



7. Conclusions and recommendations

7.1 Overview of main conclusions

The project has collected and analyzed data and opinions on the implementation of criteria and indicators of sustainable forest management using national enquiries, expert interviews and regional workshops, whose methods are explained in chapter 4. The results of this work are presented in chapter 5 and discussed in chapter 6.

The main conclusions are briefly summarized:

- The implementation of criteria and indicators varies widely between countries. However, the pan-European set of criteria and indicators has served as a *framework for dialogue and communication*. It has been instrumental in defining the content of sustainable forest management and has provided structure to the pan-European forest policy process. Although negotiated at the policy level, criteria and indicators have helped to integrate science into the policy debate.
- The pan-European set has served as an adequate *tool for monitoring and reporting on sustainable forest management*, shaping and stabilizing international and national reporting, improving information availability and quality and promoting a broader understanding of forest-related information.
- The pan-European set has made a limited contribution to *assessing progress towards sustainable forest management* by providing time trends for a first assessment step. However assessment procedures based on criteria and indicators currently suffer from a lack of clear and explicit objectives and thresholds. No widely approved assessment methodology has yet been developed, although progress is being made.
- The pan-European set has *facilitated the development and adaptation of national policy instruments* as it serves as a reference framework for policies; through its implicit normative power, increased political commitment to sustainable forest management has been observed.
- The pan-European set has only *generated limited information of intersectoral relevance*: data collected according to the set, or national/sub-national sets, are not in fact much used by

broader indicator sets used by other sectors, or for society and the economy as a whole.

- The *pan-European set of criteria and indicators for sustainable forest management is in need of revision* in order to react and adjust to changing realities.

A Pan-European Forum on implementing criteria and indicators for sustainable forest management took place in Vienna on 8–9 October 2013, to present the draft version of this report and discuss its conclusions and recommendations. The outcomes of the Forum are summarized in Annex 6.

On the basis of the analysis and discussion in chapters 5 and 6 (see main conclusions above) the project team has prepared recommendations, which are presented in the sections below. The recommendations are based on the input from national correspondents and expert interviews, the regional workshops and the Pan-European Forum, but are the sole responsibility of the project team. All involved in the process were given the opportunity to comment, but have not formally approved these recommendations.

7.2 Recommendations for implementation at national and sub-national levels

7.2.1 Review implementation at the national and sub-national level

The study has shown that the pan-European set of criteria and indicators for sustainable forest management is being used in many countries in a variety of different ways. Those responsible for forest sector policy at the national and sub-national level should review whether they are using the pan-European set of criteria and indicators to its maximum potential, drawing on the experiences gained by other countries. In particular they should consider:

- Constructing a national/sub-national set of criteria and indicators, based on the pan-European set, if one does not exist already.
- Preparing a national/sub-national report on the state of forests structured around the national/



sub-national set, if they have not already done so, or repeat an earlier reporting exercise.

- Using the concepts underlying the set, and the data collected in accordance with it, more intensively to inform policy and policy instruments for the forest sector and adjacent sectors in need of forestry information.
- Structuring national forest resource assessments around the set of criteria and indicators.
- Exchanging experience in the use of criteria and indicators between stakeholders

7.2.2 Promote smart use of criteria and indicators

The study has shown that the cost/benefit ratio of implementing criteria and indicators is not necessarily favourable, and their impact does not always meet expectations. To counteract this, users, notably forest administrations and researchers, should consider more efficient methods of implementation, in particular:

- Streamlining the collection of data connected to criteria and indicators with the collection of standard management information.
- Linking information collection, distribution and analysis at the Forest Management Unit (FMU), sub-national, national and international levels, for instance by using the same concepts, definitions and units, or by integrating information systems, thus economizing on resources and improving data quality and availability.
- Collecting only the information required for use by managers and policy makers, avoiding excessive detail and/or frequency.
- Focusing improvement efforts on areas where there are major gaps or inadequacies, rather than on improving the reliability of existing sets which are already adequate for decision making.
- Integrating international needs into national, sub-national and FMU-level data collection systems, which would simplify the international reporting process, improve the quality of international information and avoid unnecessary national data collection or conversion to international definitions.
- Using data originating outside the forest sector, e.g. national labour force and economic statistics.

7.2.3 Develop capacity in the field of criteria and indicators

Many countries and regions in Europe do not have the necessary capacity to implement criteria and indicators in the comprehensive way described by this project. A set of workshops along the lines of those carried out by this project could be organized in regions where countries have experienced difficulties in implementing criteria and indicators. Such workshops should, if possible, take place before the start of any revision of the pan-European set (see 7.3.1 and 7.3.2 below). Such an approach will ensure that the countries concerned can make a full contribution to the revision process and find their specific circumstances fully taken into account at the pan-European level. Other tools might also be desirable to facilitate and improve the implementation of criteria and indicators, such as guidelines.

7.2.4 Develop or enhance the use of criteria and indicators at the sub-national level

The project has shown that the pan-European set of criteria and indicators, or a set based on it, is also used at the sub-national level, notably in countries where forest policy responsibility is at that level. An effort should be made to share this experience and widen knowledge of the use of criteria and indicators at a sub-national level.

7.2.5 Use criteria and indicators indirectly to improve practice at the forest management unit (FMU) level

The pan-European set of criteria and indicators, although they cover all aspects of sustainable forest management, are not normative and are not intended for use at the FMU level. However the Pan-European Operational Level Guidelines for sustainable forest management (PEOLG), which are normative and intended for the FMU level, are based on the pan-European set as approved at the ministerial conference in Lisbon in 1998. PEFC, one of the two leading forest certification systems, is explicitly based on the PEOLG, which provides the foundation for the PEFC principles. There has



certainly been strong mutual influence between the criteria and indicators for sustainable forest management and the forest certification systems, notably as regards what constitutes the components of sustainable forest management, at all levels. The project has shown that many countries and experts consider that the pan-European set has a major indirect impact on forest management practice, as it defines sustainable forest management in a comprehensive and balanced way, even though it is not normative. When revising the C&I set, stakeholders should take this indirect influence of the pan-European set into account.

7.3 Recommendations for implementation at pan-European level

7.3.1 Formulate objectives for a revised pan-European set of criteria and indicators for sustainable forest management

The project has shown that implementation of the pan-European set has been weakened by the fact that its objectives have been developed over time in the light of experience and not explicitly formulated. It would be desirable in the future to base implementation and revision of the pan-European set of criteria and indicators on an explicit set of objectives which is based on a broad consensus. A widespread consultation should therefore be held on the objectives of a possible revised pan-European set of criteria and indicators for sustainable forest management. This consultation should be led by FOREST EUROPE or be under the aegis of the proposed Legally Binding Agreement on Forests in Europe. The consultation should involve a wide range of stakeholders, including national and sub-national policy makers and forest administrations, scientists, forest owners and forest industries, civil society and international organizations. Representatives of other sectors should be invited to participate actively. This review of the objectives of the pan-European set of criteria and indicators should be open and transparent, and take place before the process of revising the indicator set starts. It should also consider the option of not revising the set if the likely ratio between the costs of revising and implementing a new set and the benefits

in terms of improved policy, information and communication is not seen as favourable.

The project team proposes the following draft set of objectives, as a basis for discussion. This draft is based on the working definition used in the project, modified to take account of suggestions made in enquiries and expert consultations carried out during the project:

The objectives of the pan-European criteria and indicator set, or a national set derived from it, and specifically the information structured according to it, are to carry out one or more of the following functions:

1. *Provide a framework for dialogue and communication on sustainable forest management and forest policy development between policy makers inside and outside the forest sector, relevant stakeholders, and society as a whole.*
2. *Monitor and report on the state and trends of the forest sector and on the implementation of national commitments with regard to sustainable forest management.*
3. *Provide structured information and analysis making it possible to assess progress towards the goal of sustainable forest management, and on that basis to identify emerging issues and areas of concern.*
4. *Provide tools for use by those who formulate, implement, monitor and evaluate national or sub-national forest programmes, policies and/or plans, laws and improve forest sector governance.*
5. *Provide a structure and conceptual framework for research into sustainable forest management.*
6. *Provide information and/or assessment for analysis to other sectors and initiatives which are relevant to the forest sector, and provide input for cooperation with forest sector processes and policies in other regions.*

Notes on the proposed objectives

- (i) *The pan-European set of criteria and indicators may be used at several levels: pan-European, EU, national and sub-national. It is not intended for direct use at the forest management unit level, but may be used*



indirectly, for instance as a reference for guidelines or certification schemes.

- (ii) *“Forest sector” is the area covered by the pan-European set of criteria and indicators, including the quantitative indicators in the six criteria and all the qualitative indicators.*

7.3.2 Revise the pan-European set of indicators

The analysis of this project leads to the conclusion that it is desirable to revise the pan-European set for many reasons, including changed circumstances, ambiguity about objectives, lack of a coherent logical framework, unfavourable cost/benefit ratio for several indicators and uses, weak impact in some areas, notably communication with other sectors, and issues related to specific indicators which are summarized in the previous chapters. This revision should include not only the addition or removal of specific quantitative indicators but also the structure of the set as a whole, the relations between quantitative and qualitative indicators, linkages between indicators and the desirability of composite indicators. A number of experts interviewed by the project proposed that the criteria themselves should be revised, but the project team believes that as the criteria were formally approved in a long and delicately balanced process and fit into a global conceptual framework, the cost of reopening the process of defining the criteria would be excessive compared to the likely benefits. The project team recommends therefore that revision should take place within the framework of the existing criteria.

An open, participatory and science-based process should be put in place, under the auspices of FOREST EUROPE or the proposed Legally Binding Agreement, to prepare a revised pan-European set. This process should be founded on the following principles:

- All indicators in the revised set should contribute to achieving the agreed objectives (see 7.3.1). Those indicators which do not contribute to these objectives or which do not have a favourable cost/benefit ratio should be removed.
- A logical framework for the revised set should be designed and applied, if possible.
- The revision process should start from the existing set and relevant experience, as presented in

this report. Stakeholders, notably national and international data providers for the ‘State of Europe’s Forests’ process, should be consulted throughout the revision.

- Weak data availability or low quality of the data should not, in itself, be a reason for dropping an indicator if it is meaningful and there is the potential for it to develop usable information.
- The set should be designed to generate enough meaningful information to satisfy the agreed objectives, without excessive volumes of data not needed for those purposes.
- The cost/benefit ratio¹ of each indicator and of the set as a whole should be explicitly considered.
- Improvement efforts should give priority to remedying major data gaps and inadequacies, rather than on increasing the reliability of data sets which are already adequate for the purpose.
- The revised set should maintain the balance between the aspects of sustainable forest management which is at the heart of the concept.

In summary, it will be essential for the long-term usefulness of the indicator set that this revision be carried out in depth, in a firm logical framework, based on sound science and a realistic assessment of past experience and with widespread participation of all stakeholders.

7.3.3 Develop harmonized methods to assess sustainability of forest management at the national and sub-national level, using criteria and indicators

Different approaches have been developed to assess (i.e. not only describe) progress towards sustainable forest management, identify areas of concern for sustainability and policy responses to them, as well as to identify emerging policy issues on an objective basis². Some practices at national level were identified by the project team. At the international level, ECE/FAO is leading an effort in this direction, on a pilot basis, for use in the next SoEF. Building on the pilot exercise, a method should be developed and applied based on a wide

¹ The ratio between the cost of collecting and analysing the information and the benefit provided by that information, especially in the form of better evidence-based policies.

² See for instance Part III of SoEF 2011.



consensus, to provide sound foundations for clear statements about the sustainability of forest management in Europe.

The effort to assess the sustainability of forest management probably implies the agreement of thresholds, at least for some of the indicators. This must be done in a transparent and consultative way, taking account of national specificities. In the opinion of the project team and many of the experts interviewed, the improvements in significance and impact of this approach justify this exercise.

7.3.4 Develop understanding and use of the qualitative indicators

At the international level, a considerable amount of information has been collected on the qualitative indicators, notably about the policy instruments in place. However, this has remained descriptive in nature. Work should be undertaken to develop objective ways to analyze the current approach and information supplied by countries, notably in two respects:

- What are the links between qualitative and quantitative indicators? In other words can trends in certain quantitative indicators be linked to specific policy instruments?
- What types of policy instruments have been most effective and efficient in achieving the stated objectives (where objectives have been formulated in measurable terms)?

Answers to these questions would help forest sector policy makers to demonstrate the effectiveness of the policy instruments in place and adapt policy and policy instruments in the light of results, thus demonstrating evidence-based policy making. This approach has been applied successfully at the national level in a few countries.

7.3.5 Develop subsets of indicators or composite indicators to address specific policy issues

The pan-European set and the national/sub-national sets based on it are balanced and comprehensive in their approach. However, to address specific policy issues, it may be desirable to use a subset of the indicators, or to create composite indicators to measure progress or to set goals, even

to manage tradeoffs. These subsets or composite indicators may be necessary only in certain regions or for a limited time/purpose according to changing needs, even though they are constructed inside the framework of the general indicator set. The revised indicator set should be designed with this need in mind, and could perhaps identify certain subsets which might be relevant to specific policy challenges.

7.3.6 Build bridges to other sectors

The project has shown that data from criteria and indicators of sustainable forest management are little known or used by other sectors (e.g. energy, biodiversity, sustainable development) or by broader indicator sets applied to the whole of society. One reason is that the information collected in the context of the forest sector indicators is not in a form which can be easily used and understood by the other sectors – and *vice versa* (information generated by other sectors is often not used in the forest sector). To remedy this, during a possible revision process the forest sector at the national and pan-European level should approach institutions, organizations or processes which may have use of or a need for forest indicator information. This could be, for instance, in the context of indicator sets based on their sector, in order to identify issues, define needs and take these into account. The needs of other sectors should be balanced against the cost of the proposed changes. A strengthened Forest Indicators Partnership³ might contribute to this effort.

7.4 Outlook for future research

The outlook for future research needs builds on a synthesis of all the project findings including a literature review, experiences on national and sub-national levels, and opinions of experts on C&I. The project team has distilled a set of topics, found during the project implementation, which require further attention.

First, consistency among C&I applications seems desirable in order to improve the efficiency of data collection while reducing its burden and allowing

³ An informal partnership between the Montréal Process, ITTO, FOREST EUROPE and FAO.



for consistent C&I use across different spatial levels and sectors. In fact, little is known about overlaps and contrasts among different sectoral indicator sets. The idea of having a suite of indicator subsets based on a generic overarching set has not been properly explored. Indicator subsets could provide viable approaches to address different demands on C&I (e.g. in the context of a legally binding agreement or the voluntary approach of FOREST EUROPE), and support tailored solutions with a common baseline. In addition, this might strengthen the integration of forestry C&I in cross-sectoral applications such as the European sustainability indicators. Based on the above, it should be tested how the transmittance of C&I applications from the international to the national level is ensured, and how policy indicators can be connected to forest management unit (FMU) level implementation.

Second, the concept of developing composite indicators was expressed as a promising option by many. Composite indicators are seen as an opportunity to ease the interpretation of multi-parameter indicators and to better support the communication of a status. Such approaches will have to be tested against the validity of aggregation rules and the modalities of parameter weighting procedures. There is a need for a pre-assessment of communication demands within/outside the forest sector to properly deliberate the balance between information loss through aggregation versus communication gains. It is proposed that feasibility studies are performed that address partial composites within the C&I set rather than aspiring to a full aggregation approach (e.g. a sustainability index). This would identify those indicators that show stronger instrumental than symbolic use (i.e. those which can indicate change and progress towards SFM and are sensitive enough to changes in the socio-ecological environment).

Third, the exploration of assessment procedures builds on the first two points. In advance of an actual methodological enhancement there needs to be a clear deliberation whether and how such procedures can address policy needs. To go beyond sheer academic analysis, there must be clarity about the need to show progress towards/deviation from SFM, and instruments which allow the proper

interpretation of such outcomes. This implies the recognition that only a part of the current C&I set is principally applicable for assessment. Generally, a scientifically guided debate on the preferred direction for developing the forest sector, on desired futures, on the nature and acceptance of trade-offs, and acceptable/non-acceptable states of indicators is needed to make assessment approaches applicable and to define mechanisms for their execution. To achieve this, a balanced transparent methodology and procedure is needed.

Fourth, a C&I revision will require a thorough process based on the latest state-of-the-art in C&I research. In the pan-European case, applied research will be needed on how to (i) clarify the roles of participants and the ownership of the process of a C&I revision in advance, including objectives and desired outcomes, (ii) make the normative nature of C&I selection in SFM visible and transparent, and define rules for stakeholder participation, (iii) address the political-social aspects of C&I development before moving to purely technical discussions, and develop procedures to respond to this, (iv) take account of different levels of policy- and decision-making in SFM, and incorporate methods that can combine expert knowledge and interest representation, and (v) unleash potential means of guidance for National Forest Programmes and similar instruments on C&I development and revision.

In conclusion, all the above leads towards a new logical framework underlying the pan-European C&I set. A conceptual framework was so far only implicit while data- and interest-driven indicators were strong, but a possible revision offers the chance to integrate intersectoral/interdisciplinary concepts and designs to the C&I suite. Overall, there is a need to define clear references to political goals and agree on clear terms and definitions. This would allow the identification of priorities and the means by which they are communicated, and of how to develop and integrate analytical and systemic features into C&I (e.g. indicator interactions, constraints, trade-offs). It is proposed that this is performed under scientific guidance to form a robust and reliable environment for a multiple-use C&I set.