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**CRITERIA AND INDICATORS
FOR SUSTAINABLE FOREST MANAGEMENT
OF THE MCPFE**

Review of Development and Current Status

Large parts of this paper are referring to an MCPFE background paper produced for the
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LIAISON UNIT VIENNA

Marxergasse 2, A-1030 Vienna – Austria, Tel: +43 1 710 77 02, Fax: +43 1 710 77 02 13
E-mail: liaison.unit@lu-vienna.at <http://www.minconf-forests.net>

EXECUTIVE SUMMARY

The "Ministerial Conference on the Protection of Forests in Europe" (MCPFE) is a high-level political initiative for co-operation of around 40 European countries and the European Community and of other countries and international organisations which are invited to participate as observers. Since 1990, three Ministerial Conferences on the Protection of Forests in Europe have taken place. At the Second Ministerial Conference, held in Helsinki in 1993, sustainable forest management was defined and further outlined in Resolution H1.

The pan-European criteria and indicators were developed in the follow-up process, based on the Helsinki Resolutions. A core set of 6 criteria and 27 most suitable quantitative indicators for sustainable forest management in Europe was adopted on expert level in 1994, descriptive indicators in 1995. A data collection questionnaire was sent out in 1995/96 and reports based on the pan-European criteria and indicators was issued in 1995 and 1996. Subsequently, data collection on most quantitative indicators was arranged to be covered by the UN-ECE/FAO Temperate and Boreal Forest Resources Assessment 2000 (TBFRA 2000).

At the Third Ministerial Conference in Lisbon in 1998 the MCPFE reported on the status of SFM in Europe by using the pan-European criteria and indicators, based on preliminary results of the TBFRA 2000 and on further data. At the conference the ministers responsible for forests adopted the 6 criteria and endorsed the associated indicators by signing Lisbon Resolution L2. The ministers also decided to proceed to implement, continuously review and further improve the associated indicators.

In the Ministerial Conference follow up process a questionnaire was sent out to collect views on the further work on the pan-European criteria and indicators for SFM. The results were used to define concrete actions in the work programme for the follow up of the MCPFE resolutions, endorsed on experts level in 1999. The MCPFE work programme contains three actions on the criteria and indicators:

- the improvement of the pan-European indicators for SFM
- further work towards the harmonisation of data collection systems
- further work towards common reporting formats

Concerning the improvement of pan-European indicators for SFM the MCPFE decided to convene four workshops in order to develop proposals for improved indicators by mid 2002.

It is planned that at the Fourth Ministerial Conference 28-30 April 2003 in Vienna, the European forest ministers will take note of the improved set of indicators.

1. THE MINISTERIAL CONFERENCE ON THE PROTECTION OF FORESTS IN EUROPE (MCPFE)

The “Ministerial Conference on the Protection of Forests in Europe” (MCPFE) is a high-level political initiative for co-operation of around 40 European countries and the European Community and of other countries and international organisations which are invited to participate as observers. Its purpose is to address common opportunities and threats related to forests and forestry. Launched as a regional initiative in 1990, it is the political platform for the dialogue on European forest issues.

Since 1990, three **Ministerial Conferences** on the Protection of Forests in Europe have taken place. These are regarded as milestones of European forest policies:

1990 – First Ministerial Conference in Strasbourg

1993 – Second Ministerial Conference in Helsinki

1998 – Third Ministerial Conference in Lisbon

Between conferences, the decisions passed by the ministers at the conferences are further specified and put into action. The follow-up and preparatory process of the Ministerial Conferences is called the “**MCPFE Process**”. Additionally, issues of immediate interest to the process are taken up and further developed on a flexible basis.

The signatory states and the European Community are responsible for implementation at the appropriate level of the decisions passed at the Ministerial Conferences. Based on voluntary commitments which constitute a common framework, governments all over Europe have taken initiatives to ensure and improve the sustainable management and the protection of forests in the region.

Table 1: Structure and Organisation of the MCPFE

Ministerial Conferences

took place in Strasbourg 1990, in Helsinki 1993 and in Lisbon 1998.

Expert Level Meetings

are attended by representatives of the European signatory states, the European Community and by observers from non-European countries, international organisations and NGOs in the fields of forestry, environment and research. The representatives of the signatories have a mandate to take decisions regarding the ongoing work between Ministerial Conferences.

Round Table Meetings

aim at an exchange of information and opinions on emerging issues, providing essential guidance for the MCPFE.

Ad hoc working groups

are convened to discuss specific subjects of scientific or technical nature.

Advisory Groups

are set up to advise the MCPFE on specific aspects.

The MCPFE is organised by the joint presidency of two countries with the support of two others. Together, these four form the **General Co-ordinating Committee (GCC)** which has the main task of proposing guidance for the follow-up work within the framework of the resolutions.

The **Liaison Unit** originally grew out of the secretariat of the Helsinki Conference. It is essentially a service-oriented office for the co-operation of the European ministers responsible for forests and provides assistance to the GCC. It is responsible for organising and carrying out all international meetings of the MCPFE, as well as the preparation of reports and documents and the development of technical background documents for discussion at these meetings. This also includes the collection, processing and distribution of information resulting from the preparatory and follow-up process.

2. THE DEVELOPMENT OF PAN EUROPEAN CRITERIA AND INDICATORS FOR SFM¹

2.1 Defining sustainable forest management on pan-European level

The Second Ministerial Conference on the Protection of Forests in Europe, held in Helsinki in 1993, confirmed the commitment of the European forest ministers to co-operation in promoting the protection of forests in Europe, *inter alia*, by signing four new Resolutions that also promoted the forest related decisions of UNCED in Europe.

As a key outcome, the Helsinki Ministerial Conference succeeded in defining the sustainable management of forests conceptually in a political context, and it means:

“the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems.” (Helsinki Resolution H1)

2.2 Developing a first set of pan-European criteria and indicators for sustainable forest management

In the follow up process to the Helsinki Conference the pan-European criteria and indicators were developed to promote and assess progress towards SFM in Europe as described in Helsinki Resolutions.

A **criterion** describes the different sides of sustainability on a conceptual level. It is a set of conditions or processes by which a forest characteristic or management is judged. The **indicators** show changes over time for each criterion and demonstrates how well each criterion reaches the objective set for it. Some aspects of the criteria can only be judged through the existence and effective implementation of a related policy framework, which are considered as descriptive indicators.

The first effort to identify these criteria and indicators was made in the informal technical follow-up meeting held in Brussels in March 1994. Based on the proposals by different countries and on the discussion the meeting agreed on a draft set of 14 criteria grouped into four categories:

1. Forest resource criteria (changes in the forest area, characteristics of forests, wood production)

¹ This chapter is partly based on Taina Veltheim (1998): “Helsinki Process and Finland's experiences in developing and using criteria and indicators for sustainable forest management” Paper presented at the “Workshop on the Application of Criteria and Indicators to Sustainable Forest Management” Washington, D.C. November 3-4, 1998.

2. Environmental criteria (biodiversity, ecosystem productivity, soil conservation, water conservation, forest ecosystem health and vitality, contribution to global ecological cycles)
3. Socio-economic criteria (long-term social benefits, long-term multiple economic benefits)
4. Institutional and legal criteria (institutions, infrastructure, legislation)

The first draft showed that the concepts of criterion and indicator were not very clear in the early stages of the work. The draft set was further developed by the General Co-ordinating Committee of the follow-up process (consisting of Finland, Portugal, Austria and Poland) with the assistance of a **Scientific Advisory Group**. The second draft for criteria complemented with indicators was distributed for comments to the signatories of Resolutions H1 and H2 (37 European states and the European Community), and to observer states and organisations. Based on the comments received the third draft was prepared for the first expert level follow-up meeting.

The core set of 6 criteria and 27 most suitable quantitative indicators for sustainable forest management in Europe was adopted in the first expert level follow-up meeting in Geneva in June 1994. The experts stressed already when adopting them that the indicators are neither final nor totally comprehensive since forests have multiple functions, some of which might not be adequately covered and that the indicators will be analysed and further developed during the Process.

A provisional list of descriptive indicators related to policy instruments was also discussed in the first expert level follow-up meeting. The policy instruments and conditions were grouped into four principle policy areas:

1. Legal/regulatory framework
2. Institutional framework
3. Financial instruments/economic policy framework
4. Informational means

These descriptive indicators were further elaborated and the second expert level follow-up meeting in Antalya in January 1995 accepted 101 descriptive example indicators grouped under the six pan-European criteria to assist in the further development of national indicators.

The main features of the pan-European criteria and indicators were identified to be:

- uniform across Europe
- national level
- coherent with Ministerial Conference Resolutions, esp. Resolutions H1 and H2
- comprehensive and simple
- reportable
- adjustable

2.3 Testing data availability and data collection for quantitative indicators

The first effort to test the suitability of the adopted Pan-European criteria and quantitative indicators and to gather information was carried out in 1994 - 1995. For that purpose the Liaison Unit of the follow-up process, with the help of the Scientific Advisory Group, elaborated a questionnaire in which the 27 quantitative indicators were further specified into 44 questions. This questionnaire together with guidelines for its completion was sent out to 38 European countries in September 1994. The questionnaire was returned from 31 countries.

The experiences made with the questionnaire can be summarised as follows:

- countries were able to provide more data on the situation in the 1990's than in the 1980's, it was not possible to present changes over time for all indicators
- reference years and the time interval used by the countries varied
- the definitions used in national inventories and statistics of different countries varied a lot
- classifications for some indicators differed considerably between countries
- the results from different countries were not easily comparable, they indicate trends in individual countries, but should not be used for comparison between countries
- there is a strong need to broaden the data collection to monitor the whole forest ecosystem and to integrate environmental aspects and socio-economic data into forest statistics.
- further development is needed in the definition of terms and in the harmonisation of classifications if data from different countries are to be comparable.
- research needs are greatest for measuring and monitoring biological diversity and socio-economic aspects of forestry.

2.4 Reporting on the status of sustainable forest management in Europe using the pan-European criteria and indicators

Preliminary results from the questionnaire enquiry were presented in the Interim Report of the Follow-up of the Second Ministerial Conference in March 1995 (Helsinki 1995). After analysing the results of the test enquiry, the Third Expert Level Meeting decided to publish more results presented on a national basis in a Progress Report in 1996.

For the Interim Report the signatory countries were asked to write a national report on the progress made in the implementation of the Resolutions H1 and H2. It was requested that the general measures to promote sustainable forest management would be described under the structure of the descriptive indicators, i.e. the four policy areas: legal/regulatory framework, institutional framework, financial instruments/economic policy framework and informational means.

2.5 Changing data collection procedures for the pan-European quantitative Indicators on SFM

During the preparation of the UN-ECE/FAO Temperate and Boreal Forest Resources Assessment 2000 (TBFRA 2000) it was decided that as many indicators from the international and regional criteria and indicators initiatives as possible would be included in the TBFRA 2000. The UN-ECE/FAO strongly co-operated with the MCPFE Process in the collection of information by adapting the TBFRA 2000 to collect information on as many as possible of the pan-European quantitative indicators of SFM.

Nevertheless, a few indicators were not included in the TBFRA 2000, chiefly because it had become clear during the consultative process to prepare the enquiry that too few countries disposed of this information at a sufficiently high quality level to enable an adequate international data set to be established.

The information collected from the countries through the TBFRA is provided by the national correspondents of the TBFRA process. The enquiry including a set of agreed terms and definitions was agreed upon with responsible national organisations and in close consultation with other interested organisations and bodies, including the Liaison Unit of the follow-up process.

2.6 Reporting preliminary results at the Third Ministerial Conference in Lisbon

The preliminary results of the TBFRA 2000 for the pan European region were provided for the Follow-up Report which was prepared for the Third Ministerial Conference on the Protection of Forests in Europe, held in Lisbon, Portugal in June 1998. Information (or corresponding information) on most of the quantitative indicators - 21 out of 27 - was provided through the TBFRA 2000. Six indicators were not included in the in the TBFRA mainly because it had become clear during the consultative process to prepare the enquiry that too few countries were able to provide this information at a sufficiently high quality level to enable an adequate international data set to be established. For these indicators, countries were invited to provide information in their national reports on the follow-up and implementation of the Resolutions H1 and H2. Replies were received from 36 out of 38 signatory countries of the Resolutions H1 and H2 early enough for the preparation of the follow-up report. For the descriptive indicators the same procedures were applied as for the Interim Report in 1995.

3. THIRD MINISTERIAL CONFERENCE - RESOLUTION L2 AND FOLLOW UP

3.1 Resolution L2 “Pan-European Criteria, Indicators and Operational Level Guidelines for Sustainable Forest Management”

The Third Ministerial Conference on the Protection of Forests in Europe was held in Lisbon, Portugal on 2-3 June 1998. The Conference evaluated the progress in the implementation of the Strasbourg and Helsinki Resolutions, with particular emphasis on the sustainable forest management in Europe. In order to complement Resolutions H1 and H2 the ministers adopted Resolution L1 "People, Forests and Forestry - Enhancement of Socio-Economic Aspects of Sustainable Forest Management". The ministers also gave a high political status on the pan-European criteria, indicators and operational level guidelines by adopting Resolution L2 "Pan-European Criteria, Indicators and Operational Level Guidelines for Sustainable Forest Management".

The ministers adopted the pan-European criteria for SFM and endorsed the related indicators as a basis for international reporting and for development of national indicators. The ministers decided to proceed to implement, continuously review and further improve the associated indicators. The need for international co-operation and research were emphasised in the further development of indicators. In order to enhance the implementation of national criteria and indicators they should be integrated into national forest programmes or other relevant policy frameworks. For the assessment of the progress made in promoting sustainable forest management, information on quantitative indicators should be complemented with the assessment of trends compared to agreed objectives.

The ministers also decided to develop a work programme for the implementation of the decisions of the Lisbon Conference and for the reinforcement of the work on Strasbourg and Helsinki commitments. Further improvement of the pan-European indicators are part of this MCPFE work programme.

3.2 Follow up work of Lisbon regarding C&I: Questionnaire 1999

In the follow up of the third ministerial conference the issue of improving the pan-European criteria and indicators for SFM received a high priority in the overall work. In order to clarify views and expectations of the signatories and observers of the MCPFE and to give political-level orientation for further work on C&I, a questionnaire on the "Improvement of Pan-European Indicators for Sustainable Forest Management, Data Collection and Reporting" was elaborated by the Liaison Unit and sent to the signatories and observers of the MCPFE in July 1999.

The comments submitted give rather concrete indications on weaknesses and suggestions for possible improvements of existing indicators. Furthermore, they underline the usefulness of exploring possibilities of aggregation of data as well as of enhancing comparability and

compatibility of the pan-European C&I with other sets of C&I for SFM. As regards possible procedures for further work on indicators, there was consensus that the MCPFE should lead the process, making best use of existing expertise and knowledge.

As main results the answers received indicate that at present notably Criteria 4 ("Biological Diversity"), 5 ("Protective Functions") and 6 ("Other Socio-Economic Functions and Conditions") are not covered satisfactorily by existing indicators. In the questionnaires, the signatories and observers of the MCPFE clearly outlined most relevant principles for the improvement of existing indicators. It was stated that future work on indicators should take into account the long-term nature of the concept of C&I for SFM. It should build upon experiences made and know-how of signatory states, technical and scientific bodies, and it should reflect information needs of today's society and the forest sector, where appropriate.

Furthermore, the need for further clarification and improvement of terms and definitions and the usefulness of exploring possibilities of further aggregation of data, notably for better communication to decision makers and the public, as well as of enhancing comparability and compatibility of the pan-European C&I with existing sets of C&I for SFM of other international and regional initiatives was stated.

A separate evaluation with regard to the feasibility of existing quantitative indicators has been conducted through the UN-ECE/FAO. Its result points to very similar areas where improvement would be needed as the results of the MCPFE questionnaire.

3.3 MCPFE Work Programme on pan-European criteria and indicators for sustainable forest management

As mentioned above as a consequence of the ministerial decisions in Lisbon a work programme on the follow up of MCPFE resolutions was developed and subsequently adopted on expert level in 1999. The MCPFE work consists of 41 actions, three areas of work are related to criteria and indicators for SFM (see table 2):

Table 2: MCPFE Work programme – actions regarding criteria and indicators for SFM

4.2. Criteria and Indicators for SFM	Actions	Actors	Time frame
4.2.1. Improvement of Pan-European Indicators for SFM	Determination of common objectives and actions - Comments through questionnaires	MCPFE; Liaison Unit Vienna in consultation with GCC	04/99 - 09/99
	Evaluation of existing indicators under all pan-European criteria	Liaison Unit Vienna in co-operation with scientific and technical bodies, notably UN-ECE/FAO	11/1999 -
	Development of improved indicators	To be determined	
4.2.2. Towards Harmonising Data Collection and Reporting Systems	Exploration of possibilities to harmonise forest related data collection and reporting systems in Europe through questionnaires and expert interviews	Liaison Unit Vienna with consultation of and in collaboration with scientific and technical bodies	10/1999 -
4.2.3. Pan-European Reporting on SFM	Elaboration of common reporting format for national reports	Liaison Unit Vienna in consultation with GCC and ELM and in collaboration with scientific and technical bodies	10/2000 -

The actions already completed on C&I for SFM concern the MCPFE work programme element “Improvement of Pan-European indicators for SFM”, namely the determination of common objectives and actions by collecting comments through the questionnaire on the “Improvement of Pan-European Indicators for Sustainable Forest Management, Data Collection and Reporting”. Its results have been used to formulate the proposals for common actions on pan-European level. All other actions on C&I for SFM are currently ongoing, notably the work on the improvement of indicators.

4. CURRENT MCPFE WORK - IMPROVEMENT OF PAN-EUROPEAN INDICATORS FOR SFM

In the work on the improvement of pan-European indicators for SFM the participants of the MCPFE confirmed on expert level the principle to make best use of the expertise and competence of technical and scientific bodies and emphasised that experiences made in individual countries should be taken into account. Reference was also made to the importance of data collection and reporting aspects. It was stated that when further developing existing pan-European indicators, linkages and contributions to the global forest processes² and reporting obligations³ should be adequately considered. Furthermore, the relation to global conventions (Convention on Biological Diversity - CBD, United Nations Framework Convention on Climate Change – FCCC, Convention to Combat Desertification - CCD) and to the process “Environment for Europe” was mentioned as an important dimension which should be given particular attention.

In order to best take into account existing knowledge and experience made on C&I and to adequately reflect the variety of situations and circumstances throughout the European continent, an “Advisory Group”⁴ was established which consults with other experts and invites further advice on specific issues or aspects on the MCPFE indicators.

In a series of four workshops on the improvement of pan-European indicators - open to all interested parties - the MCPFE is currently preparing for the third workshop to be convened on 14-15 January in Budapest, Hungary. It is the task of these workshops to produce a draft set of improved pan-European indicators to be presented to the consideration and possible adoption of the next MCPFE Expert Level Meeting on 10-11 June 2001 in Vienna. Finally the improved set will be brought to the attention of the European ministers at the 4th Ministerial Conference on the Protection of Forests in Europe 28-30 April 2003 in Vienna.

A report on the state of Europe’s forests on SFM based on the pan-European C&I will be submitted to the Fourth Ministerial Conference.

² Reference was notably made to the IPF/IFF proposals for action and the future multi-year programme of work of the United Nations Forum on Forests.

³ Forest Resource Assessment (FRA)

⁴ The Advisory Group is constituted by persons representing the UNECE/FAO, the Inter-secretariat Working Group on Forest Statistics, the UNECE Team of Specialists on the Temperate and Boreal Forest Resources Assessment (TBFRA) and IUFRO, the European Forest Institute (EFI), ICP Forests, European Environmental Agency).

ANNEX: Overview of pan-European criteria and quantitative indicators for sustainable forest management

Criteria	Indicators
1. Maintenance and appropriate enhancement of forest resources and their contribution to global carbon cycles	<p>1.1 Area of forest and other wooded land and changes in area (classified, if appropriate, according to forest and vegetation type, ownership structure, age structure, origin of forest)</p> <p>1.2 Changes in:</p> <ul style="list-style-type: none"> a) total volume of the growing stock b) mean volume of the growing stock on forest land (classified, if appropriate, according to different vegetation ones or site classes) c) age structure or appropriate diameter distribution classes <p>1.3 Total carbon storage and changes in the storage in forest stands</p>
2. Maintenance of forest ecosystem health and vitality	<p>2.1 Total amount of and changes over the past 5 years in depositions of air pollutants (assessed in permanent plots)</p> <p>2.2 Changes in serious defoliation of forests using the UN/ECE and EU defoliation classification (classes 2,3, and 4) over the past 5 years</p> <p>2.3 Serious damage caused by biotic or abiotic agents:</p> <ul style="list-style-type: none"> a) severe damage caused by insects and diseases with a measurement of seriousness of the damage as a function of (mortality or) loss of growth b) annual area of burnt forest and other wooded land c) annual area affected by storm damage and volume harvested from these areas d) proportion of regeneration area seriously damaged by game and other animals or by grazing <p>2.4 Changes in nutrient balance and acidity over the past 10 years (pH and CEC); level of saturation of CEC on the plots of the European network of an equivalent national network.</p>
3. Maintenance and encouragement of productive functions of forests (wood and non-wood)	<p>3.1 Balance between growth and removals of wood over the past 10 years</p> <p>3.2 Percentage of forest area managed according to a management plan or management guidelines</p> <p>3.3 Total amount of and changes in the value and/or quantity of non-wood forest products (e.g. hunting and game, cork, berries, mushrooms, etc.)</p>
4. Maintenance, conservation and appropriate enhancement of biological diversity in forest ecosystems	<p>4.1 Changes in the area of:</p> <ul style="list-style-type: none"> a) natural and ancient seminatural forest types b) strictly protected forest reserves c) forests protected by special management regime <p>4.2 Changes in the number and percentage of threatened species in relation to total number of forest species (using reference lists e.g., IUCN, Council of Europe or the EU Habitat Directive)</p> <p>4.3 Changes in the proportion of stands managed for the conservation and utilisation of forest genetic resources (gene reserve forests, seed collection stands, etc.); differentiation between indigenous and introduced species</p> <p>4.4 Changes in the proportion of mixed stands of 2-3 tree species</p> <p>4.5 In relation to total area regenerated, proportions of annual area of natural regeneration</p>
5. Maintenance and appropriate enhancement of protective functions in forest management (notably soil and water)	<p>5.1 Proportion of forest area managed primarily for soil protection</p> <p>5.2 Proportion of forest area managed primarily for water protection</p>
6. Maintenance of other socio-economic functions and conditions	<p>6.1 Share of the forest sector from the gross national product</p> <p>6.2 Provision of recreation: area of forest with access per inhabitant, % of forest area</p> <p>6.3 Changes in the rate of employment in forestry, notably in rural areas (persons employed in forestry, logging, forest industry)</p>