense, stand modifying fires to more intense and stand-destroying fires. In contrast, the frequency of forests fires has been increasing in tropical forests, *inter alia*, due to human activity. In particular in tropical evergreen forests, the impacts of fire can be devastating and can result in complete deforestation.
- 1.5 In some regions invasive alien species, including pests and disease, may pose the greatest risk to forest health. Invasion of alien species has in the past decimated native plant species and increasing globalization is likely to increase this.
- 1.6 Furthermore, the fragmentation of the world's forests is having untold effects. Consequences of increasing fragmentation of forests due to urban expansion, conversion of forests into other land-uses such as agricultural activities, etc. may range from gene pool modification to species loss.

¹ Major Groups met in March 2003 during a UNFF MSD Consultation in Rome, Italy. During this meeting, major groups decided that synthesis view papers on the three UNFF3 elements would help focus the contributions of major groups to the UNFF dialogue. These synthesis papers are the product of two months of coordinated work on part of all major groups and are based on the recommendations of the Scientific/Technological community.

- 1.7 Finally, also past and present forest management activities influence forest health and productivity.
- 1.8 If not appropriately addressed, all these factors adversely affect the vitality and stability of the forest ecosystems and consequently also influence their ability to provide essential goods and services. This is of particular relevance where the livelihoods of rural communities, forest owners, women and other groups of society depend on forest goods and services. For example, natural disturbances of increased frequency, such as flooding, droughts and storms, often have disastrous impacts on the livelihood of forest owners and local communities. As another example, destruction of forests by bushfires, insects and air pollution in Africa, Asia and Latin America affects availability of forest products that are required by women and their families on a daily basis, such as firewood, water and other resources for household use.
- 1.9 The major groups provide important sources of knowledge, skills and abilities for forest policy and forest management. They have made substantial contributions to tackle the natural and non-natural factors which influence forest health and vitality and their effects. For example, family and community forest owners have increased efforts to choose site-adapted species and to develop site-adapted management systems to minimize the impacts of natural disturbances. Women's organizations have coordinated programs addressing the problem of bushfires, e.g. by means of training and education. Initiatives have also been taken by organizations and initiatives of youth and children to raise the awareness of young people about forest health and productivity and to encourage youth organizing at various levels. Workers and trade unions have, *inter alia*, developed apprenticeship and training programs for forest workforce and skill up-grading to promote sustainable forest management. Among other contributions, business and industry have promoted the development and application of science and technology related to forest health and productivity. Science and technology itself has significantly enhanced the understanding of the diverse factors that have an impact on forest health and vitality and of the responses of forest ecosystems to these factors. Much work, however, remains to be done in further improving this knowledge base and in the transfer of knowledge, e.g. for the development of management strategies².
- 1.10 In order to further enhance these contributions by the major groups, forest stakeholders at all levels require access to information and need to be effectively integrated into forest policy planning processes. Major groups are prepared to introduce their knowledge, skills and abilities into forest policy planning and implementation, and to assist in translating political commitment into practical action on the ground.
- 1.11 At the same time, the experiences gained by major groups clearly indicate that effects on forest health and productivity are often caused by factors which lie outside their sphere of influence. A number of policies, both private and public, contribute to the degradation of forests since the relation and linkages between forest policies and these other policies are not sufficiently recognized or defined. For example, recently the international dialogue on climate change has centered around carbon sequestration and the role of forestry in it. However, on basis of scientific evidence about the role of atmospheric carbon dioxide as a main driver of climate

² Additional contributions by major groups can be found in the individual Major Group Discussion Papers submitted to the UNFF. These can be downloaded at <http://www.un.org/esa/forests/documents-unff.html#3>

change, many interests consider that the primary international objective should be to reduce emissions of greenhouse gases.

- 1.12 Based on these lessons learned and experiences gained by the major groups, several key issue areas can be identified where more progress is needed:

2. KEY ISSUE AREAS

- 2.1 Policy and decision makers should take into better account that, apart from air pollution, there are many factors of global or regional significance which are involved in degrading forest health and productivity. As emerging issues, these factors – which include climate change, forest fire, fragmentation of forests, pests and diseases, and invasive species – should receive further attention by policy and decision makers in the future.
- 2.2 In order to more effectively address, prevent and remove causes of these negative impacts, there is a need to raise awareness of other forest relevant sectors and to strengthen dialogue and co-operation with them. To this end, suitable inter-sectoral approaches mechanisms need to be applied at various levels.
- 2.3 This cross-sectoral dialogue should build on a common understanding of what we mean when referring to forest health and productivity. However, up to now, there is no universally accepted definition of forest health. More than that, currently-used definitions are likely to be inadequate from a scientific point of view. This lack of a commonly accepted definition also constitutes a significant constraint to the development, application and improvement of appropriate tools for monitoring, assessment and reporting. Hence, there is an urgent need to develop a universally accepted definition for forest health.
- 2.4 Furthermore, there is a need to improve monitoring, assessment and reporting (MAR) on forest health and productivity. This includes both, MAR on progress in policy-related action such as the relevant IPF/IFF proposals for action, and MAR on progress towards sustainable forest management.
- 2.5 Action to effectively address forest health and productivity and implement political commitment should build on best available knowledge, information and technology. Therefore, science and technology needs to further enhance its contribution by providing policy relevant science. At the same time, support to science and technology needs to be provided on a sustained basis and the scientific and technological capacity needs to be further enhanced in all regions of the world.
- 2.6 Strengthened efforts are also needed to better integrate generated knowledge into forest management activities and the development of management strategies. These efforts need to build upon adequate education and capacity.

3. RECOMMENDATIONS

- 3.1 The recommendations and points for discussion included in the Report of the Secretary General on “Progress in implementation: forest health and productivity” for UNFF-3 address important aspects which should be taken into account by countries and other relevant actors. In particular,

they stress the importance of gathering, analyzing and widely disseminating reliable information on forest health and productivity as a basis for decision-making and enhanced field-level action. In this context, major groups welcome that wide stakeholder involvement is acknowledged as a crucial factor for the success of such action. The following recommendations by the major groups aim to complement and specify the points raised in the Secretary General's report in a critical manner in order to be able to effectively address forest health and productivity:

3.2 Countries as well as international and regional organizations, institutions and processes should develop and implement suitable approaches mechanisms for inter-sectoral co-ordination and co-operation concerning forest health and productivity. For this purpose, best use should be made of national forest programmes (nfps) and similar policy frameworks that serve as means for strengthening cross-sectoral cooperation and for the development of inter-sectoral agreement on common priorities. The frameworks used at various levels should allow for balanced participation from all relevant stakeholders and should provide information to them in a timely manner.

3.3 Countries, with the participation of relevant bodies and major groups, are called upon to adopt a universally accepted definition of forest health. To this end, the following is proposed for consideration:

“Forest health is a measure of its capacity to supply and allocate water, nutrients and energy in ways that increase or maintain ecosystem productivity while maintaining resistance to biotic and abiotic stresses”.

3.4 Countries as well as relevant international and regional organizations, institutions and processes, with the participation of major groups, should strengthen long-term efforts in MAR on the state of forests, their health and productivity. To this end,

- Indicators on forest health and productivity should be developed and/or further improved within sets of criteria and indicators for SFM. In doing so, best use should be made of research and technology and the skills and knowledge of major groups;
- Forest resource assessments should be further enhanced and improved – on basis of new research and technology – in particular in those regions where there is a lack of forest data, including through ground-based measurements in conjunction with remote sensing technologies; strong efforts are also required to build and further develop the capacity needed for forest resource monitoring and assessment, including through the transfer of technology and methodological knowledge;
- In the specific context of air pollution, it is not sufficient to increase efforts to monitor effects of air pollution and other natural and anthropogenic causes of forest damage by using methods of existing monitoring programs. Rather should existing national and supra-national approaches to monitoring and assessment be re-examined over the medium and long term on basis of new science in order to overcome existing limitations in sampling design, data quality and the lack of process-oriented research.
- Harmonized early warning systems for natural disturbances should be developed and adequate security networks should be ensured by means of adequate human and financial resources.

3.5 Countries, international and regional organizations, institutions and processes should make best use of available knowledge, information and technology related to forest health and productivity

and should promote their integration into pro-active forest management planning and practice. To this end, it is important to

- strengthen the skills and capacities of scientists and researchers for technology transfer, including through North-North, North-South and South-South co-operation and partnerships,
- enhance access and dissemination of knowledge, information and technology at a global scale, based on widely available and affordable mechanisms and technologies, such as the Internet,
- promote forest related training and education, e.g. by inclusion of forest related courses in the curricula of education institutions for youth and children, and remove gender disparities where they exist, and
- implement programs aimed at informing and raising their awareness of young people and children about the importance of forests, their health and productivity.

3.6 In all these tasks, countries as well as international and regional organizations, institutions and processes should take full account of the role and potential contribution of major groups, such as the ones represented in the multi-stakeholder process of UNFF.