

REPORT

**FAO/ITTO
Expert Consultation on Criteria and Indicators for
Sustainable Forest Management**

**Organized by the
Forest Management Bureau
Department of Environment and Natural Resources
Philippines**

2 - 4 March 2004, Cebu City, Philippines



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LIST OF ACRONYMS

ATO	African Timber Organization
AFLEG	Africa Forest Law Enforcement and Governance
CBD	UN Convention on Biological Diversity
CCD	UN Convention to Combat Desertification
C&I	Criteria and indicators
CICI	International Conference on the Contribution of Criteria and Indicators for Sustainable Forest Management: <i>The Way Forward</i> ; Guatemala 02/2003
CIFOR	Center for International Forestry Research
CGIAR	Consultative Group on International Agricultural Research
COFO	FAO Committee on Forestry
CPF	Collaborative Partnership on Forests
CSD	UN Commission on Sustainable Development
DENR	Department of Environment and Natural Resources, Philippines
ECCI	Expert Consultation on Criteria and Indicators for Sustainable Forest Management, Cebu, Philippines 03/2004
ECOSOC	Economic and Social Council of the United Nations
FAO	Food and Agriculture Organization of the United Nations
FMB	Forest Management Bureau, Philippines
FRA	Forest Resources Assessment (coordinated by FAO)
FSC	Forest Stewardship Council
GEF	Global Environment Facility
GFRA	Global Forest Resources Assessment
IAG	International Advisory Group
ICRAF	World Agroforestry Center
IFF	Intergovernmental Forum on Forests
IPCC	Intergovernmental Panel on Climate Change
IPF	Intergovernmental Panel on Forests
ISCI	International Seminar on Criteria and Indicators
ITFF	International Task Force on Forests
ITTO	International Tropical Timber Organization
IUCN	World Conservation Union
IUFRO	International Union of Forestry Research Organizations
MAR	Monitoring, assessment and reporting
MCPFE	Ministerial Conference on the Protection of Forests in Europe
MDG	UN Millennium Development Goals
MPCI	Montreal Process on Criteria and Indicators
NGOs	Non-governmental organizations
NFPs	National forest programmes
SFM	Sustainable forest management
TAC	Technical Advisory Committee
UN	United Nations
UNEP	United Nations Environment Programme
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNFF	United Nations Forum on Forests
WB	World Bank

ACKNOWLEDGEMENTS

FAO and ITTO express their deep appreciation of the efforts of the Government of the Philippines, particularly the Forest Management Bureau of the Department of Environment and Natural Resources, in co-organizing and hosting the Expert Consultation on Criteria and Indicators for Sustainable Forest Management (ECCI-2004).

The Organizing Committee extends its gratitude to the Chairperson and Rapporteur of the meeting, the Chairpersons and Rapporteurs of the working groups, the opening guest speaker, and the authors of the three discussion papers for providing leadership, guidance and direction in formulating the recommendations of ECCI-2004.

Thanks are also extended to the members of the secretariat provided by the Forest Management Bureau, who attended to the logistical requirements of the meeting with great professionalism and dedication, and to all participants, whose enthusiasm and expertise ensured the success of the meeting.

EXECUTIVE SUMMARY

The Expert Consultation on Criteria and Indicators for Sustainable Forest Management (ECCI-2004) was organized by the Forest Management Bureau of the Philippines, the Food and Agriculture Organization of the United Nations and the International Tropical Timber Organization and convened in Cebu City, Philippines, from 2 to 4 March 2004. The Forest Management Bureau of the Philippines hosted the meeting.

The Expert Consultation brought together 45 technical and policy experts representing 27 countries and seven international organizations involved in the ongoing processes on criteria and indicators for sustainable forest management. It aimed to make recommendations for consideration by countries, C&I processes, UNFF and other international bodies and organizations involved in the work on C&I on the following issues, which served as objectives of the meeting: (1) developing a communication network among processes, countries and other relevant partners to provide a mechanism for exchange of information, building on existing networks; (2) improving common understanding of concepts, terms and definitions related to criteria and indicators; (3) identifying common approaches, methods and protocols for collecting, storing and sharing data; (4) strengthening criteria and indicator processes and inter-process cooperation and sharing of information and know-how; and (5) analyzing the merits of forming an *ad hoc* international technical advisory group to address technical issues related to the development and implementation of criteria and indicators.

Three themes were identified and discussed to address the objectives of the consultation. These were:

Theme 1 - Communication and information management for enhancing the implementation of C&I for sustainable forest management;

Theme 2 - Terms and definitions related to C&I for sustainable forest management

Theme 3 - Strengthening the C&I processes for better implementation

The observations and recommendations formulated by the experts in this consultation addressed to the fourth session of the United Nations Forum on Forests (UNFF-4), countries, experts, processes, organizations and others would further enhance the implementation of criteria and indicators for sustainable forest management on the ground.

Based on the results of discussions of the three themes, the participants adopted 42 observations and 48 recommendations for national and international action. These are detailed in Section IV of the report.

Participants requested the Government of the Philippines to present the report of the Expert Consultation to UNFF-4 and to other relevant organizations and processes dealing with C&I for sustainable forest management.

**Report of the FAO/ITTO Expert Consultation on Criteria and Indicators for
Sustainable Forest Management**
Cebu City, Philippines, 2 - 4 March 2004

I. INTRODUCTION

The expert consultation on criteria and indicators for sustainable forest management (ECCI-2004) was held in Cebu City, Philippines, from 2 to 4 March 2004 to make recommendations to UNFF and others involved in C&I processes on the following issues, which served as objectives of the meeting:

1. Developing a communication network among processes, countries, and other relevant partners to provide a mechanism for exchange of information, building on existing networks.
2. Improving common understanding of concepts, terms and definitions related to C&I.
3. Identifying common approaches, methods and protocols for collecting, storing and sharing data.
4. Strengthening criteria and indicator processes and inter-process cooperation and sharing of information and know-how.
5. Analyzing the merits of forming an *ad hoc* international technical advisory group to address technical issues related to the development and implementation of C&I.

Three themes were identified and discussed to address the objectives of the consultation. These were: Theme 1 - Communication and information management for enhancing the implementation of C&I for sustainable forest management; Theme 2 - Terms and definitions related to C&I for sustainable forest management; and Theme 3 - Strengthening the C&I processes for better implementation. The observations and recommendations formulated by the experts in this Consultation addressed to UNFF-4, countries, experts, processes, organizations and others focused on the issues and concerns of these themes.

The consultation was organized jointly by the Forest Management Bureau of the Philippines, FAO and ITTO. It was hosted by the Government of the Philippines through the Forest Management Bureau of the Department of Environment and Natural Resources.

The consultation brought together 45 technical and policy experts representing 27 countries and seven international organizations involved in the ongoing C&I processes (see Annex 3 for a list of participants).

The meeting was conducted based on one of the major recommendations of CICI-2003 held in Guatemala City from 3 to 7 February 2003, which was that FAO and ITTO convene an international expert consultation to provide inputs to the work of UNFF considering existing networks, mechanisms and the need to enhance coordination among countries and processes. CICI-2003 was held in direct response to the recommendations of the FAO/ITTO/UNEP/CIFOR/IUFRO expert meeting on criteria and indicators for sustainable forest management, which took place at FAO Headquarters, Rome, from 15 to 17 November 2000 and supported the work programme of UNFF.

In retrospect, the holding of ECCI-2004 in Cebu City was precipitated by other global initiatives dating back to UNCED 1992 in Rio, including the non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests and the subsequent IPF/IFF proposals for action covering 270 proposals on sustainable forest management (SFM). At present there are nine international C&I initiatives and processes at varying levels of implementation. About 150 countries are members of one or more of these, confirming the significance of C&I as a policy instrument and tool for sustainable forest management. The intergovernmental seminar on

criteria and indicators (ISCI), held in Helsinki, Finland, in 1996, also recognized the usefulness of C&I as tools for assessing the state of a country's forests and assisting informed policy and decision-making.

IPF, IFF and UNFF expressed the need to harmonize concepts, terms and definitions and to streamline reporting. The UN expert group in 2003 recommended the use of C&I as a reference for monitoring and assessing progress towards SFM. CPF members assumed the leadership role at the global level in harmonizing terms and definitions for international use.

FAO has been collaborating with the nine ongoing C&I processes, which have several common thematic areas or indicators of sustainable forest management. The convergence of FRA 2005 with other national reporting requirements such as the C&I-based ITTO producer country reports, "Progress on meeting objective 2000", is of direct relevance to ongoing processes on C&I for sustainable forest management and can make them cost-effective. FRA 2005 will be a broad and holistic assessment of forest resources and will synergize with the framework of C&I processes that are common to the nine ongoing C&I processes.

The C&I processes should also be increasingly utilized in the related activities of other international conventions and protocols, such as CSD, CBD, CCD and MDG. Countries should boost application of C&I for the formulation and implementation of their national forest programmes and in assessments of their forest resource base. The efforts of CPF to streamline reporting should consider the results of ECCI-2004 to further promote the use of C&I and to recommend ways to reduce national reporting, including through the development of a common information framework on forests.

The expert consultation is expected to provide more detailed and concrete recommendations to UNFF-4 in May 2004 that will specifically address definitions, C&I and the broader issues of monitoring, assessment and reporting.

Initiatives and actions arising from the expert consultation should mobilize national interest and commitment in the development and implementation of C&I by developing countries by: (1) enhancing the contribution of C&I to better forest management and improved livelihoods, food security and forest benefits on the ground; (2) reconfirming the country focus of C&I and its role in national policy processes; (3) using C&I to support implementation of national forest policies and SFM, in a cost-effective and systematic way; (4) confirming FRA links and how these can strengthen C&I processes; and (5) proposing to lead agencies (national and international) how to facilitate networking/communication/information management for C&I.

II. OPENING OF THE MEETING

The Honorable Mr Renato de Rueda, Undersecretary of the Department of Environment and Natural Resources (DENR) of the Philippines, opened the expert consultation. He warmly welcomed all the participants and thanked FAO and ITTO for organizing the meeting with the Forest Management Bureau of DENR. He recognized the various efforts of organizations and countries to adhere to sustainable forest management dating back to the Rio Summit of 1992 and the subsequent formation of task forces and institutions to implement the action plan for SFM. He emphasized the global use of C&I as the most reliable tool for assessing the sustainability of forest management, with about 150 countries utilizing the system for planning and decision-making. He also highlighted that hosting this meeting was very timely for the Philippines. The country had just completed its own set of criteria and indicators based on the ITTO framework and was now pilot-testing their implementation and conducting further stakeholder consultations. The results of the expert consultation could provide valuable inputs to the C&I processes the country has started, he said.

FAO and ITTO, as co-organizers of the expert consultation, also gave welcome statements. Dr Eva Müller, on behalf of ITTO, reiterated that the Organization was one of the pioneers in the development of C&I and briefly referred to some recent initiatives and activities that were pertinent to the themes of the meeting. She emphasized that FAO and ITTO had developed a strong partnership in efforts to promote the development and implementation of C&I; this was reflected in a series of joint activities, the latest of which was the international conference on criteria and indicators (CICI 2003) in Guatemala that gave rise to this meeting. Dr Peter Holmgren, on behalf of FAO, explained the background of the events and processes that led to this expert consultation. He highlighted the important contributions that this meeting could make to forthcoming undertakings, especially in providing inputs to UNFF-4, FRA 2005 and national efforts on forest assessments and country forestry programmes. He discussed available opportunities for mobilizing national interest and commitment in the development and implementation of C&I processes by developing countries. Both Dr Müller and Dr Holmgren expressed their sincere gratitude to the Department of Environment and Natural Resources (DENR) for hosting the meeting, with special thanks to Mr Romeo Acosta, Director of the Forest Management Bureau, who kindly agreed to act as chair.

III. MEETING METHODOLOGY

The consultation was conducted in a highly interactive participatory manner. The programme was designed to ensure the optimal participation of all participants and included the presentation of three thematic papers, plenary sessions and four sets of working group discussions (see Annex 1). The Chair, Mr Acosta, presided at all the plenary discussions and guided the participants on the daily programme activities.

Three thematic discussion papers were presented by renowned experts on C&I processes, addressing the objectives of the meeting (see Annex 2). These papers set the tone of the consultation and provided general information and recommendations on the three themes for discussion and finalization by the participating experts.

Two parallel working groups were formed to discuss each of the themes, providing observations and recommendations specific to the coverage of the topic. The results of these discussions were summarized by the respective group rapporteurs and presented by the chairpersons in plenary session for comments, elaboration and integration. The chairpersons and rapporteurs for these parallel working groups were as follows:

Theme 1

Working Group 1

Chairperson: Parfait Mimbimi Esono, Cameroon

Rapporteur: Steve Johnson, ITTO

Working Group 2

Chairperson: Ingwald Gschwandtl, Austria

Rapporteur: Tiina Vähänen, FAO

Theme 2

Working Group 1

Chairperson: Leonel Iglesias, Mexico

Rapporteur: Eva Müller, ITTO

Working Group 2

Chairperson: Susan Braatz, UNFF

Rapporteur: Peter Holmgren, FAO

Theme 3

Working Group 1

Chairperson: Thang Hooi Chiew, Malaysia

Rapporteur: Froylán Castañeda, FAO

Working Group 2

Chairperson: Duncan Poore, UK

Rapporteur: Robert Hendricks, FAO

Three working groups were further created on the final day to summarize and finalize the conclusions and recommendations of the first parallel working groups for each theme. The working-group rapporteurs summarized the results under each theme and the respective chairpersons presented these in plenary for final comments and adoption by participants. The three working groups were steered by the following experts:

Theme 1

Chairperson: Alexandros Christodoulou, Cyprus

Rapporteur: Froylán Castañeda, FAO

Theme 2

Chairperson: Alexander Buck, IUFRO

Rapporteur: Tiina Vähänen, FAO

Theme 3

Chairperson: Roman Michalak, MCPFE, Warsaw

Rapporteur: Steve Johnson, ITTO

IV. OBSERVATIONS AND RECOMMENDATIONS BY THEME

THEME 1: COMMUNICATION AND INFORMATION MANAGEMENT

Observations

1. For the purpose of this report, communication: (a) includes a two-way information flow, (b) implies interaction among people, (c) is strategically planned and systematic, (d) has a long-term orientation, (e) is based on sound information, and (f) aims at decisions and actions.
2. For the purpose of this report, information management includes: (a) collecting, processing and disseminating data and (b) providing information structures/platforms/systems to enable communication.
3. C&I are a tool to facilitate and improve communication related to efforts towards sustainable forest management.
4. C&I are important for articulating the role of forests in sustainable development.
5. The rationale for C&I need to be further developed and communicated.

6. The seven identified common thematic areas of SFM, based on criteria of regional/international C&I processes, are important for facilitating international communication on forest-related issues.
7. Indicators differ at the regional, national and local levels. The harmonization of indicators may therefore be difficult. However, where possible, harmonization facilitates communication and reporting at all levels, for example, the global datasets provided by FRA and other assessment processes.
8. The country constitutes the basic level for gathering and using information related to C&I. There is a need to ensure and strengthen national capacities for communication and information management.
9. The greatest needs for improving communication occur at the national/sub-national levels, including how to involve the private sector, NGOs, and local and indigenous people.
10. A legally binding framework could enhance the implementation of C&I; however, a wide consensus on this approach would be needed.
11. For the successful implementation of C&I, transparency and the sharing of (e.g.) data, assessments, interpretation and of the use of C&I, are essential.
12. The quality and acceptance of C&I process implementation rely on the active involvement of all stakeholders, at all levels.
13. Thresholds for indicators and verifiers can be useful to facilitate communication; however, the relevance of thresholds needs further investigation.
14. Sharing data from diverse sources requires harmonization.
15. Sharing data/information between institutions at all levels should be encouraged; however, costs, benefits and other consequences need to be considered.
16. There are difficulties with data availability and fitting available data to criteria/indicators across all countries – varying only by degree. Approaches and methods that can be adapted to the country and regional levels are required.
17. Stakeholders play an important role in communicating on C&I. Their efforts should be supported.
18. National and international expert groups related to C&I, such as technical advisory groups and focal points, could play a key role in enhancing communication, information management and networking.
19. Local stakeholder-driven initiatives, such as model forests, can be useful tools to develop local/sub-national indicators and to promote exchanges between countries.
20. There is a need to clearly communicate the linkages and differences between the C&I tools and processes, and certification.

21. Regular reporting on C&I will strengthen political commitment and policy guidance related to forests.
22. Communication with decision-makers, non-expert audiences, and other forest-related sectors on issues related to C&I needs to be in a simple format and be clear and concise, credible, and targeted to the specific audiences.
23. There is a need to improve and increase professionalism in communication and networking related to C&I.
24. Several appropriate information systems exist, such as the Global Forest Information Service that could help information flows related to C&I.
25. A clearinghouse mechanism for information related to C&I could be useful for communication, e.g. linked to the CPF work on streamlining forest-related reporting, including the CPF portal.
26. There is a deficit in cross-sectoral networking.

Recommendations

1. Countries at the fourth session of UNFF should, for harmonizing purposes, adopt the seven common thematic areas as 'criteria' of SFM, as well as consider developing supporting rationales.
2. The CPF and its members, C&I processes and countries should establish mechanisms for exchange of information, ensuring that all stakeholders are aware of developments, reducing ambiguities. In doing so, use should be made of existing organizations and mechanisms to the extent possible.
3. C&I processes and countries should make better use of existing information technology and use and engage communication experts and communicators' networks.
4. CPF and its members should develop a framework for sharing information on C&I, including interactive and search functions.
5. Country experts and C&I processes should (where appropriate) communicate to politicians and other decision-makers on how C&I can be used to evaluate programmes and policy development against overall development goals.
6. National forest programmes (NFPs) foster the implementation of C&I; countries should use C&I to help structure and follow-up their NFPs.
7. Countries should designate focal points on C&I, noting that existing focal points, such as FRA national correspondents, focal points for NFPs, ITTO focal points, or others, can also take on this role for C&I.
8. Organizations, C&I processes and countries should clarify the roles of their focal points.

9. C&I processes should be made aware of FRA focal points and vice-versa.
10. Country focal points and other experts should identify and contact actors relevant to C&I and discuss collaboration with the aim of establishing national networks for enhancing communication and better implementation of C&I.
11. Countries (and C&I processes) should establish offices/secretariats to facilitate C&I implementation and communication, including to provide training materials to schools at all levels on SFM and C&I and newsletters targeted for the local/ground level.
12. Experts need to offer well-written briefs to relevant authorities, including policy-makers, to ensure that they are aware of the benefits of C&I.
13. International processes and conventions, especially the CBD in its expanded programme of work on forest biological diversity, should make better use of C&I. The CBD could, for example, explore the potential of using C&I to help monitor and implement the relevant elements of this work programme.
14. Countries and C&I processes should facilitate training on the concept of C&I for scientists (natural, social and economic sciences).
15. Countries and C&I processes should ensure broad representation of experts, including sociologists and economists and other experts, in C&I activities (e.g. meetings).

THEME 2: TERMS AND DEFINITIONS RELATED TO CRITERIA AND INDICATORS FOR SUSTAINABLE FOREST MANAGEMENT

Observations

1. Countries should be aware of the long-term nature of the use of C&I for sustainable forest management as the lead concept, and thus the related terms.
2. The harmonization of terms and definitions related to C&I is needed at all levels. Agreement on definitions can support the implementation of C&I in countries.
3. Although harmonization of terms at the global level is recognized as being useful, countries may adapt these terms to their own circumstances.
4. Some sets of definitions are candidates for universal harmonization – core FRA definitions, for example.

Recommendations

1. Countries at UNFF-4 should, for harmonizing purposes, adopt the seven common thematic areas as criteria of SFM and consider developing supporting rationales for achieving a more comprehensive understanding of sustainable forest management.
2. Countries with limited resources should consider concentrating on implementation and adapting definitions proposed by processes and international fora.
3. International organizations, processes and donor countries should increase their assistance to countries with limited resources for data collection systems and

procedures, including the clarification of terms, definitions and classifications, for example through the FRA rapid assessment project.

4. Further efforts should be made to harmonize terms of common interest between C&I processes and FRA. The processes should make best use of existing, internationally accepted concepts, terms and definitions.
5. Initiatives such as the FAO/IPCC/CIFOR/IUFRO/UNEP process and FRA deal with harmonization of definitions. The concepts, terms and harmonization needs identified for example by C&I processes should be taken into account in these initiatives. Further efforts on clarification of definitions and harmonization should address terms such as: forest management unit; forest degradation; rehabilitation; restoration; secondary forest; fragmentation; sub-national; landscape level; verifiers; standard of performance; threshold; and benchmark.
6. Countries should ensure that their data are adaptable to internationally accepted terms and definitions for international reporting.
7. C&I processes and countries should involve stakeholders in the development of terms and definitions in their C&I, including guidelines on measurement and reporting, and share their experiences with other processes and international organizations.
8. C&I processes are encouraged to hold collaborative meetings to address technical issues related to terms and definitions. Initiatives should be taken by active processes.
9. C&I processes and countries that have developed terms and definitions should make these available on their websites.
10. C&I experts familiar with the specific situations of countries should be involved in harmonization work. Also, experiences gained with terms and definitions at the local level should feed into national-level processes.
11. Country experts on C&I should ensure that people working at different levels within countries are aware of initiatives now under way to harmonize terms and definitions and how they can be used in their work.
12. The scientific community is called upon to remain engaged in identifying and defining new and emerging terms related to C&I. Best use should be made of existing mechanism and activities. The scientific community, especially IUFRO, has worked for many years with forest terminology. IUFRO is a clearinghouse for multilingual forest terminology, including the SilvaVoc initiative (available online).
13. Members of the CPF should continue their leadership role at the global level in the harmonization of terms and definitions for international use.

THEME 3: STRENGTHENING C&I PROCESSES FOR BETTER IMPLEMENTATION

Observations

1. Despite the rapid progress in some C&I processes and the many related international meetings in recent years, a lack of political commitment to SFM and C&I still impedes progress in some countries. Awareness-raising for all stakeholders remains necessary to improve this situation.

2. Several countries still remain outside any C&I process. It is important to include such countries (some of whom are implementing C&I-related work) in C&I processes to increase the global scope of C&I and SFM.
3. Key features of countries and processes that have made significant progress in implementing C&I are:
 - strong political leadership, involvement and support;
 - stakeholder involvement at the ground and national levels;
 - strong/economically important forest sector;
 - a process liaison office (can be helpful in coordinating above tasks but requires large effort to host and run it);
 - a technical advisory committee (e.g. Montreal Process);
 - market demands (e.g. certification) and environmental concerns regarding SFM;
 - process “owned” by member countries, rather than established for them;
 - incorporation of C&I in NFPs with stakeholder participation;
 - local champion(s) promoting C&I; and
 - good inter-agency collaboration.
4. There has not been a thorough investigation of the reasons for country failures to implement C&I. Reasons given by the experts for a lack of progress in implementing C&I and factors most limiting to initial action include:
 - the private sector will only engage in C&I for certification, which is costly with uncertain returns;
 - lack of a process liaison office;
 - interaction and motivation from ground level to other levels missing;
 - lack of political awareness/will, exacerbated by frequent turnover of politicians;
 - there are difficulties in identifying simple ecological indicators and with the availability of data for these;
 - implementing SFM/C&I can result in perceived loss of socio-economic benefits to local populations;
 - people (politicians, companies, locals, etc) do not see the benefits of implementing C&I;
 - lack of resources and capacity;
 - lack of access to existing studies, articles/journals/results of research.
 - lack of trained personnel (ITTO has provided training courses, which have been very helpful, but more are needed);
 - it can be difficult to adapt national-level C&I to sub-national level (FMU);
 - late involvement of some countries in the work of the processes; and
 - some developing countries perceive that C&I agreed regionally or internationally are not “owned” by them, leading to (often unrealized) expectations for external resources to assist them in implementation.
5. Increased international assistance (technical and financial) will be necessary to promote increased adoption/implementation of C&I. Such assistance should be targeted to those countries demonstrating commitment to making progress.
6. Linkages between established C&I processes and processes at an earlier stage of development are already bearing fruit (e.g. Montreal Process/Lepaterique; ITTO/ATO). There is scope to expand such linkages.
7. The incorporation of a C&I framework into the reporting tables for the FRA 2005 provides an opportunity for synergies and the promotion of C&I.

8. The establishment of an International Advisory Group (IAG) on C&I would strengthen the linkages between C&I processes and contribute to enhancing the linkages between C&I and international agreements and processes, national forest programmes, national forest assessments, certification, and outreach and communication. An IAG could also provide technical advisory services, disseminate information on C&I and help countries to report at national and international levels. The composition, secretariat (possibly hosted by FAO and/or ITTO), terms of reference, priorities and means of operation of an IAG would be determined through international consultation.
9. A network for communication between the IAG, processes and country focal points/experts would allow the exchange of information on the development, implementation and importance of C&I, thereby fostering improved implementation.
10. Despite the recommendation from CICI 2003 for countries to begin implementing C&I and reporting on progress using indicators for which data were currently available, only three processes have commenced reporting (MCPFE, Montreal Process and ITTO).
11. The work of the CPF Task Force on Streamlining Forest Related Reporting has progressed substantially since it was recognized in the report of CICI 2003 as a contributor to increasing awareness of C&I. The CPF Task Force's proposed Information Framework (based on the common thematic areas endorsed by CICI 2003) would be a valuable tool for C&I processes and others to coordinate and synthesize reports.
12. It is difficult for many countries to collect data on several indicators (especially ecological, biodiversity and socio-economic indicators). More research is required into appropriate indicators in these categories and methods of capturing reliable data to measure them.

Recommendations

1. International organizations, C&I processes, countries and experts should continue to promote commitment to C&I.
2. International organizations, C&I processes and countries should promote education and awareness relating to C&I and SFM among senior policy-makers, political leaders and the general public
3. International organizations, bilateral donors, C&I processes and countries should promote stakeholder involvement in all aspects related to C&I, particularly at the national level, and in some cases at the international level.
4. FAO, ITTO and other international and national organizations should make every effort to encourage countries that currently do not belong to any C&I process to join one, recognizing that some of these countries are already developing and implementing C&I.
5. Countries which are members of C&I processes should support countries in the same region which are making slow progress or are not part of any C&I process, with assistance from international organizations where needed. Such support can include demonstrations of the benefits of placing a higher priority on reporting on SFM using C&I.
6. Committed countries in need of assistance should seek bilateral exchanges with countries of similar economic circumstances but making better progress in implementing C&I.

7. International or bilateral agreements/cooperation programmes dealing with forests, such as AFLEG, should be encouraged to incorporate forest C&I in their work where appropriate.
8. Countries should develop strategies for bilateral aid (personnel exchanges, volunteer programmes, etc) designed to implement C&I. Such strategies should direct C&I resources to increasing the number of countries involved and/or improving the performance of those already involved. Resources should be targeted to countries that have already demonstrated commitment by improving their institutional framework for using C&I.
9. Slower-progressing C&I processes should liaise with and learn from more successful processes, e.g. Montreal Process, Central American Lepaterique Process, ITTO/ATO collaboration. Relationships between the Montreal Process, MCPFE, ITTO and slower-progressing processes should be reinforced.
10. International organizations, C&I processes and countries should promote linkages between C&I and: (i) national forest programmes; (ii) global and national forest assessments; and (iii) certification (including supporting country initiatives).
11. FAO, ITTO and other international and national organizations and bilateral donors should support the establishment of an International Technical Advisory Group (IAG) to address issues of common interest to C&I processes, including those of a technical and policy nature.
12. FAO, ITTO and other international and national organizations and processes should support inter-process cooperation through all feasible means, including convening periodic meetings of a C&I network constituting, amongst others, the IAG, C&I focal points/experts in each country; process liaison offices/secretariats, and a contact from the CPF.
13. FAO, ITTO and other international and national organizations and bilateral donors should support the establishment of liaison offices in C&I processes that seek such assistance. Proposals to create liaison offices should be implemented through projects or by utilizing existing facilities where possible (e.g. ITTO/ATO). Liaison offices of C&I processes should, *inter alia*, encourage the involvement of countries not yet participating in any C&I process in their region.
14. FAO, ITTO, other international/national organizations and experts within countries should support capacity building among processes and countries implementing C&I through:
 - promoting training in and awareness of C&I and SFM at all stakeholder levels;
 - ensuring that there is a liaison/link between national coordinators/focal points of C&I with the national correspondents for the global FRA.
 - making examples of C&I work (especially those illustrating domestic applications) available on websites and other media, taking into account (for example) those processes which have done work on how to interest decision-makers in national reporting on SFM.
15. Country experts participating in international meetings should become advocates for C&I in their country/process, including publicising the benefits of SFM/C&I.
16. Countries with limited capacity should commence implementing C&I with an easily measured and understood set of indicators with the goal to expand gradually to cover other indicators of sustainable forest management.

17. FAO, ITTO and other international and national organizations and agencies should use C&I in their own inventory, assessment and planning work relating to SFM, drawing on the global tables proposed for the FRA 2005.
18. CPF members should be encouraged to continue their work on streamlining forest-related reporting, including through the development of a common information framework on forests that would help countries to compile reports to various international organizations and instruments as well as facilitating analyses and syntheses on global and regional trends.
19. Countries should develop synergies between the forestry department/agency and departments/agencies dealing with other land-use issues (e.g. desertification, water).
20. FAO, ITTO and other international and national organizations including universities and research organizations should undertake research into indicators for which appropriate data is limited or unavailable.

ANNEX 1

PROGRAMME

Monday, 1 March 2004

16:00 – 20:00 Registration in front of the meeting room (Function Room 1)

Tuesday, 2 March 2004

08:00 – 09:00 Registration in front of the meeting room (Function Room 5)
09:00 - 09:30 Opening of the meeting by representative of the Government of the Philippines (Undersecretary Renato A. de Rueda, DENR)
Welcoming remarks by ITTO (Eva Müller)
Welcoming remarks by FAO (Peter Holmgren)
09:30 – 10:00 Presentation of participants
10:00 – 10:30 Coffee/tea break
10:30 – 10:45 Conference structure and logistics (Froylán Castañeda, FAO)
10:45 – 11:15 Plenary: Presentation of Thematic Discussion Paper No.1, “Communication and information management for enhancing the implementation of criteria and indicators for sustainable forest management” (Benno Pokorny)
11:15 – 11:45 Plenary: Discussion and participant interventions on country/process experiences
11:45 – 12:00 Formation of Working Groups
12:00 – 13:30 Lunch break (Café Uno)
13:30 – 16:00 Two working groups on Theme 1: “Communication and information management for enhancing the implementation of criteria and indicators for sustainable forest management”
16:00 – 16:30 Coffee/tea break
16:30 – 18:00 Plenary: Presentation of results of the two working groups on Theme 1 and discussion
18:30 – 20:00 Welcoming cocktail (Café Fortuna)

Wednesday, 3 March 2004

8:30 – 8:45 Plenary: Summary of the first day and introduction of the work programme of the second day by the meeting chair
08:45 – 09:15 Plenary: Presentation of Thematic Discussion Paper No. 2, “Terms and definitions related to criteria and indicators for sustainable forest management” (Ewald Rametsteiner)
09:15 – 09:30 Discussion
09:30 – 11:30 Two working groups on Theme 2: “Terms and definitions related to criteria and indicators for sustainable forest management”
11:30 – 12:30 Plenary: Presentation of results of the two working groups on Theme 2 and discussion
12:30 – 14:00 Lunch break (Café Uno)
14:00 – 14:30 Plenary: Presentation of Thematic Discussion Paper No. 3, “Strengthening the criteria and indicator processes for better implementation” (Don Wijewardana)
14:30 – 14:45 Discussion
14:45 – 17:00 Two working groups on Theme 3: “Strengthening the criteria and indicator processes for better implementation”

17:00 – 18:30 Plenary: Presentation of results of the two working groups on Theme 3 and discussion

Thursday, 4 March 2004

09:00 – 09:15 Plenary: Summary of the second day and introduction of the work programme of the third day by the meeting chair
09:15 – 09:30 Formation of three working groups
09:30 – 12:30 Three working groups to summarize the conclusions and recommendations of the working groups on the three Themes
12:30 – 14:00 Lunch Break (Café Uno)
14:00 – 14:45 Plenary: Presentation of the outcomes of the three working groups
14:45 – 16:00 Plenary: Elaboration of the draft report of the expert consultation
16:00 - 16:30 Coffee/tea break
16:30 – 18:00 Plenary: Elaboration and adoption of report of the expert consultation
18:00 Closing of the meeting
19:00 Closing dinner (Veranda)

Friday, 5 March 2004 (Optional)

07:00 – 16:00 Field trip to Banacon and Olango Islands

ANNEX 2
Discussion Papers

**FAO/ITTO
Expert Consultation on Criteria and Indicators for
Sustainable Forest Management**

**Discussion Paper #1
Networking and information management for enhancing the
implementation of criteria and indicators
for sustainable forest management**

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**Organized by the
Forest Management Bureau
Department of Environment and Natural Resources
Philippines
and co-sponsored by FAO and ITTO
2-4 March 2004, Cebu City, Philippines**

ACRONYMS

ASEAN	Association of South East Asian Nations
ATO	African Timber Organization
CBD	Convention on Biological Diversity
CCD	Convention to Combat Desertification
CDM	Clean Development Mechanism
CFAN-CIDA	Forestry Advisors Network of the Canadian International Development Agency
CGIAR	Consultative Group on International Agricultural Research
CIFOR	Centre for International Forestry Research
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPF	Collaborative Partnership of Forests
CMS	Convention on Migratory Species
EC-JRC	European Commission, Joint Research Centre
ECOSOC	Economic and Social Council of the United Nations
EDC EROS	(Earth Resources Observations Systems) Data Centre
EEA	European Environment Agency
EIONET	European Environment Information and Observation Network
EMG	Environmental Management Group (UN)
ESA	European Space Agency
ETC/LC	European Topic Centre on Land Cover
ETFRN	European Tropical Forest Network
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FAO-COFO	FAO-Committee on Forestry
FAO-APFC	Asia Pacific Forestry Commission of the FAO
FAO- NAFC	North American Forest Commission of the FAO
FRA	FAO-Global Forest Resource Assessment
FSC	Forest Stewardship Council
GCOS	Global Climate Observing System
GFIS	Global Forest Information Service
GFW	Global Forest Watch
GOFC	Global Observation of Forest Cover
GOOS	Global Ocean Observing System
GTOS	Global Terrestrial Observing System
GTZ	German Agency for Technical Cooperation
IAEA	International Atomic Energy Agency
IFF	Intergovernmental Forum on Forests
IHDP	International Human Dimensions Programme on Global Environmental Change
IIED	International Institute for Environment and Development
IISD	International Institute for Sustainable Development
ILO	International Labour Organization
IMG	Issue Management Group (UNEP/EMG)
INBio	Instituto Nacional de Biodiversidad, Costa Rica
INPE	National Institute for Space Research, Brazil
IPCC	Intergovernmental Panel on Climate Change
IPF	International Panel on Forests
ITC	International Trade Centre, United Nations Centre for Trade and Development and World Trade Organization
ITFF	International Task Force on Forests
ITTO	International Tropical Timber Organization
IUCN	World Conservation Union
IUCN-FCP	IUCN Forest Conservation Programme
IUFRO	International Union of Forestry Research Organization
LEI	Lembaga Ekolabel Indonesia
LOS	United Nations Convention on the Law of the Sea
LULUCF	Good Practice Guidance for Land Use, and Forestry (IPCC)
MCPFE	Ministerial Conferences on the Protection of Forests in Europe
MEA	Monitoring, Evaluation and Assessment

MYPOW	UNFF Multi-Year Programme of Work
NASA	U.S. National Aeronautics and Space Administration
NGO	Non-governmental-organization
ODI-FPEG	Overseas Development Organization, Forest Policy and Environment Group
OECD	Organization for Economic Cooperation and Development
OECD-DAC	Organization for Economic Cooperation and Development, Development Cooperation Directorate
PARC	Protected Area Resource Centres
PECF	Pan-European Forest Certification Council
PROFOR	Program on Forests of UNDP
RIC	Rainforest Information Centre
SCOPE	Scientific Committee on Problems of the Environment
SPREP	South Pacific Regional Environment Programme
TBI	Tropenbos International
UNCED	United Nations Conference on Environment and Development
UNCSD	United Nations Commission on Sustainable Development
UNDP	United Nations Development Programme
UN-DSD	United Nations Division for Sustainable Development
UN/ECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNEP-DEC	United Nations Environmental Programme Division of Environmental Conventions
UNFF	United Nations Forum on Forests
UNFPA	United Nations Population Fund
UNFCCC	United Nations Framework Convention on Climate Change
UN Habitat	United Nations Human Settlement Program
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
UNSD	United Nations Statistics Division
WCFSD	World Commission on Forests and Sustainable Development
WCMC	World Conservation Monitoring Centre
WCRP	World Climate Research Programme
WEC	World Economic Forum
WFP	World Food Programme
WHC	World Heritage Convention
WHO	World Health Organization
WMO	World Meteorological Organization
WRI	World Resources Institute
WWF	World Wildlife Fund

NETWORKING AND INFORMATION MANAGEMENT FOR ENHANCING THE IMPLEMENTATION OF CRITERIA AND INDICATORS FOR SUSTAINABLE FOREST MANAGEMENT

Benno Pokorny and Helen Desmond¹

Background

In 1992, the intense negotiations among governments at the United Nations Conference on Environment and Development (UNCED) resulted in the non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests, also known as the “Forest Principles”, as well as Chapter 11 of Agenda 21: Combating Deforestation. Since then, the United Nations under the auspices of the United Nations Commission on Sustainable Development (UNCSD) invested in the development of coherent policies to promote the management, conservation and sustainable development of forests. In 1995, an informal, high level Interagency Task Force on Forests (ITFF) was set up to coordinate the inputs of international organizations to the forest policy process. Until 1997, the International Panel on Forests (IPF), and subsequently until 2000 the Intergovernmental Forum on Forest (IFF), examined a wide range of forest-related topics over a five-year period. Key outcomes of the deliberations under these processes were the IPF/IFF Proposals for Action, representing 270 proposals for action towards sustainable forest management. Although not legally binding, participants in these processes are under a political obligation to implement the agreed proposals for action and each country is expected to plan and assess their implementation.

In 2000, the Economic and Social Council of the United Nations (ECOSOC) established the intergovernmental United Nations Forum on Forests (UNFF) with the main objective of promoting “... the management, conservation and sustainable development of all types of forests and to strengthen long-term political commitment to this end...” “based on the Rio Declaration, the Forest Principles, Chapter 11 of Agenda 21 and the outcome of the IPF/IFF processes...”. UNFF is composed of all States Members of the United Nations and specialized agencies and meets in annual sessions. Multi-stakeholder dialogues are an integral part of the agenda at UNFF sessions.

ECOSOC invited the heads of 14 relevant international organizations to form a Collaborative Partnership on Forests (CPF) to support the work of UNFF and foster increased cooperation and coordination on forests. Specifically this group was asked to support the implementation of the IPF/IFF Proposals for Action by providing information and technical assistance to countries, facilitating regional and international initiatives, identifying and mobilizing financial resources and strengthening political support for sustainable forest management.

Monitoring and assessment of, as well as reporting about, progress in the implementation of forest-related agreements constitute one of the key functions of UNFF. This includes the development of a simple voluntary reporting system on the implementation of IPF/IFF Proposals for Action; the utilization of existing information and assessment to review progress towards sustainable forest management and the state of forests; and reviews of the effectiveness of the international arrangement on forests, including addressing the institutional framework of UNFF. Criteria and indicators on sustainable forest management (C&I) are expected to provide a framework for monitoring, assessing and reporting on national trends. The UNFF Multi-Year Programme of Work (MYPOW) has scheduled for the fourth session the discussion of monitoring, assessment and reporting, including the aspect of harmonizing concepts, terminologies and definitions as well as the utilization of C&I for national and international assessment of forests.

UNFF invited CPF to assist in developing an efficient system of monitoring, assessment and reporting and also established a small informal group of experts on this topic. To fulfill this task, the UNFF planned to systematically explore not only existing information sources such as Forest Resource Assessments (FRA), the initiatives of the International Union of Forestry Research Organization

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(IUFRO), the international C&I processes but also non-governmental organization (NGO)-driven approaches such as Global Forest Watch (GFW). Recently, there has been debate as to how C&I, developed to support countries in their endeavors for to manage their forests sustainably, can also help in implementing the IPF/IFF Proposals for Action and to evaluate progress towards sustainable forest management (ECOSOC, 2003). This expectation was based on the fact that C&I would provide both, a robust framework for technical assessment details as well as a coherent structure for the interpretation of assessment results (Prabhu *et al.*, 1998). These characteristics would significantly help to articulate, accumulate and exchange information at national and international levels. In addition, the utilization of C&I is seen as a promising opportunity to increase the understanding of sustainable forest management among forest managers, thus directly and indirectly benefiting populations and decision-makers.

International C&I processes provide member countries with a common set of C&I to define what characterizes sustainable management of forests. This is expected to improve the quality of forest management at management as well as at political levels by facilitating the measurement of progress towards sustainable development of forests. C&I processes play a fundamental role for in the development and implementation of C&I. Currently, there are nine international C&I initiatives and processes at different levels of maturity (Table 1). Generally, C&I sets deal with the same principles as those for sustainable forest management (i.e. Anonymous, 2001; Pokorny and Adams, 2003). About 150 countries are members of one or more C&I processes, which confirms the importance of C&I as a national forest policy instrument. Lacking implementation at country level means, however, that much of the potential of this instrument still remains untapped. The International Tropical Timber Organization (ITTO) has had a pioneering role in both developing and implementing C&I. The pan-European C&I were adopted on the expert level in 1994 and they were formally endorsed in 1998. The Montreal process was launched in 1993 and its C&I were concluded in 1995. In the same year, eight countries in the Amazon region initiated the Tarapoto proposal. The UN Food and Agriculture Organization (FAO) and the United Nations Environment Programme (UNEP) supported three C&I processes on C&I launched in the mid-1990s: the African Dry Zone process covering the sub-Saharan area, the Near East process, and the Dry Forest Asia initiative. In addition to these, C&I have been developed in Central America under the Lepaterique process launched in 1997 and in Africa under the auspices of the African Timber Organization (ATO).

Although there are still conceptual and technical problems, many C&I sets have already been developed (Hendricks; 2003; Prabhu *et al.*, 2003). Thus, a number of countries started implementing them, which means, in the most limited sense, their assessment at a national level. However, the assessment and monitoring of indicators are still at the beginning, and implementation and refinement of C&I sets have to be viewed as an iterative process. Three processes have started to implement C&I; others are still in pilot phases. However, first initial problems have been identified:

- significant additional administrative burden for the countries, especially if overlapping with other assessment processes;
- lack of resources, technical knowledge and human capacities in some countries;
- some indicators not suitable for assessment;
- difficulties to define proper assessment methods;
- difficulties for data aggregation at the international level, due to deficits in comparability, completeness, consistency and credibility.

Considering the diversity of existing assessment initiatives with similar goals, and promising initiatives for enhancing collaboration between national and international research and development organizations, the paper deals with the potential of networking and information management for reducing those problems related to the implementation of C&I at national level in order to monitor and assess progress towards sustainable forest management.

The paper is structured in three sections: Section I explores existing networks related to international assessment processes of country-specific aspects relevant to the C&I processes. In Section II the existing options to enhance the implementation of C&I by improved networking are discussed critically. Chapter III provides recommendations to achieve greater effectiveness of different C&I processes.

Section I: Networking about forests

To ensure a realistic expectation regarding networking and to avoid the consideration of unrealistic options, it is important to be aware of what networking exactly means. Thus, this section will start with a discussion about the meaning of networking. The next section deals with the question: What are the potential net workers? Finally, the national perspective on C&I processes and networking is analyzed.

The meaning of networking

The Oxford English Dictionary defines networking as "...the action or process of making use of a network of people for the exchange of information, etc., or for professional or other advantage..." This definition implies the expectation of networking partners to receive certain benefits. UNFF, for example, expects to profit from promoting the implementation of C&I by receiving information needed to achieve its own goals, while the international community as well as the countries receive better information about progress made towards sustainable forest management and the [IPF/IFF Proposals for Action](#) at a global level (UNFF, 2001). An unfavourable balance of the costs and benefits for one potential networking partner would consequently provoke disinterest and communication problems. Receiving benefits from networking is a fundamental precondition for success. This opens two major possibilities to motivate partners to participate in networks: to reduce their input or to increase their benefit. In general, networking requires as a precondition a clear perception of potential benefits and inputs for each partner.

It is also helpful to consider that there are different forms of networking. The definition presented above mentions the exchange of information (communication) as one possible objective, but leaves room for other important options, such as:

- Exchange of results: Countries provide national information about forests and international or regional secretariats use this information to inform about international trends.
- Collaborative administration of information: The networking partners manage their information in a common database, where every partner may use them.
- Discussion of results: Different actors come together to discuss their results in a kind of collaborative learning network.
- Dividing tasks: each partner performs a specific task within an overall goal (i.e. some partners receive funding; others provide technical assistance or advice, others data, while others carry out field assessments or research to improve indicators, and so forth).

Different actors, due to their interests, resources, expertise and competences, provide different opportunities for networking. Partners with similar expertise may collaborate in a different manner than partners that differ substantially in their expertise. These considerations are important to evaluate realistically the potential for networking. Against this background the next paragraphs examine the initiatives and actors potentially relevant for networking related to the implementation of C&I.

International assessment initiatives

A reasonable number of initiatives deal with the assessment and monitoring of environmental and forest-related issues. Nearly all countries of the world are related to one or more international environmental conventions and agreements. For forests, however, the international community failed in the attempt to work out a binding convention. But, Rio 1992, in particular, gave strong impulses for the development of assessment systems based on C&I as an important tool for countries to improve the implementation of sustainable forest management.

Annex 1 presents some of the most important international and regional assessment initiatives related to forests, environment and sustainability. In the context of this paper, an initiative is understood as a continuous and regular action, taking place or carried on in a definite manner, and leading to the accomplishment of the results to be defined by the participating members. There are different types of initiatives dealing with forestry, environmental, social and economic issues. Environmental initiatives include a variety of issues such as forest, biodiversity, oceans, wetlands, wildlife, and world heritage.

Each type of initiative is related to a specific level of commitment by its participants and provides specific conditions for networking. In particular the following types of initiative can be distinguished:

- A **convention** is a formal assembly for deliberating on or legislating on important matters, ecclesiastical, political, or social. They are legally binding to the participating parties, and thus represent a high level of political commitment. Examples of this category are the United Nations Convention to Combat Desertification (UNFCCC), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and the Convention on Biological Diversity (CBD).
- A **process** presents a continuous action under way to achieve a commonly defined goal. Processes are based on agreements between the partners. These agreements may be legally binding, such as conventions, or voluntary, as in the case of international C&I processes. Some assessment processes also provide continuously statistical data about specific issues such as FRA or the ITTO statistics on timber trade.
- A **programme** is a definite plan or scheme of any intended proceedings. It describes a planned series of activities or events. In this sense a programme provides the guiding framework and strategic objectives for action. Often, programmes are equipped with financial and human resources for their execution. Examples of this category are the United Nations Development Programme (UNDP) or the Forest Conservation Programme of the World Conservation Union (IUCN).
- **Projects are** intended to achieve a specific objective in a defined period. Project partners have clearly defined tasks to be achieved with a defined budget. Related to the implementation of C&I at national level, the establishment of national assessment mechanisms is an example for projects. In this category also fall a number of non-public initiatives led by NGOs, such as Forest Watch.
- A **network** is a group of interacting actors. Networks enable a continuous exchange of information or provide a platform for discussion. Examples of such networks are CPF or the European Tropical Forest Network (EFTRN).
- **Database centre** represents a specific kind of network to systematize data or information from different sources to improve physical and thematic access. They facilitate the collection of data required for particular processes and also encourage data sharing. Examples for of this type are the European Environment Agency (EEA) or the United Nations Statistics Division (UNSD), as well as a number of global observing systems, such as Global Climate Observing System (GCOS), Global Terrestrial Observing System (GTOS), Global Ocean Observing System (GOOS) and Global Observation of Forest Cover (GOFC). In some cases, however, as for example the US National Aeronautics and Space Administration (NASA), only own data are processed. Other initiatives like the Global Forest Information Service (GFIS) coordinated by a management unit located at IUFRO serve as an Internet-based search machine using metadata to provide access to forest information.

Because an international agreement for the sustainable management of forests has never been reached, existing initiatives rely on voluntary processes set up at regional level, most of them aiming to support countries' efforts to attain better forest management by using C&I. A global forest assessment, coordinated by FAO, periodically provides information about the state of the world's forests. At the forest management unit level, forest certification initiatives led by independent, non-profit organization such as the Forest Stewardship Council (FSC) support the sustainable production of timber. Global initiatives on environment deal mainly with biodiversity issues, climate and water. In addition, a number of global initiatives are related to the assessment of social and economic parameters, such as the human development indicator, the poverty index, statistics on labour and health and so forth. These socio-economic assessments play an extremely important role for policy-makers.

There is a great, partly confusing, diversity of national, regional and global initiatives to assess aspects relevant to sustainable forest management. In evaluating the potential for networking, the fact that nearly all the mentioned initiatives already represent some kind of network has been taken into account. All of them incorporate a number of different countries, organization, secretariats and other actors. It can be assumed that most initiatives are based on long-running negotiation processes between the collaborating actors, and are working with well-established formal and informal communication mechanisms. A huge amount of valuable technical and institutional knowledge about information management is accumulated in these initiatives. In particular, initiatives for the assessment of social

and economic aspects may provide important insights also for the C&I processes. The initiatives also dispose of a huge amount of environmental and socio-economic information relevant to assessing sustainable forest management. Their consequent utilization provides an opportunity to improve the efficiency of C&I processes. Undoubtedly, there is a high potential to share information and to make use of information about social and economic aspects of sustainability. But, the existence of well-established communication mechanisms inside these initiatives also may complicate networking, as negotiation processes with new partners naturally start on the status quo of the initiative.

International actors dealing with the assessment of environment

Corresponding to the wide variety of assessment initiatives is the huge large number of actors involved. A closer look at these actors and their specific roles generates insights, which may help to evaluate their relevance regarding the implementation of C&I. Annex 2 provides an incomplete but however representative overview about some of the most important actors involved in international assessment initiatives. The actors are working in the areas of research, policy development, planning, advocacy, development or technical assistance, and in the provision and exchange of information through forest and environmental networks and database management. Typically information about such organizations or groups is more readily available about those operating at the global or regional level. Certainly global and regional organizations such as the United Nations, ITTO and the European Union, with their capabilities, have promoted and supported the development and initiation of the overarching processes, research, networks and initiatives in sustainable development and policy recommendations together with partner organizations and countries. These organizations and groups address sustainable development from social, economic, environmental and natural resource perspectives. Organizations such as the United Nations Children's Fund (UNICEF) and the International Labour Organization (ILO) promote the human dimension of development. Science and technology organizations such as the International Atomic Energy Agency (IAEA) working more broadly in technological developments taking into account social and economic sustainability goals. The Center for International Forestry Research (CIFOR), as part of the Consultative Group on International Agricultural Research (CGIAR), represents a global research organization supported by international organizations and national governments, undertaking research into natural resource management towards sustainable development, thus contributing to the identification of C&I. CIFOR's research agenda also incorporates social systems research.

There are also a number of independent institutions involved in sustainable development of forests and the environment. The World Economic Forum (WEC) and the United Kingdom Tropical Forest Forum are independent discussion and action groups contributing to the discussion on sustainable development. The World Resources Institute (WRI), the International Institute for Environment and Development (IIED), the International Institute for Sustainable Development (IISD) and Tropenbos International (TBI) are research organizations involved in sustainable development research contributing towards policy development. The Rainforest Information Centre (RIC) is an advocacy group for the protection of the world's rainforests.

UNSD manages a database system compiled from many international sources to produce and make available social and environmental indicators for use in forest and environmental assessment processes. The Earth Resources Observations Systems' (EROS) Data Centre in the United States makes available data for scientists, managers and technical users.

At international level, UN-related organizations dominate the institutional landscape. The other organizations involved in global monitoring processes, to a great extent are mostly located in the United States of America and Europe. Industrialized countries dominate international assessment initiatives. Many of the organizations listed in Annex 2 are related to more than one assessment process. This reveals that at international level an intense networking on environmental issues is already common. However, it has to be considered that within the organizations different persons are responsible for the assessment initiatives, which for the quality of the network depends, apart from inter-institutional arrangements, strongly on communication inside the organizations and between the competent staff. It becomes also obvious that some actors are involved in similar activities without visible linkages or coordination efforts. The environmental and socio-economic networks seem to work quite separately,

exploring their own processes, mechanisms and fora. Nevertheless, there are initial attempts to link these dimensions of sustainability more systematically¹.

National perspective

The initial aim of using C&I at national level is to support national governments in their efforts towards sustainable forest management. But also most global assessment initiatives rely on data provided by countries. Consequently, the performance of the activities carried out at national level is essential for the quality and functioning of the related regional (multinational) or international initiative. To learn about the experiences of countries involved in environmental assessment initiatives, in particular the implementation of C&I, questionnaires were sent to competent governmental representatives. Answers were received from Canada, Cyprus, Finland, Malaysia, Poland, the United Kingdom and the United States of America. In addition, information from India, Brazil and Australia was available from secondary sources or own experiences². Although this range of countries may not be a representative sample, the following observations may be relevant also for other countries:

- The assessment of forest and environmental issues is a complex task. The efficiency of the assessment depends strongly on good collaboration between the different groups related to natural resource management at national as well as sub-national levels. Thus, at national level, networking is a fundamental precondition for the success and quality of assessment initiatives. Experiences with the application of C&I are generally positive, not least because the integrative approach of C&I stimulates collaboration between the different governmental and non-governmental organizations, in terms of data exchange and mutual respect. This collaboration contributes also to a more integrative understanding of the role of natural resources for society. In addition to governmental organizations responsible for the environment and/or forests, which are normally the main actor in these initiatives, national research organizations also play an important role. Other important contributors are statistical government departments, environmental groups and forest owner associations.
- Despite positive experiences regarding enhanced collaboration, the acceptance of C&I as part of the national information system is not without problems. A lack of understanding about sustainable forest management and the concept of C&I significantly diminishes the usefulness of the provided C&I-related information for the potential clients at sub-national levels. Even within the governmental departments responsible for the implementation of C&I there is often a significant lack of understanding and support. In addition, sponsor-driven differences in the approach often confuse private forest owners. Also, the technicians responsible for data capture do not always understand the integrative approach of C&I. A general lack of communication and collaboration between organizations related to social and economic areas is obvious. In particular actors involved in environmental monitoring have knowledge of and experience in the assessment initiatives of social and economic parameters related to sustainable forest management.
- The application of C&I for national assessment requires substantial efforts for the definition of measurable verifiers and adequate assessment methods. In particular, developing countries, with a limited logistical infrastructure and restricted human and financial resources, depend on external input to develop and implement a practical set of C&I. Against this background, support for the development of national procedures for the application of C&I sets by international organizations such as FAO and IUFRO is evaluated very positively. Developed countries normally do not experience similar difficulties in creating C&I sets in accordance with national demands and capacities. However, even here, some indicators defined at international or regional level are not supported by data, because no adequate assessment is possible.
- The composition of C&I and the logistics and methods for their assessment vary strongly within countries, even among those with similar economic and environmental conditions. Thus, regarding the costs needed to implement C&I at national level, no clear statement can be given, nor is there a clear perception of these costs in those countries that have started to implement C&I. Often, the investments related to C&I are assimilated under the general costs related to the national monitoring activities. Although in some countries the implementation of C&I already improved the efficiency of information management on forests, the use of C&I, especially in the beginning, is just

¹ Environment-socio-economic initiatives from UNDP, World Bank, DFID, EC, the Poverty and Environmental Partnership – PEP. For a field case study see also Nunan *et al.* (2002).

² The authors would like to acknowledge in particular the contributions from Dr Michael Kleine (IUFRO).

an additional component to already existing assessment procedures, which consequently increases the overall monitoring costs.

- In countries' perception, FAO should be the global key player in supporting the implementation of C&I-based forest assessment processes, facilitating the networking of forest issues as well as disseminating assessment results about forests. Also IUFRO and CIFOR are seen as important actors, while the role of ITTO is viewed as ambiguous. An efficient information exchange between national and international C&I initiatives does not appear to exist. It would increase the relevance of international processes and facilitate the implementation of international agreements on a national scale. The survey also revealed that developing countries should participate more actively in international processes.
- The survey further showed that the financial and personal capacity of governmental organizations is generally crucial for the implementation of C&I at the national level, whereas the importance of training and technology depends on the specific national context. Also a number of factors restricting the implementation of C&I were identified. In many cases, the incomplete information about some specific indicators or regions was named. For some indicators, also the credibility of the data suffers from unknown errors due to inadequate methods. In some countries, there are also significant problems related to data sharing between organizations involved in monitoring processes.

Section II: Information management: discussing options

The review of existing international assessment initiatives and actors involved reveals a tremendous potential for collaboration. Similarity of goals, complementary expertise, scarcity of resources and a general interest in collaboration, present an ideal starting point to develop efficient networks. In fact, many of the named initiatives present networks and many actors are already collaborating at different levels. In an attempt to explore possibilities to increase collaboration efficiency, this section explores some possibilities for organizing information, analyzing the usefulness of C&I to facilitate collaboration and discussing limits for their harmonization.

Models of information management

The information age in which we are living is characterized by digital communication and excessive quantities of information. There is a general consensus about the need to organize and structure this often overwhelming information and to optimize its utilization and benefits. This applies also to the information generated by environmental, economic and social monitoring. Consequently, numerous conferences, meetings and expert consultations have taken place over the last years to discuss possibilities for improving information management. Here, the following two strategies for improved information management have been defined (Köhl, 2000; UNEP, 2002; Braatz, 2002; Puustjärvi and Simula, 2002):

- **Harmonization:** Making reports to different instruments comparable and consistent, for example through the use of common or comparable terms and definitions, standardized units for data and common reference years. *Comparability* means that the definitions are set so that their possible differences may be identified and data based on one definition may be converted to meet the needs of another, related definition. *Consistency* of definitions reflects an internal agreement of various elements of definitions, or agreement between systems of definitions. Often, harmonization implies a process of *standardization* by applying the same definitions for a concept within different contexts, or the same rules to formulate locally applicable definitions.
- **Streamlining** refers to the reduction in the number of reports or the amount of information required in individual reports; this is possible by reducing duplication in the reporting requests or reducing the number of items to be considered in a certain report.

A variety of opportunities have been discussed to implement these strategies. One of the most comprehensive attempts to evaluate existing options was the feasibility study worked out by the World Conservation Monitoring Centre (WCMC) with the initial aim of exploring ideas for harmonizing national reporting to international agreements, especially to harmonize information

management between the five global biodiversity-related treaties³ (WCMC, 2000). In summary four harmonization strategies were discussed:

- **Modular reporting:** The concept of modular reporting is based on the idea that the information required for implementing conventions, and reporting on that implementation, can be defined as a series of discreet information packages (modules), which between them respond to the reporting requirements of any given convention.
- **Virtual Reporting:** Instead of submitting reports, the information that comprises the report is made available to the potential users, by placing the information on a national website, instead of submitting the information to national focal points. Thus, virtual reporting would see countries providing access to their primary data in electronic form, continuously updated in a cycle, which suits national needs.
- **Reporting obligation database:** Here the concept is to develop a detailed consolidated inventory of all reporting obligations placed on a specific country. The information would be compiled in the form of an annotated list of specific "questions" or information elements demanded (directly or implicitly) for each obligation and each of these questions and obligations would be key worded to facilitate analysis. Subsequent analysis of the database should highlight areas of potential overlap and synergy and help guide national information management as well as definition of reporting requirements.⁴
- **Consolidated reporting:** The concept here is to prepare one "consolidated" report that would satisfy the obligation of a range of international conventions to which the country is party.

WCMC recognized that financial and technical support is necessary to strengthen regional mechanisms to facilitate harmonization of reporting to international treaties. External support is needed for the development of methodologies and national standards, fostering cooperation and providing a pool of expertise. The elaboration of a generic handbook, that provides in one place the relevant guidelines and formats for a range of conventions, was expected to generate great day-to-day practical benefit, as well as being a tool to promote a process of stepwise harmonization. UNEP agreed with four developing countries for pilot projects to test the different harmonization strategies. A web forum was established to facilitate the discussions and the exchange of information and intermediate products between the pilot projects. So far, however, only the pilot project related to the model of a consolidated national report was finished (UNEP, 2002).⁵

Nevertheless, existing assessment initiatives already apply different strategies for harmonization and mainstreaming. From the initiatives listed in Annex 1, the following four cases may give an impression of the diversity of strategies applied in the attempt for most effective and useful information management.

*Every five to ten years, FAO conducts regional and global assessments of forest resources. This **Global Forest Resource Assessment (FRA)** is undertaken as a comprehensive technical projects, based on harmonized definitions of forest and close collaboration and participation as well as the support of the member countries A global network of experts and correspondents within national authorities and research institutions – the FRA Expert Network - provides the country information (FAO, 2001). For FRA 2000, 160 countries actively participated in gathering and analyzing information. To continuously improve the databases, the FRA Programme supports also developing countries to do national forest assessments by providing financial resources for capacity building and expert knowledge. Regular expert consultation⁶ provides guidance and feedback to FAO. In addition, an*

3 Convention on Biological Diversity, Convention on Migratory Species, Convention on International Trade in Endangered Species of Wild Fauna and Flora, Convention on Wetlands and World Heritage Convention.

4 The concept is carried out by the European Environmental Agency. This agency covers all the environmental agreements that relate to European Union countries (64 in the year 2000).

5 Another international initiative dealing with the harmonization of international conventions is the Environmental Management Group (EMG), which is a forum for UN agencies and MEA secretariats established under the chairmanship of the UNEP Executive Director. The first meeting of EMG in January 2001 established an Issue Management Group (IMG - with UNEP as task manager) to deal with harmonization of environmental reporting, in particular with respect to the biodiversity-related conventions. EMG examined a background paper, "Harmonization of information management and reporting for biodiversity-related treaties", providing a comprehensive overview and summary of the background, rationale, mandate, needs and benefits of harmonizing and streamlining information management and reporting to Mesa, with special focus on the five global biodiversity-related conventions.

⁶ Held in Kotka College of Forestry and Forest Industry in Finland in 1987, 1993, 1996 and 2002.

advisory group of specialists convenes more regularly to review and make recommendations aimed at strengthening existing institutional networks, making future forest resource assessments increasingly user-oriented and demand-driven, and linking them more closely with other international processes.

Recognizing the problem of potential global climatic change, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) in 1988 established the **Intergovernmental Panel on Climate Change (IPCC)** to assess scientific, technical and socio-economic information relevant for to the understanding of climate change and its potential impacts and options for adaptation and mitigation. IPCC does not carry out research nor does it monitor climate-related data or other relevant parameters. It bases its assessment mainly on scientific and technical literature. IPCC supports the UN Framework Convention on Climate Change (UNFCCC) through its work on methodologies for National Greenhouse Gas Inventories that need to be established by industrialized and transition countries signatory to the Kyoto Protocol ("Annex I Parties") (UNFCCC 2000). Currently, IPCC has three working groups: one to assess the scientific aspects of the climate system and climate change; a second to assess the vulnerability of socio-economic and natural systems to climate change, negative and positive consequences of climate change, and options for adapting to it; and a third one to assess options for limiting greenhouse gas emissions and otherwise mitigating climate change. A Task Force on national Greenhouse Gas Inventories is responsible for the IPCC National Greenhouse Gas Inventory Programme. Technical Support Units (TSU) financed by developed countries support the activities of each group. In addition the IPCC Trust fund provides financial support to assist the developing country Co-chairs perform their duties, in particular to cover administrative and travel costs. A number of other institutions provide in kind support for IPCC activities.

In 1979, IUCN established an office in Cambridge to monitor endangered species. In 1988 the independent, non-profit **World Conservation Monitoring Centre (WCMC)** was founded jointly by IUCN, the World Wildlife Found (WWF) and UNEP. In 2000 UNEP established WCMC as an independent, non-profit, world biodiversity information and assessment centre. The centre provides information services on the conservation and sustainable use of species and ecosystems and supports others in the development of their own information systems. The initial aim of WCMC is the harmonization of the five biodiversity conventions. WCMC has access to data from a wide range of expert sources and an extensive network of contacts and collaborative links throughout the conservation community. WCMC does not carry out its own assessments; rather, it improves the exchange and compatibility of existing data sources. WCMC acts as a clearinghouse allowing data providers and users to share data and information. The centre collects, formally and informally, published information on biodiversity, at national and international levels, and provides lists of biodiversity-related web sites, list servers and links to conservation and environmental information, resources and organizations, as well as to web sites, that which incorporate national reports, or profiles relevant to biodiversity conservation or management.

WCMC maintains a large collection of data including spatial datasets concerning habitat conservation. It also supports the implementation of a number of biodiversity-related agreements at both national and international levels through background reports to help scientific bodies do their work and support the analysis of achievements, knowledge gaps and priorities, etc. WCMC produces also publications in both printed and electronic format, covering key aspects of biodiversity conservation. Many publications result from in-depth work by specialist programme staff. International experts around the world support the work of WCMC. The spatial data holding on forests, their diversity and conservation status have formed the basis for a major statistical analysis of forest protection in the world, carried out in conjunction with CIFOR. WCMC is also working with IUFRO, FAO and other forest information organizations. A high-level scientific advisory council is being established to guide its work.

An interesting example of a well-organized international assessment process is the **Human Development Report (HDR)**, which is responsible for the assessment of the Human Development Index and other socio-economic indices. HDR is an independent report commissioned by UNDP and is the product of a selected team of leading scholars, development practitioners and members of the Human Development Report Office of UNDP (UNDP, 2003). In early 2001, UNDP created a unit to support systematically the elaboration of National Human Development Reports (NHDRs). These reports are prepared and owned by national teams. So far, more than 470 regional, national and sub-national reports have been produced by 135 countries. The NHDR Unit provides support for the preparation of NHDRs through sharing of comparative experiences and best practices, capacity building, training and backstopping and through its facilitation of an Internet-Network called SURF HDR.

The efficiency of NHDRs is based on three mechanisms: (1) the establishment of common monitoring standards, which includes the definition of the following six basic principles: national ownership, independence of the editorial team, quality of analysis, participatory and inclusive process, flexible and creative presentation and sustained follow-up; a systematic peer review process, and the development of indicators for minimum standards on the quality and impact of NHDRs; (2) capacity building of academics, policy-makers and UNDP staff involved in NHDRs, by providing courses and training modules; (3) systematic advocacy and promotion of the outreach of the national reports and thematic reviews. A communication office is responsible for the media strategy for NHDR launches, and provides support to individual teams on strategies for more effective outreach and dissemination of the reports.

The presented cases -as numerous other initiatives – dispose of well-established working mechanisms. In an attempt to manage the needed information most efficiently, they apply similar strategies, such as making use of existing data and data sources, building networks with interested organizations, taking care of capacity building at national level, and exploring possibilities for harmonization by clearly defining terms and concepts. However, very few of these initiatives have developed indicators related to specific and well-described standard assessment procedures.

Although much progress has been made, nearly all of these initiatives face substantial technical difficulties in their attempt to gather, administer and analyze the data efficiently. Most commonly, the following problems are mentioned: no consensus on concepts, terms and definitions; no standardized methodologies; gaps in data, lack of credibility of the data provided by countries, and inconsistency of national reports. Still, most of the information presented in complex national reports is more descriptive and/or partly based on anecdotal data and expert opinion (Braatz, 2002). This provokes serious problems in the attempt to aggregate the data at regional and international levels, and indicate also significant difficulties in the implementation of these assessments at national level. Another serious problem is a lack of collaboration between the several environmental initiatives as well as the complete absence of cross-sectoral collaboration with social and economic initiatives. At national level, the country forest departments responsible for the implementation of C&I appear to have done little cross-sectoral collaboration with sister agencies to acquire data. This unnecessarily increases the burden for on countries, while diminishing the potential impact of the gathered information. This is why various conferences, seminars and expert consultations continue to recommend the improvement of collaboration and the harmonization of the assessment initiatives. In the last years, the use of C&I was perceived as a fundamental tool to achieve progress in this regard (Braatz, 2001).

Utilization of C&I

Various authors emphasized the potential of using C&I as a promising possibility to harmonize assessment processes and make them better manageable and more effective (i.e. UNFF, 2001; ECOSOC, 2003; Prabhu *et al.*, 2003; Hendricks, 2003). C&I are tools designed to deliver information required to conceptualize, evaluate and implement sustainability (Prabhu *et al.*, 1998). They denote a hierarchy of linked items (principles, criteria, indicators and verifiers) where the information accumulated at lower and more concrete hierarchical levels is used to assess the related items of the upper, more abstract levels (CIFOR, 1999). In this sense C&I represent a type of communication network, which allows the different actors involved in forest management to discuss the requirements for and to inform about the state of sustainability. An individual criterion or indicator needs to be considered within the context of other C&I of the system. Only the whole set of indicators related to the social, economic, political and environment dimension of forests provides a full picture of sustainability trends at the hierarchical level of principles and criteria. C&I disaggregate complex issues into smaller communicable elements, while at the same time enabling an integrative interpretation. C&I enable communication on specific aspects of sustainability as well as the application of specific procedures to assess each indicator and observe its development over time.

The assessment of the sustainability of forest management by using C&I, however, implies on the other hand the consideration of a huge amount of technical details and the need for transparency and validity regarding the content of each indicator. Most C&I sets suffer from significant deficiencies in completeness, clearness and specificity, which makes their assessment and adequate interpretation nearly impossible (Pokorny and Adams, 2003). Thus, as shown in Figure 1, the analytical level of a C&I set is to be completed by an operational level, which defines exactly what has to be assessed. To enable the assessment of a C&I set, for each indicator, specific verifiers and methods for its assessment have to be defined. In addition, thresholds are helpful as a basis for interpretation. Only

C&I sets operationalized in this way provide the transparency needed as a basis for information management and collaborative assessment (Pokorny *et al.*, 2004). The utilization of C&I as a basis for assessment requires also the implementation of standardized protocols, clearly defined technical terms and concepts, and assessment guidelines related to methods and sources. The lack of one of these components would disable the compatibility and credibility of data captured and structured by C&I.

As seen in many ongoing C&I processes, C&I tend to be used to structure reports and not to organize an integrative and specified assessment of aspects relevant to assess the sustainability of forest management. Thus, these reports are often descriptive and may also provide the wrong impression of good quality data. This is one of the reasons for the difficulty in useful aggregation. The usefulness of the C&I tool relies on the quality of the assessment. For this, in order to maintain data quality and ensure the existence in countries of the technical capacity, rigid control and support mechanisms are necessary to realize the assessment.

Limits of harmonization

The use of C&I in assessment initiatives linking different aggregation levels, such as Forest Management Unit, country, region and world, demands on that detailed assessment that guidelines be followed rigidly. As mentioned above, the assessment of sustainability depends on the definition of a huge large number of verifiers and technical details. The comprehensive framework of assessment details, needed to ensure the consistency and compatibility of information at all levels and units, requires a high level of agreement between the various partners involved and profound technical knowledge about the methodological details. Thus, such kinds of processes naturally depend on strong leadership, efficient control mechanisms and continuous input to maintain the order of such a system.

But this kind of technical driven top-down approach contradicts the understanding of C&I as tools for communication and learning. As a result of different social, economic and environmental factors C&I sets are diverse. Different actors under different situations will create significantly different C&I sets, even, if the assessment goal is identical (Pokorny and Adams, 2003). Among the main motives for diversity of national C&I sets are:

- The existing financial, human and technical capacities for the assessment of C&I vary strongly between countries. Rich countries may assess more indicators in more detail than do poor countries.
- The ecosystems differ not only between different regions and countries but also within one country. Evergreen forests in the humid tropics naturally require other management techniques than do dry forests and the subtropics.
- Also the different socio-economic frameworks must be considered in adapted C&I sets, as they have a strong influence on the sustainability of forest management. The dependence of a national economy on natural resources, the level of human well-being and the percentage of remaining forests have a profoundly influence on the role of forests.
- C&I sets also have to reflect the variety of underlying views and interests of the nations. Industrialized countries with stable forest cover have different interests than do countries with extensive forest cover but a low degree of economic development. It is also natural that not all governments have the same concept of sustainability. The understanding of sustainability depends on the historical and social context and thus is undergoing changes (Schanz, 1996).

Diversity of C&I is part of the tool. Organizations like CIFOR, ITTO and FSC have acknowledged this fact and developed tools to adapt C&I sets to local circumstances and different actors. Thus, the harmonized assessment of a whole C&I set is not a realistic expectation. Even for relative simple quantitative indicators, such as forest cover and number of direct employees in the forest sector, it is quite challenging to achieve a harmonized assessment in different contexts (Matthews, 2001).

Another extremely important aspect when discussing the viability of harmonizing C&I sets is related to the general intention of C&I implementation on a national scale. C&I are not applied to generate statistical facts about forests. The essential aim of C&I is the initiation of collaborative learning processes about sustainable forest management mainly at national level, and to increase understanding and improve management of the world's forests. For such learning processes, ownership

of information is a fundamental precondition. Information stays where it has been generated. C&I support this generation of knowledge and communication. Although dominated by specialists, the intensive discussions between different actor groups, which have taken place for the definition of regional C&I sets for FSC-certification, the elaboration of national forest management guidelines, as well as the development of the international C&I sets, generated an important benefit in terms of understanding and communication and helped clarify for parts of society the expectations related to sustainable forest management. Also, the development of numerous local C&I sets, especially in the rural areas of developing countries, generated sensitivity and knowledge among the local actors and improved the understanding of external groups about local views on forests. There are many attempts to use C&I as guidelines or legal frameworks to audit the quality and legality of forest management. Actors involved in the development of C&I naturally are interested in implementing their own C&I sets, instead of receiving standardized C&I sets generated without their participation.

SECTION III: RECOMMENDATIONS

Within international environmental assessment initiatives networking is already one of the guiding principles. However, regarding the implementation of C&I processes and other forest-related initiatives, there is a great potential for more intense collaboration. In the last few years initiatives have identified promising opportunities for more intense and successful collaboration, i.e. between the Forest Resource Assessment and the forest-related components of IPCC (Schoene, 2002) or a closer linkage between the ITTO "target 2000" and the C&I initiatives as well as among the different C&I processes. At various levels committees and *ad-hoc* expert groups are working on the harmonization of terms, definitions and concepts (i.e. the "Kotka" process related to the improvement of FRA led by FAO; the UNFCCC/SBSTA process to develop definitions for afforestation and reforestation referring to the Clean Development Mechanism (CDM); the IPCC work to develop Good Practice Guidance for Land Use, Land Use Change and Forestry (LULUCF); the IPCC work on developing definitions for human-induced 'degradation' of forests; the work of the CPF Task Force on harmonizing and streamlining forest-related reporting under UNFF; IUFRO's recent work on forest terminology; UNEP's work on low forest cover; the plantation typology undertaken by CIFOR, WWF, IUCN and so forth (FAO, 2002). Undoubtedly, these efforts will have positive effects on the implementation of C&I as well as the potential for data aggregation and joint analysis.

Even more effective assessment mechanisms may eventuate through harmonization. But there is a risk that these mechanisms could be centralized and contradictory to the existing diversity of views and values for forests and the frameworks in which forests are managed. Thus, the challenge is to achieve harmonization to facilitate the elaboration of good statistics at regional and global levels, while at the same time considering existing diversity and ensure ownership fundamental for collaborative learning processes at national and sub-national levels. A discussion about this requires a clear distinction between three action levels related to the application of C&I: the development, the assessment and the interpretation of results.

Hendricks (2003) maintains that the forest community has a poor understanding of sustainable development. The development of C&I sets was undoubtedly an excellent exercise to widen foresters' perception of forests. The discussions helped to understand the interaction and dependence of sustainable forest management with social, economic and political elements. However, the national assessment reports show that the assessments focus on technical and quantitative forest parameters, while other aspects are considered more extensively. There is a danger of losing the integrative approach of C&I.

Considering the complexity of assessing sustainability and the related problems of gathering objective and valid field data for all dimensions of sustainability, this tendency is understandable. Nevertheless, the complete consideration of an integrative C&I set is fundamental to assessing the sustainability of forest management and to stimulating foresters' integrative understanding of the role of forests. However, with regard to the existing technical capacity and expertise of foresters it may be useful to explore intensively the possibility of using information carried out by the numerous initiatives for assessing social and economic parameters. Also, to ensure interest and motivation for networking, harmonization efforts should concentrate on indicators directly related to forests, which provide the possibility for quantification and demonstrate clear benefits for the actors at international, national and sub-national levels. Thus, harmonized indicators should be defined by the international community in

discussion with countries, forest managers and other interested parties. It may be also useful to discuss a legally binding agreement at international level (forest convention) on these indicators, which would facilitate the commitment of the countries to these indicators and their implementation.

For the systematic and comprehensive analysis of forest, social, economic and political indicators, networking with existing social and economic assessment processes is highly recommended. Only such a multidisciplinary framework would permit understanding and demonstrating the importance and relevance of forests for human well-being and the adequate consideration of forest conservation and sustainable forest management on international agenda. An interdisciplinary and cross-sectoral management of the available information is necessary. A fundamental prerequisite for this kind of cross-sectoral, multidisciplinary learning networks is that the information provided by the different environmental, social and economic assessment processes be transparent. Only then may a specific actor decide to make use of a specific assessment result, adapt own indicators to make them comparable, etc.

As mentioned above, the quality of forest assessment depends on what is happening in the countries. Also, decisions about forests depend directly on the national and, even more, the sub-national context. Thus, countries are the key actors in the quest for sustainable forest management. The application of C&I to in measuring sustainable forest management will surely contribute to improving decisions by politicians and forest actors, especially if they are actively involved in the development, assessment and interpretation of the C&I-based information. A multidisciplinary, cross-sectoral approach would generate even better results. However, the establishment of C&I-based assessment systems and collaborative learning networks is a complex task. Often, even the governmental authorities formally responsible for the implementation of C&I are not fully aware of the function and potential utility of the C&I tool. Special attention has to be given to stimulating their interest, understanding and political commitment to this endeavour. In particular, developing countries depend on massive external support at four different levels: (1) participatory development or adaptation of an integrative C&I set, (2) operationalization of the C&I sets under consideration of guidelines for harmonized indicators eventually defined at international level, (3) establishment of cross-sectoral information management, maybe by creating a kind of national information department responsible for the administration of social, economic and environmental information collected in the country (UN-DSP 2002), and (4) the establishment of collaborative, multidisciplinary learning groups to interpret and discuss the monitoring results.

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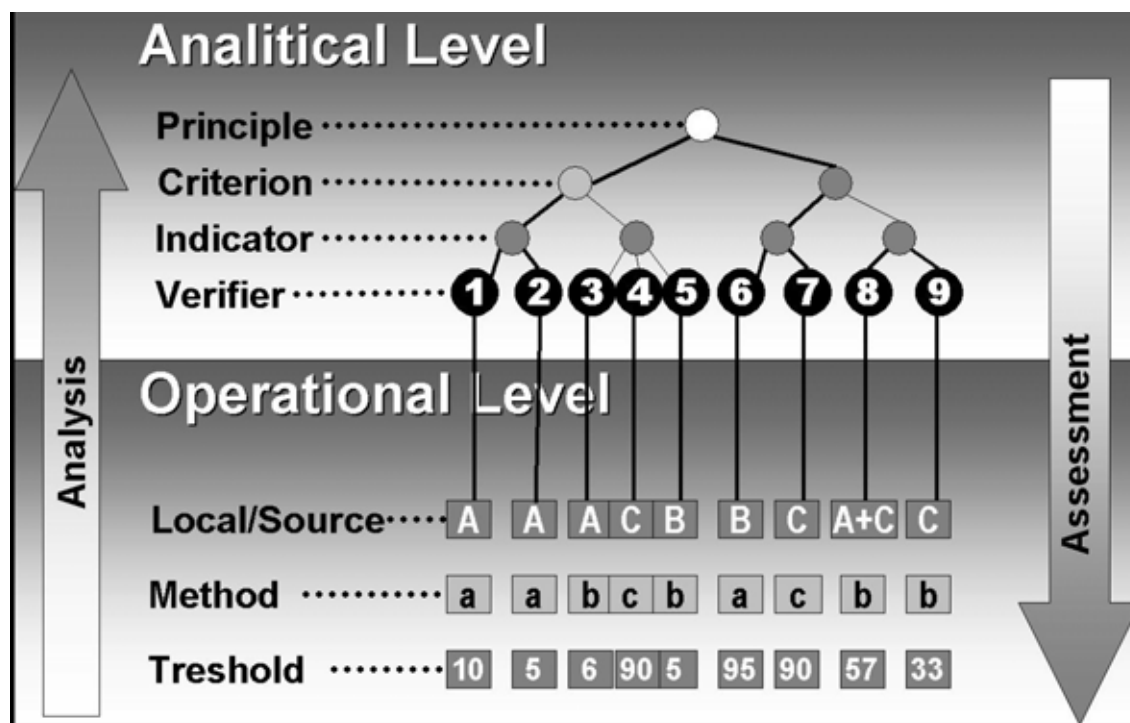
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Table 1: International initiatives and processes on criteria and indicators

Initiative/process	No. of involved countries	Region (vegetation zone/geographic area)
MCPFE (pan-European process)	41	European boreal and temperate forests
Montreal process	12	Temperate forests in America, Asia, Pacific
ITTO	31	Tropical natural forests
Tarapoto proposal	8	Amazon Basin
African Timber Organization	14	Tropical forests of Africa
African Dry-Zone process	30	Sub-Saharan Africa
Near East process	30	Near East
Dry Forest Asia initiative	9	South Asia and Mongolia, China, Myanmar, Thailand
Lepaterique process	7	Central America
Total	149	World

Figure 1: The two levels of C&I tools: The analytical level conformed by a C&I set as basis for analysis and understanding of the assessment goal (sustainability), and the operational level containing methods and thresholds for each verifier needed for assessment and interpretation of verifier related results.



(Modified from Pokorny *et al.* 2004)

Annex 1: Some of the most important international assessment initiatives with relevance for sustainable forest management and environment.

Initiative	Objectives	Level	Obligate	Public
Forest-related initiatives				
ATO (African Timber Organization) process	To promote sustainable forest management in the member countries http://www.fao.org/forestry/foris/webview/pageview.jsp?pageld=20290&langld=1	Africa	Voluntary	Public
Montreal process	To promote sustainable forest management in the member countries http://www.fao.org/forestry/foris/webview/pageview.jsp?pageld=20291&langld=1	Regional	Voluntary	Public
MCPFE (Ministerial Conference on the Protection of Forests in Europe = Helsinki = pan-European Forest process)	To promote sustainable forest management in the member countries http://www.fao.org/forestry/foris/webview/pageview.jsp?pageld=20368&langld=1	Regional	Voluntary	Public
ITTO International Tropical Timber Organization	To promote the implementation of criteria and Indicators for sustainable tropical forest development. http://www.fao.org/forestry/foris/webview/pageview.jsp?pageld=20348&langld=1	Global	Voluntary	Private
Dry Zone Africa process	To promote sustainable forest management in the member countries http://www.fao.org/forestry/foris/webview/pageview.jsp?pageld=20331&langld=1	Africa	Voluntary	Public
Tarapoto proposal	To promote sustainable forest management in the member countries http://www.fao.org/forestry/foris/webview/pageview.jsp?pageld=20292&langld=1	Amazon	Voluntary	Public
Near East process	To promote sustainable forest management in the member countries http://www.fao.org/forestry/foris/webview/pageview.jsp?pageld=20369&langld=1	Near East	Voluntary	Public
Lepaterique Central American process	To promote sustainable forest management in the member countries http://www.fao.org/forestry/foris/webview/pageview.jsp?pageld=20049&langld=1	Central America	Voluntary	Public
Regional Initiative for Dry Forests in Asia	To promote sustainable forest management in the member countries http://www.fao.org/forestry/foris/webview/pageview.jsp?pageld=20332&langld=1	Asia	Voluntary	Public
ASEAN (Association of South East Asian Nations) Timber Certification Scheme	To develop a Pan ASEAN Timber Certification Scheme http://www.aseansec.org	South East Asia	Voluntary	Public
FRA (FAO-Global Forest Resource Assessment)	Regional and global assessments of forest resources http://edcdaac.usgs.gov/glcc/fao/	Global	Voluntary	Public
GOFC (Global Observation of Forest Cover)	To provide ongoing space based and <i>in situ</i> observations on forests and other vegetation cover, for the sustainable management of terrestrial resources, and to obtain an accurate, reliable, quantitative understanding of the terrestrial carbon budget. http://www.fao.org/gtos/gofc-gold/	Global	Voluntary	Public

Initiative	Objectives	Level	Obligate	Public
Earthwatch	To coordinate, harmonize and catalyse environmental observation activities among all <u>UN agencies</u> for integrated assessment purposes. http://earthwatch.unep.ch/unep/locator.php	Global	Voluntary	Private
GTZ (German Technical Cooperation) Forest Certification Project	To promote forest certification in selected developing countries and at international level, and to assist the development and application of C&I . http://www.gtz.de/capacity_building/index.html	Global	Voluntary	Private
LEI (Lembaga Ekolabel Indonesia) Forest Certification initiative	To develop C&I at the management unit level, and to develop a certification system for Indonesian forest products based on sustaining economic, ecological, and social values. http://www.lei.or.id/eng/	Indonesia	Voluntary	Private
The PEF (Pan-European Forest Council) scheme	To provide an internationally credible framework for forest certification schemes and initiatives in Europe. http://www.pefc.org/	Regional	Voluntary	Private
FSC (Forest Stewardship Council) Certification initiative	To support environmentally appropriate, socially beneficial, and economically viable management of the world's forests http://www.fscoax.org/	Global	Voluntary	Private
Skal Sustainable Forest Management Certification Programme	To promote the proper and appropriate use of text and symbols that refer to sustainable production methods and to perform independent and objective supervision, inspection, testing and certification in accordance with the Principles and Criteria of the FSC. http://www.skal.com/	Global	Voluntary	Private
Initiatives related to climate change				
Ozone Secretariat (Vienna Convention and Montreal Protocol)	Systematic observation of the ozone layer, monitoring of CFC (chlorofluorocarbons) production. http://www.unep.ch/ozone/index.asp	Global	Obligatory for signatories	Public
WCRP (World Climate Research Programme)	Studies of the global atmosphere, oceans, sea and land ice, and the land surface, which together constitute the Earth's physical climate system to better understand the physical climate system and climate processes needed to determine to what extent climate can be predicted and the extent of human influence on climate. http://www.wmo.ch/web/wcrp/wcrp-home.html	Global	Voluntary	Private
UNFCCC (United Nations Framework Convention on Climate Change)	A series of commitments requiring all Parties to develop national inventories of greenhouse gas emissions; to formulate national programmes to mitigate climate change; and to promote technologies, practices and processes that control, reduce or prevent emissions in all relevant sectors, including transport. http://unfccc.int/	Global	Obligatory for signatories	Public
SCOPE (Scientific Committee on Problems of the Environment) Rapid Assessment Projects	Various assessment projects, such as the development of Sustainability Indicators to rigorous scientific assessment through agreed, transparent, and sufficiently broad criteria. Another project is aimed at reviewing Global Change in Monsoon Asia. http://www.icsu-scope.org/	Global	Voluntary	Private
GCOS (Global Climate Observing System)	To ensure that the observations and information needed to address climate-related issues are obtained and made available to all potential users. http://www.wmo.ch/web/gcos/gcoshome.html	Global	Voluntary	Public
Marine initiatives				
GOOS (Global Ocean Observing System)	To provide a sustained, coordinated international system for gathering data about the oceans and seas of the earth. http://ioc.unesco.org/goos/	Global	Voluntary	Public
London Convention (Convention for the	To contribute to the international control and prevention of marine pollution, prohibiting the dumping of hazardous materials.	Global	Obligatory for	Public

Initiative	Objectives	Level	Obligate	Public
Prevention of Marine Pollution by dumping of Wastes and Other Matter)	http://www.imo.org/Conventions/contents.asp?topic_id=258&doc_id=681		signatories	
LOS (United Nations Convention on the Law of the Sea)	To regulate all aspects of the resources of the sea and the uses of the ocean, and thus bring a stable order. http://www.un.org/Depts/los/convention_agreements/convention_historical_perspective.htm	Global	Obligatory for Signatories	Public
Initiatives on biodiversity				
CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora)	To ensure that international trade in specimens of wild animals and plants does not threaten their survival. http://www.cites.org/eng/disc/what.shtml	Global	Obligatory for parties	Public
CBD (Convention on Biological Diversity)	To ensure the conservation of biological diversity, the sustainable use of biological resources and the equitable sharing of the benefits of genetic resources. http://www.biodiv.org/doc/publications/guide.asp	Global	Obligatory for parties	Public
CMS (Convention on Migratory Species)	To conserve terrestrial, marine and avian species over the whole of their migratory range. http://www.wcmc.org.uk/cms/cms_conv.htm	Global	Obligatory for parties	Public
DIVERSITAS	To promote integrative biodiversity science, linking biological, ecological and social disciplines to produce socially relevant new knowledge, to provide the scientific basis for an understanding of biodiversity loss, and to draw out the implications for the policies for conservation and sustainable use of biodiversity. http://www.diversitas-international.org	Global	Voluntary	Private
PARC (Protected Area Resource Centres)	To locate and compiles information on the protected areas of the world. http://www.unep-wcmc.org/protected_areas/pavl/parc.htm	Global	Voluntary	Public
Environmental related initiatives				
IHDP (International Human Dimensions Programme on Global Environmental Change)	An international, interdisciplinary, non-governmental science programme, dedicated to promoting and coordinating research with the aims to: describe, analyse and understand the human dimensions of global environmental change. http://www.ihdp.uni-bonn.de/html/projects/coreprojects.html	Global	Voluntary	Private
WHC (World Heritage Convention)	To protect the World Cultural and Natural heritage. http://whc.unesco.org/toc/mainf5.htm	Global	Obligatory for parties	Public
CCD (Convention to Combat Desertification)	To combat desertification, and to promote sustainable development at a community level. http://www.unccd.int/knowledge/menu.php	Global	Obligatory for parties	Public
RAMSAR convention on Wetlands	To promote the conservation and wise use of all aspects of wetlands http://www.ramsar.org/	Global	Obligatory for parties	Public
Ecosystem Millennium Assessment	To synthesize existing information about ecosystem services, to assess how changes in ecosystem services have affected human well-being, how ecosystem changes may affect people in future decades, and response options that might be adopted at local, national, or global scales to improve ecosystem management and thereby contribute to human well-being and poverty alleviation. http://www.millenniumassessment.org/en/	Global	Voluntary	Public
Environmental and Sustainability Indicators	To prepare indicators for monitoring development and the environment in Latin America and the Caribbean to assist decision- making and planning. http://www.ciat.cgiar.org/indicators/	Regional	Voluntary	Private
Environmental	To provide the data and analysis needed to assist environmental	Global	Voluntary	Private

Initiative	Objectives	Level	Obligate	Public
sustainability index	decision-making to minimize pollution harms and to optimise the use of natural resources. http://www.ciesin.columbia.edu/indicators/ESI/			
GTOS (<u>Global Terrestrial Observing System</u>)	To conduct a programme for observations, modelling, and analysis of terrestrial ecosystems to support sustainable development, and to facilitate access to information on terrestrial ecosystems so that researchers and policy makers can detect and manage global and regional environmental change. http://www.fao.org/gtos/	Global	Voluntary	Public
GFIS (Global Information Service)	To develop a strategy for and implement an Internet-based metadata system that will provide coordinated worldwide access to forest information on forest resources, forest policy, criteria and indicators for sustainable forest management, research activities. http://www.gis.umn.edu/iufro/taskforce/tfgis/abtfgris.htm	Global	Voluntary	Public
FAOSTAT	To provide a statistical database covering statistics on agriculture, nutrition, fisheries, forestry, food aid, land-use and population. http://www.fao.org/waicent/portal/statistics_en.asp	Global	Voluntary	Public
GBIF (Global Biodiversity Information Facility)	To discover and put to use the vast quantities of global biodiversity data that exist and thereby to create an Internet-based catalogue of known names of species. http://www1.oecd.org/media/release/nw00-129a.htm	Global	Voluntary	Public
Earth Trends	To provide readily available environmental data in the topic areas: water resources and fresh water systems; climate and atmosphere; population health and human well-being; economics, business and the environment; environment and resources; biodiversity and protected areas; agriculture and food; forests, grasslands and drylands; environmental governance and institutions. http://earthtrends.wri.org/datatables/index.cfm	Global	Voluntary	Public
GRID-Arendal	To provide environmental information, communications, and capacity building services. http://maps.grida.no/	Global	Voluntary	Public
Social and economic related initiatives				
HDI (Human Development Indicators)	To provide data about human-well being that are most reliable, meaningful and comparable across countries. http://www.wri.org/statistics/undp.html	Global	Voluntary	Public
IGBP's (International Geosphere-Biosphere Program)	To describe and understand the interactive physical, chemical and biological processes that regulate the total Earth System, the unique environment that it provides for life, the changes that are occurring in this system, and the manner in which they are influenced by human actions. http://www.igbp.kva.se/cgi-bin/php/frameset.php	Global	Voluntary	Public
EIONET (European Environment Information and Observation Network)	To provide information needed for making decisions for improving the state of the environment in Europe and making EU environmental policies more effective. http://www.eionet.eu.int/	Global	Voluntary	Public
WFP (World Food Programme)	To meet emergency needs and support economic and social development, by put hunger at the centre of the international agenda, and promoting policies, strategies and operations that directly benefit the poor and hungry. http://www.wfp.org/	Global	Voluntary	Public

Annex 2: Some of the most important actors involved in the assessment of issues related to sustainable forest management and environment.

Organization	Mission / goals	Outreach	Category
ATO (African Timber Organization)	To promote sustainable forest management in ATO member countries http://www.fao.org/forestry/foris/webview/forestry2/index.jsp?geold=0&langld=1&siteld=4462	Africa	Policy development and planning
CFAN- CIDA (Forestry Advisors Network of the Canadian International Development Agency)	To stimulate thought on international forestry issues, and to provide opportunity for Internet users to discover what development issues CIDA has taken to meet the challenges facing the world's forests http://www.rcfa-cfan.org/	Global	Forestry network
CGIAR (Consultative Group on International Agricultural Research)	To achieve sustainable food security and reduce poverty in developing countries through scientific research and research-related activities in the fields of agriculture, forestry, fisheries, policy and environment. http://www.cgiar.org/	Global	Research organization
CIFOR (Center for International Forestry Research)	To contribute to the sustained well-being of people in developing countries, particularly in the tropics, through collaborative, strategic and applied research and by promoting the transfer and adoption of appropriate new technologies and social systems for national development. http://www.cifor.cgiar.org/	Global	Research organization
CPF (Collaborative Partnership of Forests)	To support the work of the UNFF in promoting the management, conservation and sustainable development of all types of forests and in strengthening of political commitment to this end. http://www.fao.org/forestry/foris/webview/cpf/index.jsp?siteld=1220&langld=1	Global	Forest information network
Earthwatch	To coordinate, harmonize and catalyse environmental observation activities among all UN agencies for integrated assessment purposes. http://www.earthwatch.org/index.htm	Global	Environmental network
EC-JRC (European Commission, Joint Research Centre)	To provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of EU policies. http://www.jrc.cec.eu.int/	Europe	Policy development
ECOSOC (Economic and Social Council of the United Nations)	To promote higher standards of living, full employment, and economic and social progress; to identify solutions to international economic, social and health problems; to facilitate international cultural and educational cooperation; and to encourage universal respect for human rights and fundamental freedoms. http://www.un.org/esa/coordination/ecosoc/about.htm	Global	Policy development
EDC (EROS (Earth Resources Observations Systems) Data Centre)	Data management, systems development, and field research for the U.S. Geological Survey's (USGS) National Mapping Division, accessible for scientists, managers and technical users. http://eo1.usgs.gov/	Global	Database centre
EEA (European Environment Agency)	To provide decision makers with the information needed for making sound and effective decisions to protect the environment and support sustainable development. http://org.eea.eu.int/	Europe	Information network
ESA (European Space Agency)	To shape the development of Europe's space capability and ensure that investment in space continues to deliver benefits to the people of Europe. http://www.esa.int/esaCP/index.html	Europe	Research organization
ETC/LC (European Topic Centre on Land Cover)	To provide users of land cover data from satellites, in a European perspective, with accurate data that corresponds to needs in a wide range of applications such as environmental monitoring, biodiversity measurements, creation of ecological corridors, nature resource inventories, environmental impact assessments etc. http://www.lantmateriet.se/index_eng.htm	Europe	Environmental information network
ETFRN (European Tropical Forest)	To promote the involvement of European research expertise towards the conservation and wise use of forests and woodlands in tropical	Europe	Forest information network

Organization	Mission / goals	Outreach	Category
Network)	and subtropical countries. http://www.etfrn.org/etfrn/		
FAO-COFO (Committee On Forestry)	To identify emerging policy and technical issues, seeks solutions and advice FAO and others on appropriate action. http://www.fao.org/forestry/foris/webview/forestry2/index.jsp?siteId=1400&siteReelId=2962&langId=1	Global	Policy development and forestry network
FAO-Forestry Department	To ensure the development of policies, strategies and guidelines and to provide advisory and technical services to FAO members and collects, analyses and disseminates information in relevant fields of competence. http://www.fao.org/forestry/index.jsp?lang=1	Global	Forest policy and planning, forest information network
FAO-Regional Forest Commissions	To promote environmentally sound and economically efficient technologies and to encourage appropriate policies in line with changing trends in forestry at the regional level. http://www.fao.org/forestry/index.jsp?lang=1	Regional	Forest policy and planning, forest network
IAEA (International Atomic Energy Agency)	To assist Member States, in the context of social and economic goals, in planning for and using nuclear science and technology for various peaceful purposes, including the generation of electricity, and facilitates the transfer of such technology and knowledge in a sustainable manner to developing http://www.iaea.or.at/	Global	Science and technology organization
IIED (International Institute for Environment and Development)	To promote sustainable patterns of world development. http://www.iied.org/aboutiied/index.html	Global	Research and policy development organization
IISD (International Institute for Sustainable Development)	To make policy recommendations on international trade and investment, economic policy, climate change, measurement and indicators, and natural resource management to make development sustainable. http://www.iisd.ca/	Global	Policy development and information network
ILO (International Labour Organization)	To promote social justice and internationally recognized human and labour rights. http://www.ilo.org/public/english/dialogue/sector/sectors/forest.htm	Global	Human rights
INBio (Instituto Nacional de Biodiversidad, Costa Rica)	To promote a new awareness of the value of biodiversity, and thereby achieve its conservation and use to improve the quality of life. http://www.inbio.ac.cr/en/	Costa Rica	Research organization
INPE (National Institute for Space Research)	To monitor the Brazilian Amazonian Rainforest by satellite http://www.dgi.inpe.br/	Brazil	Monitoring
ITC (International Trade Centre, United Nations Centre for Trade and Development and World Trade Organization)	To support developing and transition economies, and particularly their business sector, in their efforts to realize their full potential for developing exports and improving import operations in product and market development; development of trade support services; trade information; human resource development; international purchasing and supply management; needs assessment, programme design for trade promotion. http://www.intracen.org/menus/itc.htm	Global	Technical cooperation agency or trade development
ITTO (International Tropical Timber Organization)	To promote sustainable development through sustainable management, use and conservation of tropical forests. http://www.itto.or.jp/live/PageDisplayHandler?pageld=225	Global	Policy development, database
IUFRO (International Union of Forestry Research Organizations)	To promote international cooperation in forestry and forest products research. http://iufro.boku.ac.at/	Global	Network for science cooperation
IUCN-FCP (World Conservation Union Forest Conservation Programme)	To influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable. http://www.iucn.org/ http://www.iucn.org/themes/fcp/home.html	Global	Environmental policy development and advocacy

Organization	Mission / goals	Outreach	Category
ODI-FPEG (Overseas Development Organization, Forest Policy and Environment Group)	To inform the processes of policy change in tropical forestry in ways that improve the livelihoods and well-being of the forest-dependent poor, whilst also securing the long-term future of forest resources. http://www.odifpeg.org.uk/	Global	Policy development
OECD- Environment (Organization for Economic Cooperation and Development)	To provide governments with the analytical basis to develop policies that are effective and economically efficient, including through country performance reviews, data collection, policy analysis, projections and modelling, and the development of common approaches http://www.oecd.org/department/0,2688,en_2649_33713_1_1_1_1_1_00.html	Global	Environmental information network
OECD-DAC (Organization for Economic Cooperation and Development, Development Cooperation Directorate)	To increase the effectiveness of the major bilateral donors common efforts to support sustainable development, concentrating on how international development co-operation contributes to the capacity of developing countries to participate in the global economy and the capacity of people to overcome poverty and participate fully in their societies. http://www.oecd.org/department/0,2688,en_2649_33721_1_1_1_1_1_00.html	Global	Information network
PROFOR (Program on Forests of the UNDP)	To provide participating countries with concrete capacity building measures to assist the development of national strategies for improved forest management, and to develop a conceptual basis and instruments for achieving sustainable forest management. http://www.profor.info/	Global	Development assistance
RIC (Rainforest Information Centre)	To protect the Earth's remaining rainforests and the indigenous people who depend on them, and support campaigns and projects, which protect rainforests and at the same time recognise the legitimate development aspirations of rainforest peoples. http://www.rainforestinfo.org.au/aboutthe.htm	Global	Advocacy
SPREP (South Pacific Regional Environment Programme)	To promote cooperation in the South Pacific region and to provide assistance in order to protect and improve its environment and to ensure sustainable development for present and future generations. http://www.sprep.org.ws/programme/programme.htm	South Pacific	Environmental network
TBI (Tropenbos International)	To facilitate the formulation and organization of participatory, objective-oriented and multidisciplinary research and development programmes to meet the needs of policy makers and forest users. http://www.tropenbos.nl/	Global	Research organization
United Kingdom Tropical Forest Forum	To strengthen the coherence and effectiveness of British-based actions in support of the sustainable use and conservation of forests and forest lands in tropical countries, for the benefit of their peoples, and for the forest's global environmental values. http://www.forestforum.org.uk/	Global	Tropical forest information network
UNDP (United Nations Development Programme)	To help the UN system and its partners to raise awareness and track progress in reducing poverty, hunger, disease, illiteracy, environmental degradation and discrimination against women, while it connects countries to the knowledge and resources needed to achieve these goals. http://www.undp.org/	Global	Information network
UN-DSD (United Nations Division for Sustainable Development)	To service the Commission on Sustainable Development for follow-up of the implementation of Agenda 21 as well as the Plan of Implementation (POI) of the World Summit on Sustainable Development. http://www.un.org/esa/sustdev/	Global	Policy development and information network
UN/ECE (United Nations Economic Commission for Europe)	To encourage greater economic cooperation among its member States by doing economic analysis, and providing information about environment and human settlements, statistics, sustainable energy, trade, industry and enterprise development, timber and transport by policy analysis, development of conventions, regulations and standards, and technical assistance. http://www.unece.org/	Europe and North America	Policy development

Organization	Mission / goals	Outreach	Category
UNEP-DEC (United Nations Environmental Programme Division of Environmental Conventions)	To identify synergies and promote collaboration amongst international agreements, and to facilitate links between UNEP's own programme and activities and those of the conventions http://www.unep.ch/conventions/	Global	Environmental network
UNFF (United Nations Forum on Forests)	To promote the management, conservation and sustainable development of all types of forests and to strengthen long term political commitment to this end http://www.un.org/esa/forests/index.html	Global	Policy development
UNFPA (United Nations Population Fund)	To fund population and reproductive health programmes, and to help governments in the world's poorest countries, and in other countries in need, to formulate population policies and strategies in support of sustainable development. http://www.unfpa.org/about/index.htm	Global	Policy development and planning
UN-Habitat (United Nations Human Settlement Program)	To promote socially and environmentally sustainable towns and cities with the goal of providing adequate shelter for all. http://www.unhabitat.org/	Global	Development assistance
UNHCR (United Nations High Commissioner for Refugees)	To lead and co-ordinate international action to protect refugees and resolve refugee problems worldwide, in particular to safeguard the rights and well-being of refugees. http://www.unhcr.ch/cgi-bin/texis/vtx/home	Global	Human rights
UNICEF (United Nations Children's Fund)	To ensure the basic needs of children and women as well as protecting their fundamental human rights http://www.unicef.org/	Global	Human rights
UNIDO (United Nations Industrial Development Organization)	To improve the living conditions of people and promote global prosperity through offering tailor-made solutions for the sustainable industrial development of developing countries and countries with economies in transition. http://www.unido.org/	Global	Policy development and planning
UNSD (United Nations Statistics Division)	To compile statistics from many international sources and to produce global updates, and to provide unrestricted free access to selected global datasets, inclusive the millennium indicators, the social indicators data set and, in collaboration with Inter-governmental Working Group on the Advancement of Environment Statistics, environmental indicators. http://unstats.un.org/unsd/	Global	Information database
WCFSD (World Commission on Forests and Sustainable Development)	To achieve policy reforms aimed at reconciling economic and environmental objectives for sustainable management of global forests. http://www.iisd.org/wcfsd/	Global	Policy development
WCMC (World Conservation Monitoring Centre)	To promote wiser decision-making and a sustainable future by providing information on the conservation and sustainable management of the living world. http://www.wcmc.org.uk/	Global	Information network
WHO (World Health Organization)	To attain by all peoples of the highest possible level of health defined as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. http://www.who.int/en/	Global	Development assistance
World Bank/WWF Alliance	To achieve a significantly reduced rate of loss and degradation of all forest types by promoting forest conservation and internationally recognized best practices in forest management http://lnweb18.worldbank.org/essd/envext.nsf/80ByDocName/WhatistheAlliance	Global	Forest planning and management
World Economic Forum	To bring together global leaders, from all walks of life, to pursue economic and social activity that will improve the state of the world. http://www.weforum.org/	Global	Development network
WRI (World	To create solutions to protect the Earth and improve people's lives by	Global	Research and

Organization	Mission / goals	Outreach	Category
Resources Institute)	protecting Earth's living systems increasing access to information, creating sustainable enterprise and opportunity, reversing global warming. http://www.wri.org/		policy development
WWF (World Wildlife Fund, i.e. Forests Conservation Programme)	To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption. http://panda.org/about_wwf/ http://www.panda.org/about_wwf/what_we_do/forests/index.cfm/index.cfm	Global	Policy development and advocacy

**FAO/ITTO
Expert Consultation on Criteria and Indicators for
Sustainable Forest Management**

Discussion Paper #2

**Terms and definitions related to criteria and indicators
for sustainable forest management**

By

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Abbreviations

ATO	- African Timber Organization
C&I	- Criteria and indicators
CBD	- UN Convention on Biological Diversity
CICI	- International Conference on Criteria and Indicators for Sustainable Forest Management
CIFOR	- Center for International Forestry Research
CITES -	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COP	- Conference of Parties (e.g. COP 5 = 5 th COP)
CPC	- Central Product Classification
CPF	- Collaborative Partnership on Forests
CSD	- UN Commission on Sustainable Development
ECOSOC	- Economic and Social Council of the United Nations
EUROSTAT	- Statistical Office of the European Community
FAO	- Food and Agriculture Organization of the United Nations
FRA	- Forest Resources Assessment
GFRA	- Global Forest Resources Assessment
HS	- Harmonized Commodity Description and Coding System
ILO	- International Labour Organization
IPCC	- Intergovernmental Panel on Climate Change
IPF/IFF	- Intergovernmental Panel on Forests/International Forum on Forests
ISIC	- International Standard Classification of all economic activities
ISCI	- International Seminar on Criteria and Indicators
ITTA	- International Tropical Timber Agreement
ITTO	- International Tropical Timber Organization
IUCN	- World Conservation Union
IUFRO	- International Union of Forestry Research Organizations
MAR	- Monitoring, assessment and reporting
MCPFE	- Ministerial Conference on the Protection of Forests in Europe
NGOs	- Non-governmental organizations
OECD	- Organization for Economic Co-operation and Development
SFM	- Sustainable forest management
SITC	- Standard International Trade Classification
TBFRA	- Temperate and boreal forest resources assessment
UN	- United Nations
UNCCD	- United Nations Convention to Combat Desertification
UNCED	- United Nations Conference on Environment and Development
UNDP	- United Nations Development Programme
UNECE	- United Nations Economic Commission for Europe
UNEP	- United Nations Environment Programme
UNEP-WCMC	- UNEP - World Conservation Monitoring Centre
UNFCCC	- United Nations Framework Convention on Climate Change
UNFF	- United Nations Forum on Forests
UNSD	- United Nations Statistical Division
WWF	- World Wildlife Fund for Nature

Terms and definitions related to criteria and indicators for sustainable forest management progress issues and the way ahead

Ewald Rametsteiner¹

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1. Introduction

This paper outlines the needs and benefits of harmonizing terms and definitions related to criteria and indicators (C&I) for sustainable forest management (SFM). It summarizes the activities undertaken so far, identifies current issues for further work and proposes ways ahead. The paper concludes that much work on harmonization has been going on for decades, and commendable progress has been achieved lately. However, there is an increased need for real breakthroughs in harmonizing – not to be confused with standardizing – definitions and indeed countries could gain considerable benefits from such undertakings.

The range of forest-related terms and definitions and their meanings are endless. This is the consequence of many factors, including the variety of ecological conditions where forests grow, their different practical management and the way forest administration is organized by public institutions. In addition, the variety of terms and definitions reflects the wide range of perceptions of the utility of many minor or major features of forests by different parts of society and their evolvement over time. Thus, there are dozens of definitions even for the most basic terms, such as “forest” and “tree”.

Different definitions of one and the same basic term can often be found even within a country. Such differing terms and definitions are used by the various institutions for different purposes, at local, regional or national levels. Definitions developed locally usually capture the specific characteristics of the ecological as well as socio-economic environment in which they are used. However, definitions used within a country very often evolved gradually over longer time spans with the changing role of forests in society. On international scale the divergence of terms and definitions simply adds a further dimension to national circumstances.

In the 1980s and 1990s of the 20th century, the global public and political interest in forest issues has increased dramatically. The International Tropical Timber Agreement (ITTA) was signed in 1983 as an international treaty. Since the 1990s governments have signed a range of conventions, protocols and agreements on forest-related aspects. The UN Conference on Environment and Development (UNCED) “Forest Principles” and the Agenda 21 forest-related chapters contain specifications of the term “sustainable forest management” without specifically using this very term. Chapter 11 of Agenda 21 of UNCED calls for the formulation of criteria and guidelines for the management, conservation and sustainable development of all types of forests. Likewise, the Convention on Biological Diversity (CBD), the United Nations Convention to Combat Desertification (UNCCD) as well as the UN Framework Convention on Climate Change (UNFCCC).

After UNCED regional processes to develop criteria and indicators for sustainable forest management played an immensely important role in further developing an improved understanding of the meaning of the term sustainable forest management and the multitude of aspects involved, at all levels, in addition to the work by the international fora listed above. Some of these processes, such as the International Tropical Timber Organization (ITTO) in 1991 or the Ministerial Conference on the Protection of Forests in Europe (MCPFE) in 1993 have specifically defined the term “SFM”. All of the nine processes currently existing have laid the foundation of a considerably renewed and expanded understanding of what is involved in the sustainable management of all types of forests.

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Given these varying origins, contexts and purposes, it is not surprising that forest-related definitions diverge within and between nations, between international conventions and regional processes, and between different points in time. However, the abundance of different terms and definitions on an international level increasingly leads to difficulties in the international dialogue and reporting. Not only do different interpretations of the same definition effectively hinder communication and make it more difficult to reach a common understanding among the multitude of partners involved. They also lead to:

- increased cost of assessments
- duplicating of efforts, and overlaps in reporting
- inconsistencies between different reporting on the same topics, but to different institutions and related difficulties of interpretation
- misinterpretation of data
- increased coordination burdens
- undue delays in reporting and in international negotiations
- ambiguities in interpretation
- non-compatible data that cannot be aggregated

2. Objective of the paper

The objective of this paper is to:

- describe the need and benefits of reaching a global consensus on harmonization of definitions;
- describe and review activities related to terms and definitions in the international fora including the Collaborative Partnership on Forests (CPF), the FAO-led process on harmonizing forest definitions and related processes, the Forest Resources Assessment (FRA);
- describe and review progress towards harmonization of definitions;
- make suggestions on how to ensure countries/processes use such definitions;
- make conclusions and draw recommendations.

Overall, the paper should contribute to improving common understanding of concepts, terms and definitions related to criteria and indicators as well as to the identification of common approaches, methods and protocols for collecting, storing and sharing data.

Key terms related to harmonization are defined here as in Puustjärvi and Simula (2002), who themselves build on TBFRA 2000 definitions. Note the important difference between harmonization and standardization (see table 1).

Table 1: Definitions of key terms on harmonization

<i>Harmonization</i>	Making existing definitions, which denote the same or closely related concepts, comparable and consistent.
<i>Comparability of definitions</i>	Definitions are set so that their possible differences can be identified and data based on one definition can be converted to meet the needs of another, related definition.
<i>Compatibility of definitions</i>	Definitions are aligned, congruous, and not conflicting with each other.
<i>Consistency of definitions</i>	Internal agreement of various elements of definitions, or agreement between systems of definitions.
<i>Standardization</i>	Applying the same definitions for a concept within different contexts, or applying the same rules for how locally applicable definitions are defined.

(Source: Puustjärvi E. and Simula M. 2002)

3. Benefits and needs for reaching a global consensus on harmonization of C&I for SFM-related definitions

3.1 Benefits of further harmonization of terms and definitions to countries

Developing and applying internationally compatible terms, definitions and classifications for forest-related programmes have been a high priority of countries, institutions and individuals for a long time: botanists explored - and still explore – the plant and living animal species in forests and classify them according to global classification systems whose roots often go back to a system originally developed by Linnaeus in the 18th century. His system for naming, ranking and classifying organisms has remained a reference standard for more than 200 years now. Ecologists, geologists, climatologists and many other scientists of different disciplines also developed more or less global classification systems related to or applied in forest sciences. Such globally harmonized terms and classification systems have been of undisputed benefit to all. They have since greatly reduced coordination and communication costs at all levels, from local to global.

In fact, countries are the ones that benefit most from internationally harmonized terms and definitions. Changing terms and non-harmonized definitions for each of the global forest resources assessments undertaken by the Food and Agriculture Organization of the UN (FAO) since 1947 as well as many other periodic forest-related assessments, be they national or international, come at a very high cost to countries. The comprehensive collection of information on the characteristics and extent of forests on a global level, based on more or less widely agreed terms and definitions, has now an almost 100 year history, with the first global assessment undertaken by the United States (US) in 1910. FAO, founded in 1945, undertook its first forest resources assessment (FRA) in 1947 and has since undertaken FRAs about every ten years. FAO is now in the process of preparing an update for 2005 and laying the foundation of the sixth global forest resources assessment in 2010. However, as terms and definitions used in the global assessments undertaken by FAO over decades changed from assessment to assessment, one of the most important benefits of repeated assessment was lost: to detect and assess changes in key characteristics of forests over time, including measuring progress towards sustainable forest management.

If global harmonization of key terms and definitions would have been feasible in 1947, the value of data collected then would have considerably increased with each subsequent assessment ever since. Countries would have time lines showing changes and trends on key aspects related to forests and progress towards sustainable forest management since then. The situation in fact is different. Very few or no timelines can reliably be constructed on any forest-related aspect on the basis of global FRA data. Thus, the data collected in previous data collection exercises is becoming largely useless. What is long established practice and taken for granted in many countries, namely, to make the harmonization of terms and definitions a priority and keep them stable over repeated assessments, has not yet been achieved at international level.

Consistent and harmonized terms and definitions would avoid the shortcomings and problems listed in the introduction section and they would enhance value for money spent in data collection on national levels through:

- benefits accruing over time through the ability to use previously collected data for time series, change detection and trend identification on national and international levels;
- increased and multiple use of data collected on national level;
- increased value of data that is compatible with and part of a larger multinational framework;
- increased influence on local data collection institutions and funding institutions if international framework exists;
- reduced costs and efforts of data collection, compilation or adjustment for different incompatible information needs and data requests and related formats;
- higher ability to profit from research and methodical developments and data collection that is relevant to use by countries;
- higher ability to benefit from data collected elsewhere, including for comparisons of the national situation in a wider international context;

- increased possibilities to collaborate and share data, e.g. on ecosystems, across administrative boundaries.

Progress in harmonizing terms and definitions would also support and facilitate the work of countries collaborating in regional and international C&I processes and international institutions; this would also help reduce efforts in data collection and reporting for the processes and could lower the barrier to report for those countries and processes that do not yet use C&I for reporting. Benefits for global institutions include the ability to better serve the requests of countries and the international community at large more timely, more accurately and with reduced costs and efforts.

Given the potential benefits that can be gained from further harmonizing terms and definitions, there is a clear need to make these benefits visible to countries. It is important to stress that there is a need for a common understanding of and thus harmonization between forest-related definitions of core terms used by different international processes and instruments emerging at all levels, from local to global.

3.2 Needs for harmonization of C&I for SFM related definitions

Within countries as well as between countries information needs and requirements for data collection, monitoring, assessment and reporting change over time as new issues emerge, and need information, communication and co-ordination. Careful adaptation of information and data collection systems and protocols, and related terms and definitions are quite frequent, and the frequency of adaptation in such systems and protocols has increased in most countries over the last decade.

National inventories and data collection arrangements build the backbone of all international data collection and, likewise, national policies are the background of international policy processes. Nevertheless, these two areas have to observe often very different interests and objectives and often very specific information requirements. However, also international information requests are not an end in themselves but are the consequence of commitments made by countries to solve common forest-related problems and needs that are internationally acknowledged. Countries that have committed themselves to solving these problems have also committed to reporting on both actions taken and changes in forests and related social and economic conditions. Experience also shows that countries often take into account the outcome of international initiatives on the clarification and harmonization of terms, concepts and classifications when reviewing their national specifications, or even initiate a national adaptation after progress was made at international level.

Protection and adequate management of forest resources has become a global concern. Global-level data such as those provided by global resource assessments by FAO and others have been important and necessary to establish the basis for decisions on actions by countries and the international community. However, especially over the last decade, a range of global conventions has been agreed that address different forest-related aspects and that require ground-level data to assess the effectiveness of various commitments and actions. The multitude of data requests, the increasing frequency of information demands and the increased number of different bodies that need such data has led to a situation where many related international bodies have expressed the need to harmonize concepts, terms and definitions and streamline reporting. This need was explicitly expressed by the Intergovernmental Panel on Forests (IPF), the Intergovernmental Forum on Forests (IFF) and the UN Forum on Forests (UNFF 2001).

Both IPF and IFF stressed the need to achieve a common international understanding of key forest-related concepts, terms and definitions, in order to facilitate the harmonization and streamlining of data and information requested by international organizations and instruments. IPF proposals 109, 111 and 115 specifically address C&I processes to work towards common international understanding of concepts, essential terms and definitions used in C&I for SFM. A summary of the IPF/IFF proposals for action related to concepts, terminology and definitions and their degree of implementation as of 2001 are summarized below in table 2.

Monitoring, assessment and reporting is one of the principal functions of UNFF. Recognizing the complexity of monitoring, assessment and reporting, UNFF has agreed to establish an *ad hoc* expert group to develop approaches and mechanisms for monitoring, assessment and reporting in UNFF. In its deliberations in December 2003 the expert group reiterated the recommendation to use C&I as

reference for reporting on SFM to UNFF and to use existing data collection mechanisms, especially the FAO-led global forest resources assessment and those C&I processes already undertaking reporting.

The fourth session of UNFF in May 2004 in Geneva will specifically address definitions, C&I and the broader issue of monitoring, assessment and reporting. The reports of the Secretary General that review progress in these areas could propose further ways for implementation.

Table 2: Summary of IPF/IFF proposals for action related to concepts, terminology and definitions, with indication of their status of implementation at UNFF2

FAO to formulate an internationally acceptable set of definitions of key terms used in the assessment of all types of forests.	IPF 89(f)	Implemented (FRA 2000)
Countries, processes and international organizations, in particular FAO and UNEP to undertake efforts to achieve a common international understanding on concepts, essential terms and definitions used in criteria and indicators for sustainable forest management.	IPF 109, 111, 115(d)	In process
Explore consistency of terminology used in certification.	133(d)(v)	In process
Initially, IPF called upon FAO to develop a definition of low forest cover; later, IFF called upon the United Nations Environment Programme (UNEP), as the lead agency for this programme element to expedite the development of the definition.	IPF 58(a); IFF 5	Limited progress
Countries, including through international cooperation, to work towards an internationally agreed definition of planted forests.	IFF 122(a)	Implemented (FRA 2000)

(Source: UNFF 2001)

Another important need arises from other CPF members and their efforts to streamline international reporting, which led to the creation of the CPF task force on streamlining of forest-related reporting, comprising seven international forest-related bodies, including the secretariats of CBD, UNCCD and the UNFCCC. One highly, and possibly the most immediate, need for harmonizing terms, definitions and classifications arises from the implementation of the Kyoto Protocol under UNFCCC. However, in relation specifically to terms and definitions of forest-related aspects, including carbon-related matters, this is not the most appropriate initiative in which C&I processes, or countries collaborating therein, should get involved.

3.3 How to ensure that countries and processes use harmonized terms and definitions

Harmonized terms and definitions agreed in international fora respond more than individual national contexts and needs. However, experience shows that over time useful concepts, terms and definitions at the international level are gradually taken up and integrated in national contexts. In all C&I processes the different countries involved in the process are integrating the concept of C&I at different speeds and intensity into their national policies and contexts. While several countries usually played a lead role and adopted concepts and terms early, in all C&I processes some countries have made little effort to adopt them. What seems important is that a critical number of countries be persuaded of the advantages and value of their use.

National adoption of internationally harmonized definitions, however, is a long-term process that can only happen gradually, and according to the needs and capabilities of the countries. Countries are justly more concerned about their immediate forest management needs rather than ideal internationally derived information requirements and specifications. Thus, the expectation should not be to expect fast changes in national definitions. However, harmonizing international definitions among international agencies is one form of pressure to get countries to review their national specifications. A voluntary and gradual adoption of internationally used terms and concepts at country level should over time in turn also act as an incentive to adopt international definitions.

Nevertheless it is important to make countries and processes more aware of the many benefits to be gained from international harmonization, e.g. through demonstrating examples of successful reduction of reporting burdens and costs. One such case is the introduction of the FAO/UNECE/EUROSTAT/ITTO Joint Forest Sector Questionnaire. Case studies that undertake a

comparison of costs and resources needed to report on all reporting requests separately versus joint reporting could also be undertaken.

One of the most important forms to enhance the use of harmonized terms and definitions is to involve countries and experts from countries as much as possible in the harmonization process ongoing in the different international initiatives. One very successful example in this regard is the UNECE team of specialists on forest resources assessments, consisting mainly of national correspondents that are familiar with their national forest data and definitions situation. Building on this successful example, the national correspondents network for the global FRA has recently been strengthened considerably, and a first national correspondents training was organized in November 2003. A further very successful mechanism is periodic Kotka (Kotka I-IV) meetings, attended by country experts and held to evaluate past FRAs and to recommend improvements for subsequent FRAs. What seems also useful to further this end is the promotion of a higher level of collaboration and exchange between political-level (C&I processes, national representatives in international fora) and technical-level (national forest inventory, national correspondents to FRA) experts at national and international levels.

It is also important to ensure that countries and processes be aware of the long-term benefits of the use of C&I for SFM as the primary framework for reporting on progress in SFM, and the need and seriousness of harmonizing C&I terms and definitions at international level. This will help capture the future expectations of countries able to report on SFM. Reduced uncertainty about future developments in turn considerably reduces the risk of making wrong national decisions and enhances the willingness of countries to adopt internationally harmonized terms and definitions. However, as said above, it seems more important that countries adopt internationally agreed concepts, such as C&I for SFM, and related terms, rather than specific definitions.

In order to further reduce uncertainty on terms used in international for a, key documents on agreed terms and definitions used for C&I on SFM should be elaborated, promoted and publicized as widely as possible. These key documents would then have to be communicated widely and would act as flagship reference documents.

Table 3: Suggestions on how to strengthen the adoption of concepts, terms and definitions by countries

- Ensure that countries are aware of the long-term nature of the use of C&I for SFM as the lead concept, and thus the related terms.
- Ensure that countries are aware of the many benefits of more harmonized terms and definitions by the countries themselves, and the costs of not doing so.
- Assure countries are aware of the need for and seriousness of the initiatives now under way to harmonize terms and definitions.
- Ensure the widest possible participation of country experts as well as high transparency in the development process of this key document on harmonized terms and definitions.
- Develop one key global document on harmonized terms and definitions, communicate widely and promote its adoption and application as widely as possible.
- Lead by example in the use of harmonized terms and definitions in national and international reporting.
- Promote programmes for the assistance of countries that are asking for such assistance on data collection systems and procedures that include the clarification of terms, definitions and classifications.

Another strategy for ensuring that an increased number of countries use harmonized terms and definitions is to lead by example. Countries or C&I processes already using C&I for reporting should clearly communicate the harmonized terms and definitions they have used. Countries collaborating in C&I-based reporting should specify the use of harmonized definitions in their reports as an explicit requirement, and support countries in other C&I processes that do not yet report on their efforts. Countries that expressed their interest in international assistance in the further development and improvement of their national data collection systems and procedures, including the clarification of terms, definitions and classifications in a national context should get assistance using harmonized

terms (see e.g. the related FAO national FRA assistance initiative). A summary of suggestions on how to promote the use of harmonized terms and definitions by countries is found in table 3.

4. Activities related to terms & definitions in C&I-SFM

4.1 Activities related to terms and definitions in and between C&I processes

Several C&I processes have been very active in developing a better common understanding of key concepts, terms, definitions and classifications among the countries participating in C&I processes. ITTO, the first international process to develop C&Is for SFM, recognizes the need for harmonization of definitions in the following areas: (a) for the criteria and indicator processes and for country reporting on progress towards sustainable forest management, taking into account the reporting requirements of different organizations; and (b) for the ongoing development of guidelines for the restoration of degraded high forests, the management of secondary forests and the rehabilitation of degraded forest lands in tropical regions (ITTO 2003).

In both areas ITTO has been active in developing common concepts, terms and definitions. ITTO has used country-level "Reporting formats for ITTO criteria and indicators for sustainable management of natural tropical forests" to help accomplish this with corresponding reporting questionnaires for indicators at the national level as well as for indicators on the forest management unit level. This reporting format was elaborated based on the decision of ITTC in 2000 which urged member countries to use the ITTO C&I for reporting on progress made towards the ITTO Year 2000 Objective.

In the ITTO Year 2000 Objective reporting C&I were used based on definition of terms on the following reference documents (table 4).

Table 4: Main references for terms and definitions used by ITTO to report on the Year 2000 Objective based on C&I

- Criteria and indicators for sustainable management of natural tropical forests. ITTO Policy Development Series No. 7. ITTO, Yokohama 1998
- FAO forest resources assessment, FRA 2000 terms and definitions. Forest Resources Assessment Programme, Working Paper 1. FAO, Rome, 1998
- IUCN definitions of the protected area categories of the World Conservation Union as of 1998 and IUCN endangerment status categories (post-1994)

For the ongoing development of guidelines for the restoration of degraded high forests, the management of secondary forests and the rehabilitation of degraded forest lands in tropical regions, special efforts were made to elaborate definitions of degradation, restoration, rehabilitation and with regard to different forest types such as primary forest, modified forest, disturbed forest, degraded forest and secondary forest. They are presented in Appendix 9 of ITTO Guidelines for the Restoration, Management and Rehabilitation of Degraded and Secondary Tropical Forests (ITTO 2002). These definitions have also been harmonized with the FAO/IPCC/CIFOR/IUFRO/UNEP initiative on the harmonization of forest-related definitions (see chapter 4.4.1).

The Ministerial Conference on the Protection of Forests in Europe recently concluded its third round of reporting based on C&I for SFM by publishing "The state of Europe's forests 2003 – the MCPFE report on sustainable forest management in Europe" (MCPFE 2003). In 2003, MCPFE also concluded the evaluation and subsequent improvement of its set of indicators for SFM with the adoption of the improved set by the 44 European states participating in the MCPFE process. The terms used in the MCPFE C&I set are defined in a reference document "Terms and definitions used for the improved Pan-European indicators for sustainable forest management". These terms and definitions are mainly based on the following references (table 5):

Data for MCPFE reports come primarily from existing regional data gathered using procedures and protocols for regional forest resource assessments. The 2003 report is mainly based on forest resource assessment data of TBFRA 2000 of UNECE/FAO, global FRA of FAO and updates of the FRA data that

were conducted by UNECE/FAO and MCPFE in 2002. Additionally, new data on protected and protective forest areas was collected by UNECE and MCPFE according to the new "MCPFE assessment guidelines for protected and protective forest and other wooded land in Europe". For several indicators data were collected from other approved international sources.

Table 5: Main reference documents for terms and definitions used by MCPFE to report on C&I for SFM

- Terms and definitions as applied in the UNECE/FAO temperate and boreal forest resources assessment 2000
- FAO forest resources assessment FRA 2000 terms and definitions. Forest resources assessment programme, Working Paper 1. FAO, Rome 1998
- IUCN guidelines for protected area management categories 1994 and 1997 IUCN list of threatened plants
- Joint UNECE/FAO/EUROSTAT/ITTO Forest sector questionnaire 2001
- "MCPFE assessment guidelines for protected and protective forest and other wooded land in Europe" 2003
- UNECE/EC "The condition of forests in Europe" 2002

The 12 Montreal process countries recently released their first country forest reports using the Montreal Process C&I for SFM in 2003 and jointly published the "Montreal process, first forest overview report: 2003". In section IV of this report, all countries presented data available for one indicator under each of the seven criteria to illustrate the kind of data available in the individual country reports. A series of workshops and meetings of the Technical Advisory Committee elaborated the basis for the joint data reporting. The terms and definitions used for the 2003 Overview Report were mainly based on the following documents (Table 6):

Table 6: Main reference documents for terms and definitions used by MCPFE to report on C&I for SFM

- Criteria and indicators for the conservation and sustainable management of temperate and boreal forests Montreal process technical notes - glossary of terms, November 12, 2000 (accepted by MP countries)
- Proposed definitions of selected terms related to the Montreal process criteria and indicators draft 3.0 September 25, 1996, Report of the Technical Advisory Committee (working technical aid)
- Summary of Portland capacity building workshop, Montreal process capacity building workshop, August 2001, Portland, Oregon, USA.

All other C&I processes have not yet used C&I for common reporting on progress towards SFM. However, in practically all of them reference documents are available that specify terms and definitions of terms used in the respective sets.

The African Timber Organization has harmonized its principles, criteria and indicators with those of ITTO in 2001, and has enhanced efforts to increase the consistency and compatibility of C&I-related concepts and terms used by ITTO and ATO. ATO and ITTO, in collaboration with other partners, are assisting their members to put the ATO/ITTO PCI into practice, *inter alia* through a project funded by ITTO for execution by ATO that trains forestry staff in each African ITTO member country in the implementation of the ATO/ITTO PCI. Definitions used in the ATO/ITTO PCI are consistent with those used by ITTO.

The Tarapoto process has held national consultations between December 1996 and June 2000 to review the applicability of the indicators of the Tarapoto proposal. The resulting 15 "very applicable" Amazon forest's sustainability indicators are to be validated in the field in a regional project. This could in turn lead to common proposals for terms and definitions. The verification project should also train technicians and officials in the use of this set of Amazonian forest sustainability indicators in the monitoring of changes in the state of Amazonian forests.

The Near East process has conducted a number of regional workshops and expert meetings to review the applicability of the criteria and indicators in these countries and to discuss the availability of

information and national capacities for collection and analysis of data. Guidelines for assessment and measurement were elaborated in 2000.

In the Dry Zone Africa process region several regional and sub-regional meetings were held that formed the basis for “Practical guidelines for the assessment and measurement of criteria and indicators for sustainable forest management in dry-zone Africa”, published by FAO in 2000.

For the Dry Forest Asia as well as for the Lepaterique process of Central America, FAO has assisted in the development of practical guidelines for the assessment and measurement of criteria and indicators for sustainable forest management in the region (see table 7).

Countries and/or C&I processes have also undertaken a range of activities to jointly advance the development of C&I as well as related terms and definitions. In 1993, the Conference on Security and Cooperation in Europe (CSCE) sponsored an international seminar in Montreal, Canada, on the sustainable development of boreal and temperate forests, with a focus on developing criteria and indicators for the assessment of these forests. This conference, a follow-up of UNCED 1992, served as the starting point for the subsequently emerging C&I processes. It thus initiated a global harmonization of a definition for sustainable forest management.

Table 7: Documents related to terms and definitions of different C&I processes not yet reporting on C&I for SFM.

ATO	ATO/ITTO principles, criteria and indicators for the sustainable management of African natural tropical forests
Near East	FAO/UNEP. 2000. Practical guidelines for the assessment and measuring of criteria and indicators for sustainable forest management in the Near East region. FAO Regional Office for the Near East. Cairo, Egypt; 2000
Dry Zone Africa	UNEP/FAO. 2000. Technical guidelines for the assessment and measurement of criteria and indicators for sustainable forest management in dry-zone Africa. Rome, Italy
Dry Forest Asia	FAO. 2002. Practical guidelines for the assessment, measurement, monitoring and reporting on national level criteria and indicators for sustainable forest management in dry forests in Asia. Rome, Italy
Lepaterique	FAO. Directrices prácticas para la evaluación, medición, implementación y seguimiento de los criterios e indicadores para el manejo sostenible de los bosques de Centro América y Belice. Roma, Italia. (In draft)

In 1995, FAO in collaboration with ITTO held an expert meeting on harmonization of criteria and indicators for sustainable forest management. The meeting was aimed at reviewing the thematic and geographical coverage of ongoing, national-level initiatives on criteria and indicators for sustainable forest management; seeking ways and means of involving countries and regions not covered by such initiatives; and promoting comparability, and possible harmonization, of ongoing initiatives.

In 1996 an intergovernmental seminar on criteria and indicators for sustainable forest management (ISCI Seminar) was held in Helsinki, Finland. ISCI further established the concept of C&I as an important SFM concept that was subsequently endorsed by CSD. This in turn made the concept a truly global one. ISCI also gave a strong invitation for countries not yet involved to join C&I processes. It noted the need for common understanding of the terms, concepts and processes related to their development and application, including definitions of essential terms; units of measurement to be used; methods for data assembly, storage, accessibility and dissemination; methods for measurement and recording for selected indicators. A list of concepts and terms related to criteria and indicators was elaborated by FAO in collaboration with other partners in the process leading up to ISCI.

In 2000, an expert consultation on criteria and indicators for sustainable forest management was hosted by FAO in Rome. The meeting noted that over 140 countries were currently involved in one or more international forestry C&I processes. All processes had identified similar criteria and a number of the same indicators, despite all differences among countries. The expert consultation recommended that an international conference on criteria and indicators for sustainable forest management be organized, ensuring broad stakeholder involvement.

The International Conference on the Contribution of Criteria and Indicators for Sustainable Forest Management: the Way Forward (CICI-2003) was held in Guatemala City in February 2003. Participants discussed progress in the use of C&I and the many inventory, assessment, reporting and planning applications. They also considered the potential benefits of a common set of criteria based on existing sets of criteria elaborated by regional and international processes on C&I, for facilitating the sharing of information and demonstrating progress towards sustainable forest management at international level. Participants acknowledged seven thematic areas of sustainable forest management common to all regional and international C&I processes. They concluded that there was a need for harmonization of concepts and terms related to C&I to improve common understanding of sustainable forest management and C&I.

Participants at CICI 2003 acknowledged, however, that the coverage and quality of available data at all levels was a major constraint for the effective implementation of C&I and sustainable forest management and, importantly, that national forest assessments and inventories constitute a basic source of information on indicators for use at national level. They can enhance action at national level and promote regional compatibility and comparability. They noted the need to ensure that data collected be relevant to policy and institutional needs and environmental conditions and the potential to further develop national forest assessments and inventories to respond better to the needs expressed by national C&I processes.

4.2 Activities in the context of global and regional forest resources assessments

4.2.1 Global FRA and Kotka meetings

One of the main processes developing and refining forest-related definitions is the FAO forest resources assessment, which has been under implementation since the first assessment carried out more than 50 years ago in 1947. In 1951 the FAO Conference recommended that the Organization “maintain a permanent capability to provide information on the state of forest resources worldwide on a continuing basis”. Since that time, various other regional and global surveys have been conducted every five to ten years. Each has taken a somewhat different form. As the need for information on an increasing range of topics has grown, and as technology has advanced, the global forest resources assessment has increased in breadth and quality (Holmgren and Persson, 2002).

Statistics released by FAO on world forest cover from 1948 through 1963 were largely collected through questionnaires sent to countries. The assessments since 1980 have taken a more technical form, being based on the analysis of country references supported by expert judgements, remote sensing and statistical modelling. Information had to be adjusted to fit FAOs definitions. With information generated since 1980 reporting parameters stabilized. Over time more definitions were applied for developing countries for subsequent assessments.

In 1987 the *ad hoc* FAO/ECE/Finnida meeting of experts on forest resources assessment in Kotka was one of the first major attempts to harmonize approaches to forest resources assessment at global level. Definitions, which underpin any resource assessment, featured prominently on the meeting’s agenda. A follow-up meeting was held in the same location in 1993, 1996 and 2002. In 1996 the third meeting at Kotka (Kotka III, 1996) was convened to propose a framework for FRA 2000. In this meeting, experts also worked on the elaboration of a common agreed set of definitions to be used in FRA 2000. This “Kotka process” has since played a key role by providing a global framework for the development of terms and definitions.

The FAO global FRA 2000 (FAO, 2001) is to date the most comprehensive in terms of the number of references used and information analyzed on forest cover, forest state, forest services and non-wood forest products. FRA 2000 is also notable for applying for the first time a single technical definition of “forest” at the global level, based on 10 percent crown cover and “tree”. FRA 2000 applies consistent definitions to forests and forest change processes worldwide and demonstrates that harmonization can be both successful and immensely useful.

In July 2002 the fourth expert consultation was held in Kotka (Kotka IV 2003) in order to evaluate GFRA 2000 and to prepare the FRA 2005 update. Kotka IV addressed more conceptual and strategic aspects of global forest resources assessments, including aspects relevant at regional and national levels, and building on the experiences from FRA 2000 and considering future reporting requirements at the international level. The experts made the following main recommendations related to terms and definitions:

- Regional initiatives related to forest resources assessment should continue to contribute to and, where appropriate, be coordinated with GFRA work, notably in relation to concepts, definitions and core parameters.
- Countries should take into account international reporting requirements when designing national forest inventories.
- Countries should, to the extent possible, collect data in national forest inventories in a way that makes national information suitable for reporting against agreed international definitions, procedures and methods for inclusion in the global forest resources assessment.

The design of the global FRA 2005 update is intended to serve also as the design for the full assessment in 2010.

4.2.2 Regional FRA and UNECE/FAO team of specialists on FRA meetings

FAO and the UN Economic Commission for Europe (UNECE) have been collaborating in data collection and dissemination for nearly five decades. FAO and UNECE support a joint office (the Timber Section) at the UNECE's offices in Geneva. The Timber Section collects and analyzes forestry statistics for the ECE Region (Europe, North America and the Commonwealth of Independent States).

The now called "UNECE/FAO team of specialists on forest resources assessment" was established as an expert team on the "Temperate and boreal forest resources assessment (TBFRA) 2000" in 1993 and started its work in 1995. Since 1995 the team met annually, in deference to global forest resources assessment-related Kotka meetings. According to its mandate, it was focusing on many aspects of regional FRA work. This included recommendations on the concept, classifications, definitions and methods of the Assessment 2000, including parameters, structure and contents of the assessment and organization of FRA work as well as the establishment of a network of national correspondents.

The regional FRAs utilize available (national) data. National forest inventories have a long history in the temperate and boreal region and are currently carried out in most of the 55 nations covered by the regional FRA at regular intervals. However, the assessment methodology and the systems of nomenclature applied at national level differ. Taking into account the specific national information needs and the desire to maintain national time series requires that nations harmonize their data sets according to a common set of terms and definitions at international level. The TBFRA 2000 "Set of terms and definition" is the related and widely accepted reference in the boreal and temperate region.

UNECE and its team of specialists were also actively involved in the preparation, implementation and follow-up of the global FRA 2000, including Kotka meetings and the training of FRA national correspondents for the implementation of the global FRA 2005 update.

4.2.3 Joint Forest Sector Questionnaire and the Inter-Secretariat Working Group on Forestry Statistics

FAO and UNECE have been collaborating in collection and dissemination of data on forest products and trade for nearly five decades. In the mid-1990s, EUROSTAT of the European Union became a collaborator and in 1998 ITTO agreed to collaborate on the development of the joint forest sector questionnaire (JFSQ), merging the ongoing work of FAO, ECE, EUROSTAT and ITTO. Beginning in 1999, information for production and trade was gathered using JFSQ. JFSQ contains a production and trade questionnaire common to all countries and organizations, as well as other questionnaires for the specific needs of individual organizations. The inter-secretariat working group on forestry statistics was established in 1998 and continues to meet annually to review progress and recommend improvements.

JFSQ now includes the FAO Forest Products Questionnaire, the FAO UN/ECE EUROSTAT Timber Bulletin Questionnaire and the ITTO Forest Products Enquiry that many countries received from individual organizations annually until 1998. Thus supply of information to international organizations is concentrated and streamlined; there is no duplication of effort and all organizations use the same basic data, reducing the reporting burden on countries and enabling each organization to concentrate its data collection activities on a smaller group of countries. The basic principles and methods of cooperation in JFSQ include:

- That there be one national correspondent for forest sector statistics in each country and the national correspondent only complete one form (including the questionnaires of the four organizations).
- That each item of information be requested only once from each country.
- That JFSQ be accompanied by a terms and definitions document where all terms and definitions have been harmonized and are internally consistent.
- That the completed questionnaire be sent to one focal organization, which then provides the information required for the three other groups participating in the activity.
- That each organization focus on the data validation efforts in a limited number of countries, trusting their partners to work with other countries.
- That the information received through the joint questionnaire be distributed to all four organizations.
- That information from JFSQ be shared between the four organizations.
- That each organization continue to use the information it receives according to its own mandate, which remains completely unchanged by practical cooperation in data collection.

See chapter 5.2.3 on further information on the terms and definitions document of the JFSQ.

4.3 Work on C&I-SFM-related terms and definitions by other major international fora and organizations

Most international institutions or organizations with a major interest in forest-related matters are concerned with forest terms and definitions, and many institutions have elaborated glossaries of terms or definitions. All major UN-related conventions have definitions of key terms in the convention itself and have installed expert groups to develop relevant further definitions. An overview of work of main forest-related conventions on terms and definitions is in Puustjärvi and Simula (2002).

The CBD *ad hoc* technical expert group on forest biological diversity under CBD developed biodiversity-related definitions (see CBD 2002). Several institutions have developed glossaries of terms related to the Convention on Biological Diversity, including UNEP-WCMC. UNEP-WCMC, together with CIFOR, has also developed a range of definitions (UNEP-WCMC and CIFOR, 1997). At the sixth Conference of Parties of CBD the parties adopted the expanded programme of work on forest biodiversity that contains, as an objective, the review and adoption of a harmonized global to regional forest classification system, based on harmonized and accepted forest definitions and addressing key forest biological diversity elements as well as the development of national forest classification systems and maps (using agreed international standards and protocols to enable regional and global synthesis) (CBD Decision VI/22).

The Intergovernmental Panel on Climate Change (IPCC) of UNFCCC has developed forest-related definitions for use in climate change issues involving land use, land use change and forestry. UNFCCC/SBSTA has developed definitions for "afforestation" and "reforestation", needed for the implementation of the Kyoto Protocol. IPCC also develops definitions for human-induced "degradation" of forests and "devegetation" of other vegetation types and methodological options for inventory and reporting on emissions resulting from these activities. Decisions of parties related to definitions can be found in decision-/CP.9, decision 17/CP.7 and decision-/CMP.1 of UNFCCC.

CCD has asked the Committee on Science and Technology under the Conference of the Parties of CCD to develop benchmarks and indicators for desertification. In conjunction with the Teheran process on low forest cover countries (LFCC), UNEP/IUFRO have developed definitions on "low forest cover".

Several international institutions have made major contributions to the elaboration of a consistent and compatible terminology and classification system related to C&I-SFM. The World Conservation Union (IUCN) has established the global reference for the classification of protected areas. This classification system is the most widely used and most important global system. The difficulty of consistent and meaningful application in the classification of forest-related protection regimes has initiated improvement work of the current classification, including, through MCPFE, for regional application in Europe. No globally improved system has so far been presented by IUCN. IUCN also is the main global reference source for definitions of terms related to different categories of endangerment of living species.

The International Labour Organization (ILO) has developed a code of practices for forestry work that contains related definitions. CIFOR/World Wildlife Fund (WWF) and IUCN work on the development of a plantation typology. The United Nations Development Programme (UNDP) has elaborated definitions in several areas of their work, parts of which are relevant for forest matters.

The International Union of Forestry Research Organizations (IUFRO) has developed the SilvaTerm database, a terminological database for forestry that is being built by SilvaVoc, IUFRO's project on forest terminology. Terminology being living expert knowledge, this is not a static database, but a continuing process of change and revision. At present, the database is based mainly on terms and equivalent terms of a trilingual forestry vocabulary. This basic stock of terms is regularly improved with definitions and additional terms by IUFRO Units in three languages. ICRAF, the World Agroforestry Centre, has developed a glossary of agroforestry terms, as has INBAR, the international network for bamboo and rattan.

The UN Statistical Division (UNSD) has developed and maintains the international standard classification of all economic activities (ISIC). ISIC is a standard classification of economic activities arranged so that entities can be classified according to the activity they carry out. Forest-related activities are covered under A 02 - Forestry, logging and related service activities. UNSD also developed the Standard International Trade Classification (SITC), which is the classification used by UN for reporting of international trade statistics. Most countries report using the harmonized commodity description and coding system (HS), an international commodity classification for describing goods internationally traded, which UN converts to SITC. The provisional central product classification (CPC) is devised by UN and represents the first worldwide classification that encompasses both goods and services. As regards goods, CPC uses the headings and subheadings of HS.

4.4 Major recent terms and definitions harmonization initiatives

4.4.1 FAO/IPCC/CIFOR/IUFRO/UNEP harmonization initiative

In January 2002, FAO, IPCC, CIFOR and IUFRO jointly organized an expert meeting on harmonizing forest-related definitions for use by various stakeholders. The meeting started a process which aims to achieve more consistency in the use of forest-related definitions, thus contributing to reducing reporting requirements and respective costs for countries, as well as facilitating communication and negotiation between international conventions, processes and instruments.

The experts recommended harmonization, not standardization, of terms and definitions. Harmonization works by compiling existing definitions into a framework, so that they are easier to recognize, compare, adjust or even convert. Harmonization does not judge chosen definitions, with no intent to interfere with the political dialogue. It aims to facilitate political processes by pointing out the meaning of the various definitions, clarifying differences and relations and easing informed choices. The meeting discussed the following classes related to the state of the land: forest, other wooded land and other land, including trees outside forest. The following change processes between these land classes were discussed: deforestation, afforestation, natural expansion of forests, reforestation, natural regeneration, forest degradation, forest improvement, devegetation and revegetation (FAO, 2002a).

In September 2002 a second expert meeting on harmonizing forest-related definitions for use by various stakeholders was organized, also involving the United Nations Environment Programme (UNEP). The meeting reiterated the need for a common understanding of, and harmonization between, forest-related definitions of core terms used by different international processes and instruments to reduce errors in employing terms, the reporting burden on countries and related costs, and the confusion in communicating with the media and the public at large. It recommended wide dissemination and use of the comparative analytical framework of forest-related definitions between international processes, which was developed during this definitions process (FAO 2002b).

The second meeting considered in its conclusions the need and tools for harmonization, the status of harmonization (see chapter 5.2.2) and a range of definitions, including for:

- Forest and change processes between forest and other land classes
- Forest degradation and change processes within the forest

- Managed and unmanaged forests
- Forest condition
- Forest classification
- Low forest cover

Next steps planned in the harmonization process include harmonizing core terms in Spanish and French, and clarifying terms related to naturalness of forests and planted forests. The FAO definition process is closely linked to the activities of the Collaborative Partnership on Forests (CPF), and has been attended by nearly all CPF members.

4.4.2 CPF task force on streamlining forest-related reporting

The Collaborative Partnership on Forests (CPF) established a task force on streamlining forest-related reporting in June 2002, consisting of members of FAO, ITTO, UNEP-WCMC and secretariats of CBD, UNCCD, UNFCCC and UNFF. The CPF task force was created to propose ways to reduce the forest-related reporting burden, for example, through reducing and streamlining reporting requests, synchronizing reporting cycles, harmonizing data collection methods and increasing data comparability and compatibility, and facilitating the accessibility and flows of existing information. It also seeks to guide ongoing international processes by sharing experiences and lessons learned on different reporting frameworks and by seeking possibilities for common approaches for data and information collection, storage and reporting by international organizations. In the longer term, CPF sees that the work could aim to contribute to better information management system(s), whereby data and information would be more easily accessible and widely available, and in which the information could eventually be inserted and updated by countries themselves (CPF 2004).

The CPF task force has reviewed current national reporting requirements and procedures of various international organizations, agreements and bodies. It is identifying practical approaches and means for harmonizing and streamlining reporting by countries, including the contents, frequency and timing, and proposing better coordinated or reduced reporting and/or joint information requests.

The CPF task force also seeks practical solutions to managing forest-related information and making forest-related information and reports easily accessible by seeking ways to improve information storage and retrieval systems, which make data and information more easily accessible and by seeking possibilities for integrated or interlinked information management system(s) among CPF members. It has developed an internet portal that provides easy access to national reports submitted to major international processes dealing with forests and the corresponding reporting formats, with a view to facilitating reporting on forests to international agreements and fora, improving knowledge of work undertaken on forests, and to improving coordination. CPF members presented a proposal to develop a common information framework on national reporting to international bodies at the meeting of the UNFF *ad hoc* expert group on approaches and mechanisms for monitoring, assessment and reporting, held in Geneva in December 2003.

5. PROGRESS TOWARDS HARMONIZATION OF TERMS AND DEFINITIONS

5.1 Progress towards harmonization of terms

5.1.1 The Common Thematic Areas of SFM

The International Conference on the Contribution of Criteria and Indicators for Sustainable Forest Management: the Way Forward (CICI-2003), held in Guatemala City in February 2003, discussed the potential benefits of a common set of criteria to characterize SFM based on existing sets of criteria elaborated by regional and international processes on C&I. These should facilitate the sharing of information and demonstrating progress towards sustainable forest management. Participants identified seven thematic areas of sustainable forest management common to all regional and international criteria and indicator processes (see table 8).

Table 8: Seven thematic areas of sustainable forest management common to all regional and international criteria and indicator processes

1. Extent of forest resources
2. Biological diversity
3. Forest health and vitality
4. Productive functions of forest resources
5. Protective functions of forest resources
6. Socio-economic functions
7. Legal, policy and institutional framework

5.1.2 Tables on data to be compiled from countries for the FRA 2005 update

The global FRA update for 2005 uses the common thematic areas as agreed at CICI 2003, and acknowledged by FAO COFO in March 2003. Its scope covers all but the seventh thematic area, the "legal, policy and institutional framework". This approach has been recommended by Kotka IV and was requested by COFO 2003.

As recommended by Kotka IV, and confirmed by COFO 2003, FAO has established an advisory group to support the FRA process. In consultation with this advisory group FAO has further developed the overall approach to the 2005 update of FRA recommended by Kotka IV as well as a list of tables related to data to be compiled from countries. FAO also strengthened the efforts to build a network of national correspondents for FRA and held a national correspondents training session in November 2003 in Rome to make them familiar with upcoming reporting requests and formats and to receive feedback for the finalization of the FRA 2005 update data collection scope and procedures. The following 16 global reporting tables were discussed at the meeting (see table 9).

Table 9: 16 Global reporting tables for the FRA 2005 update

T1	Extent of forests and other wooded land
T2	Ownership
T3	Designation (of forest and other wooded land functions)
T4	Characteristics of forests and other wooded land
T5	Growing stock
T6	Forest biomass
T7	Forest carbon
T8	Disturbances
T9	Forest tree species
T10	Forest composition
T11	Wood removal
T12	Value of wood removal
T13	NWFP removal
T14	Value of NWFP removal
T15	Sites for social function
T16	Employment

Following the discussion at the national correspondents training, the table on "Sites for social functions" was dropped from the FRA 2005 update data request. The data submitted by countries to the remaining 15 tables should allow FAO to report on many aspects covered by the different C&I processes. In fact, these 16 tables were generated, *inter alia*, by taking into account the results of analyses of similarities of indicators of the existing C&I processes, one of which was presented at CICI 2003.

5.2 Progress towards harmonization of definitions

5.2.1 Draft definitions to be used for the FRA 2005 update

The terms and definitions used in FRA 2000 were based on the consensus agreement of the participants of the expert consultation on global FRA 2000 in Kotka in 1996 (Kotka III 1996). These terms and definitions were published as FRA Working Paper No. 1 (1998). Some of the definitions were clarified in FRA Working Paper No. 33 (FAO 2000) and in the "State of the world's forests 2001" (FAO, 2001a). In the preparation of the FRA 2000 report some definitions were re-visited in the light of experience during FRA 2000. All main definitions agreed at Kotka III and revised versions are published in the FRA 2000 main report (FAO 2001). For several key definitions these definitions are still considered the most relevant references.

In the process of preparation of the FRA 2005 update FAO has compiled or elaborated definitions to be used in the FRA update (see "Global Forest Resources Assessment Update 2005 – FRA 2005 – Draft Terms and Definitions", FAO, Rome 2003). The definitions specified draw from a wide variety of sources, and build on definitions used in earlier FRA global assessments. While the intention is to keep the base FRA definitions as they are and thus ensure the comparability of data in time series, several definitions have been modified, taking into consideration recommendations from experts in various fora, including those described in previous chapters of this paper.

However, to date, several of the definitions proposed in the FAO document are not widely agreed or continue to create confusion or inconsistencies. Thus, the need for a process of further refining and agreeing on common classifications, terms and definitions is also evident from this draft document. It is therefore advisable to jointly analyse the set of definitions proposed in this document, identifying those that are solidly established and those that are disputed. What has to follow is a step-by-step thorough discussion and agreement on all major terms, with the understanding that these should remain constant over time as much as feasible. See also chapter 7 on recommendation for the way ahead and the potential roles of C&I processes.

5.2.2 FAO harmonization meeting outcomes

Quite some progress in understanding between different bodies has been made in the FAO led harmonization meetings in 2002. A list of characteristic forest-related definitions was set up in the first meeting (table 10):

Table 10: Desirable characteristics of forest-related definitions

To be useful, internationally applicable forest-related definitions should be:
- clear, concise, objective and unambiguous in the context used;
- information-rich (predictive, useful and effective for the intended use) and not driven by exceptions
- practical and easily applicable in all countries so that data collection, meaningful reporting and verification are possible and cost-efficient;
- easily adaptable to national systems;
- consistent over time and harmonized over space (and international process);
- seamless with related non-forest definitions to allow their consistent use in various international fora;
- constructed or harmonized in such a way that the current reporting requirements from countries are reduced.

(Source: FAO 2002a)

The harmonization meetings also proposed a comparative framework for harmonizing forest-related definitions in the form of a matrix where the definitions of a number of concepts and terms can be listed, described, compared and related to different uses (international conventions, FRA, etc.) and stakeholders.

In comparing existing definitions in use in their respective areas of work, the two expert meetings concluded that differences were minor in the definitions of a range of terms (see table 11). The meetings identified ways in which the definitions could be further harmonized or the differences which could be dealt with. The meeting identified other terms that were used primarily in a regional rather than a global context, and with differing meaning from region to region, and a range of inconsistent terms and definitions. The summary results are shown in table 12.

Table 11: Status of harmonization of forest related definitions as identified by the harmonization meetings led by FAO in 2002

Minor differences	Regional definitions with different meanings	Inconsistent terms & definitions	Terms referring to the condition or quality of forests
<ul style="list-style-type: none"> • forest • forest land • forested land • other wooded land • non-forest • reforestation • forest degradation • forest improvement 	<ul style="list-style-type: none"> • old-growth forest • semi-natural forest 	<ul style="list-style-type: none"> • other land (other than forest and other wooded land) • afforestation • deforestation • planted forest • forest rehabilitation • forest restoration • forest fragmentation • secondary forest • trees outside forests • low forest cover 	<ul style="list-style-type: none"> • forest plantation • natural forest • naturalness of forest and other forest conditions • managed and unmanaged forest • others on quality of forest management and, SFM in different contexts.

(Source: FAO 2002b)

5.2.3 Definitions documents of other major initiatives

The definitions document for JFSQ used by FAO/ECE/EUROSTAT/ITTO contains a range of terms that were developed on the basis of existing classification systems. The definitions for all products are consistent with those used in the ISIC and harmonized commodity classification system (see chapter 4.3). This agreed document contains:

- General terms (coniferous, non-coniferous, tropical)
- Transactions (removals, production, import, export)
- Primary Products (e.g. round wood, fuel wood, sawn wood, panels, pulp and paper)
- Secondary processed wood and paper products

This document covers forest products based on wood. It does not include non-wood forest products. It also contains standard conversion factors used in reporting production and trade:

- Forest products measures
- Approximate equivalents for forest measures
- Weights and volumes

The document "Terms and definitions applied in the UN-ECE/FAO temperate and boreal forest resources assessment 2000" formed the basis of the regional FRA 2000. For the update in the context of reporting to the MCPFE "State of Europe's Forests 2003" this document formed the basis for the resulting MCPFE C&I for SFM terms and definitions document. It shows the status of harmonization of forest terms and definitions mainly in the European context as well as areas where further work is desirable.

6. AREAS WHERE FURTHER HARMONIZATION IS NEEDED

6.1 Issue areas and harmonization needs identified by C&I processes

Countries participating in CICI 2003 have identified a range of issues. Participants at CICI 2003 recommended that national and international institutions carry out research on criteria and indicators that are difficult to assess, including those listed in table 12. A need for a global or regional consensus on the harmonization of specific definitions related to C&I for SFM arises mainly if international data collection efforts are undertaken for common reporting by countries on these C&Is.

Table 12: Issues related to terms, definitions and classifications identified by CICI 2003 as well as C&I processes that already report on SFM using C&I (MCPFE, Montreal process, ITTO)

CICI 2003	<ul style="list-style-type: none"> - biological diversity - non-timber forest products - non-market values - soil and water conservation - carbon sequestration - social and cultural aspects and values
MCPFE	<ul style="list-style-type: none"> - forest type classification - cultural and spiritual values - non-wood forest products and related values - non-market values - forest management - landscape level patterns - expenditure for forest services
Montreal process	<ul style="list-style-type: none"> - biodiversity - non-timber forest products - soil and water conservation - carbon sequestration - total forest employment
ITTO	<ul style="list-style-type: none"> - biodiversity indicators - soil and water indicators - non-wood forest products indicators - socio-economic indicators - imprecision in subjective terms (i.e. "light", "heavy", etc.)

Those C&I processes that have undertaken efforts to common regional reporting have usually had to overcome a longer list of issues related to the common use of concepts, terms, definitions and classifications. Chapter 5 has briefly outlined the outcomes of the recent progress made. Table 12 shows those areas that were identified by MCPFE, the countries collaborating in the Montreal process and ITTO, i.e. those C&I processes that already gained experience in the practical application of C&I as a basis for SFM-related reporting.

Those processes not yet reporting on their C&I have undoubtedly made progress in harmonizing terms and definitions by elaborating common guidelines and should be invited to identify areas and issues most in need of clarification and harmonization.

6.2 Issue areas and harmonization needs related to the FRA 2005 update and beyond

The process related to the FRA 2005 update has so far identified a list of sixteen tables, for 15 of which information is sought by countries (see chapter 5.1.2). The national correspondents training held by FAO in November 2003 has revealed valuable insight into the degree of a common understanding of concepts, terms and definitions in relation to the topics addressed by these 16 tables. It also helped to clarify which areas are in need of further work, and potential areas of priority of work. A subjective list is given in table 13.

Table 13: Preliminary overview of main issues and areas for possible work on harmonization of terms, definitions and classifications related to the 16 global reporting tables for the FRA 2005 update

Table	Title	Examples of open issues related to terms, classifications and definitions
T1	Extent of forests and other wooded land	Forest use vs. biophysical definition, "other land with tree cover", trees outside forests
T2	Ownership	
T3	Designation	Predominant functions or management regimes related to forests, including different protection regimes
T4	Characteristics	"Naturalness" or related concepts and terms including "plantations", "semi-natural", "assisted planting", "native", "introduced",
T5	Growing stock	
T6	Forest biomass	
T7	Forest carbon	
T8	Disturbances	Different forms of disturbances affecting forest health and vitality
T9	Forest tree species	
T10	Forest composition	
T11	Wood removal	
T12	Value of wood removal	
T13	NWFP removal	
T14	Value of NWFP removal	Classification systems and valuation methods for non-wood goods and services
T15	Sites for social function	Sites for social functions of forests - terms to use, definitions and classifications fully unclear, dropped for the FRA 2005 update
T16	Employment	Terms, classification systems and definitions for employment categories

In addition to the issue areas listed in Table 13, to date several of the definitions proposed in the FAO document "Global Forest Resources Assessment Update 2005 – FRA 2005 – Draft Terms and Definitions", FAO, Rome 2003, are not widely agreed or continue to create confusion or inconsistencies. Thus, the need for a process of further refining and agreeing on common classifications, terms and definitions is also evident from this draft document. It is therefore advisable to jointly analyze the set of definitions proposed in this document, identifying those that are solidly established and those that are disputed and prioritize areas of work on harmonization.

A further area for work concerns the harmonization of data collection formats and the development of data collection protocols as well as protocols for the adjustment of national data to a common agreed set of definitions and to a common reference year. In this context, the recommendations made at Kotka III in 1996 are still fully valid (see table 14).

On a longer time horizon, beyond 2005, further work on the harmonization and/or common agreement on the refinement and more detailed specification of the information sought for FRA 2010, based on the seven common thematic areas and the 16 global reporting tables identified in 2003, seems useful.

7. RECOMMENDATIONS ON THE WAY AHEAD ON HARMONIZING TERMS AND DEFINITIONS AND POSSIBLE CONTRIBUTIONS BY C&I PROCESSES

As has been noted by several international initiatives on terms and definitions the aim of international level work related to terms and definitions on C&I for SFM should be on the harmonization of existing terms and definitions rather than their standardization.

Table 14: Recommendations of Kotka III (1996) on data collection and data adjustment protocols and procedures.

- The secretariat for FRA should provide guidelines and definitions so that countries can adapt their data to fit the requirements.
- Countries should be encouraged to adjust their data as far as possible to the common definitions and common reference years and describe precisely both how the data were collected and how they were adjusted.
- Countries should submit adjusted data for a specified reference period, as well as the sources data from which they are derived.
- Countries should be encouraged to develop or modify their inventory methods so that they can provide results according to the common standards. This requires that these common standards and definitions remain constant over time.
- For developing countries a network of regional and national correspondents should be established to associate countries in the assessment process and to collect data that are available in countries (e.g. areas available for wood supply).

(Kotka, 1996).

The long-term vision could be to arrive at a consistent and compatible set of internationally used terms and definitions that cover internationally widely used C&I for SFM and which are as stable over time as possible, yet as adaptive as necessary to accommodate changing needs. This set of international terms and definitions should allow easy and consistent transformation of national data to international levels.

Further work on harmonizing concepts, terms, definitions and classifications used at the international level is and will be undertaken by many bodies and processes. It is therefore essential to identify areas where C&I processes can make a useful contribution, and possibly have a common understanding of a range of principles for further work. Some initial principles could be:

- C&I processes should assist global-level efforts in harmonizing terms and definitions wherever invited to do so and should avoid duplication of work or the creation of contradicting or competing classifications or definitions at global level
- C&I processes should take global level agreements fully into account in regional-level work on the harmonization of terms and definitions
- C&I processes should adopt existing international definitions wherever possible; whenever necessary, these should be adapted, improved and related to each other
- C&I processes should help identify needed definitions, as new information needs and indicators are generating new terms
- C&I processes that have not yet begun reporting should attempt insofar as possible to use definitions already agreed by processes that are reporting.

7.1 Work and possible contributions by C&I processes at the global level

Jointly, C&I processes can make contributions to the harmonization of terms and definitions by raising awareness of the importance of the issue, including putting the topic on the agenda and presenting specific suggestions at regular expert meetings and wider C&I-related conferences, as was done at the international expert meeting in the Philippines in March 2004. C&I processes can also make contributions to the harmonization of terms and definitions by jointly reporting on C&I for SFM, using common terms and definitions.

Countries and experts involved in C&I processes can also contribute to the harmonization of terms and definitions through getting involved in other initiatives. Possibly the most relevant initiative related to C&I for SFM is the FRA 2005 update and FRA 2010. A range of mechanisms has been put in place to involve country experts in the design, implementation and review of FRAs. Five mechanisms that operate on the global level are currently most visible and could be used as possible platforms for further increased collaboration between C&I experts and between these and FRA on the harmonization of terms and definitions related to C&I for SFM at global level (table 15).

Table 15: Existing global mechanisms and platforms that could be used for increased collaboration on the harmonization of terms and definitions involving C&I processes.

Global	- Kotka meetings related to FRA (approx. every five years)
	- Network of National Correspondents for FRA
	- Advisory Group on FRA
	- Periodic meetings of experts or countries on C&I for SFM (e.g. ECCI 2004 ¹)
	- CPF Task Force on Forest Related Reporting

FAO has taken steps towards strengthening the link between FAO and the national correspondents for FRA, and experts from C&I processes have participated in all mechanisms listed in table 15 above. However, there might indeed be benefits by making better use of expertise available in the C&I processes, as, after all, FAO, national correspondents to FRA and experts of the C&I processes cover similar areas and should have similar overall interests, namely to improve data quality on the situation of SFM worldwide. Indeed, with the adoption of the common thematic areas and the closer thematic correspondence of FRA 2005 update tables with information needs specified through indicators, this thematic link has strengthened recently, and could grow even stronger in the run-up to FRA 2010.

In this context it might be useful to identify priority areas for further work on harmonization of terms and definitions related to C&I for SFM and to establish specific working groups on some specific areas that need more in-depth background work. Possible areas for specific work by working groups to be established are, e.g. on valuation of forest goods and services or social functions. See also table 13 for a list of topics. These working groups could then be asked to present proposals to be discussed at one of the mechanisms or platforms listed in table 15. An alternative or additional option to working groups is to assign work to specific experts to present options and proposals for discussion at these platforms. Note that it might be wise not to start with the most contentious issue. What seems useful is to agree not only on common priority topics but also on a time plan for the work on these topics.

Furthermore, it is also necessary to strengthen the compatibility of terms and definitions used for forest-related C&I with those used in other areas of land use and other sectors, including agri-environmental indicators, rangelands and indicators of economic activities, to ensure common use of terms across sectors and data uses, including on employment and economic accounts, and to strengthen coordination with other institutions developing or applying C&I sets, including those institutions collaborating in CPF. To make other groups better aware of the work in the context of C&I processes and to explore possible synergies, a workshop could be convened under the auspices of CPF and involving C&I processes, CPF members that request country information on forests, and other instruments developing or using global indicators related to forests. The purpose of the workshop would be to share information about the data collected and to explore possibilities for synergies and joint action by the processes and instruments to facilitate harmonization of global information on forests.

Over the longer term, countries involved in C&I processes could consider identifying common indicators in all the C&I processes as a means to progressing in harmonizing concepts and terms, as requested by UNFF. This could lead to a common agreement, e.g. at a global conference organized in 2007, on a list of common topics under the seven common thematic areas, and similarly to the agreement reached at CICI 2003 on common thematic areas.

7.2 Work and possible contributions by C&I processes at regional and country level

Given the fact that three of the nine C&I processes use C&I to report on SFM, and given the fact that existing mechanisms and institutions are in place that run across these three C&I processes, it seems useful to further explore possibilities of increased collaboration on the harmonization of concepts, terms, classifications and definitions between these processes.

The UNECE team of specialists on FRA includes members and experts of MCPFE and several of the Montreal process countries. However, despite this overlap, the experts in these two groups have had

¹ Expert consultation on criteria and indicators for sustainable forest management.

comparatively little contact. Increased collaboration between these two groups in general and on the harmonization of terms and definitions in particular would be both feasible and desirable. The UNECE team of specialists and the C&I process representatives could jointly explore possible ways and means to harmonize terms, definitions and concepts in the region, but also options and possibilities for common data collection formats and protocols. The next opportunity to do so is the upcoming meetings of the UNECE team of specialists or the related Montreal process WG or TAC meetings.

The FAO/ECE/EUROSTAT/ITTO inter-secretariat working group on forestry statistics could be invited to consider extending the area of coverage of topics of their joint questionnaire where data could be collected periodically (instead of annually, as for the forest products) for reporting on socio-economic aspects of C&I for SFM.

In relation to collaboration between C&I processes that already report and other C&I processes that do not yet report, the ITTO/ATO joint initiative is a positive example of a "buddy system", where processes with a similar context on the ground team up for the sake of enhanced common progress.

Table 16: Existing global mechanisms and platforms that could be used for increased collaboration on the harmonization of terms and definitions involving C&I processes

International or regional	- UNECE Team of Specialists on FRA
	- Inter-Secretariat Working Group on Forestry Statistics of FAO/ECE/EUROSTAT/ITTO
	- C&I process meetings of individual processes

All C&I processes that are currently not active in further harmonizing concepts, terms and definitions as well as classifications – or elaborating, implementing or improving common data collection formats or protocols or guidelines - should be invited to do so and all processes that have already identified issue areas for further work should be encouraged to proceed.

Also at country level increased efforts seem feasible and necessary to enhance the awareness of technical experts within countries on the existence of C&I for SFM and on collaboration between the many different institutions within one country that collect forest-related data that are relevant to C&I for SFM. There seems considerable potential in virtually any country to harmonize not only data collection routines, systems and protocols, but also to develop harmonized terms and definitions used by the different organizations.

7.3 Possible work and recommendations to be adopted at the March 2004 C&I expert meeting

The FAO/ITTO international expert consultation on criteria and indicators for sustainable forest management in March 2004 in the Philippines could discuss and decide on a range of issues and aspects related to harmonizing terms and definitions (table 17).

Table 17: Possible topics of discussion and work at the FAO/ITTO international expert consultation on criteria and indicators for sustainable forest management (March 2004)

- Agree on a list of principles for work on terms, classifications and definitions
- Identify issue areas for harmonization of terms, classifications and definitions
- Agree on priorities for the harmonization of terms, classifications and definitions
- Discuss possible work, time horizons and elaborate suggestions how to better utilize different existing mechanisms and fora on global and regional level
- Elaborate and decide on recommendations and suggestions to be addressed to other fora

A starting point for possible working groups to identify issue areas could be to work in those already identified by C&I processes or national correspondents in the context of FAO and listed in this

document. What has to follow is a step-by-step thorough discussion and agreement on all major terms, with the understanding that these should remain constant over time as much as feasible. As this is a time-consuming process that requires a wide participation of experts from countries, it is clear that this involves a time horizon beyond 2005. The start is to identify and agree the most important ones, the design of a work programme and a time schedule for expert meetings. This could be done as a standard component of international FRA-related meetings, on both global and regional levels.

The most important international institutions and processes that could be addressed are UNFF, CBD, CPF and FAO in the context of its work on FRA. UNFF 4 in May 2004 will address "monitoring, assessment and reporting", "concepts, terminology and definitions" and "criteria and indicators". In relation to UNFF 4, C&I processes could call upon UNFF to take note of the outcome of CICI 2003 in terms of harmonization of concepts, especially the seven common thematic areas, and to recommend and support its wide application. It could also call upon UNFF to support the work and outcomes of this expert meeting.

In relation to work on terms and definitions of other CPF members, the C&I processes could commend CPF for its work on streamlining reporting and the FAO-led harmonization initiative and offer their support and assistance, as needed. CPF could also act as a communication channel to CBD and the UNFCCC Kyoto Protocol with its more specific data needs and related IPCC specification.

FAO, in the context of FRA 2005 and 2010, could be invited to:

- invite national correspondents and experts from C&I processes to a workshop to share their country practices and work on one or more of the specific issues identified above (e.g. on forest classification, forest "designation") with the aim to contribute to a widely agreed classification scheme for global FRA 2010;
- invite experts from C&I processes, among others, to be part of a task group to elaborate or discuss proposals for global-level issues such as a classification for social and cultural values;
- invite C&I processes to Kotka meetings;
- convene a joint meeting of the Advisory Group on FRA with C&I process representatives.

The main addressees for recommendations formulated in this meeting should be countries, both in their capacity to support and implement terms and definitions related work in their countries and their role in enhancing related work in C&I processes and the international fora and institutions mentioned above.

8. Concluding remark

Considerable work has been done over the last decades and quite some progress has been achieved in harmonizing forest-related terms and definitions. Over the last decade, and increasingly over the last years, countries have pointed out the need for reducing the reporting burden on countries. In addition there is need for better and more comprehensive information on forest-related matters, including the identification and documentation of changes and trends in the sustainable management of forests over time. This calls for strongly increased efforts to further harmonize terms, classifications and definitions used for monitoring, assessment and reporting, and their repeated use over time. While considerable progress has been made in identifying and agreeing on the most important component that constitutes sustainable forest management, enhanced efforts are needed to comply with these requests by countries at all levels, from the local to the international level.

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FAO/ITTO

**Expert Consultation on Criteria and Indicators for
Sustainable Forest Management**

Discussion Paper #3

Strengthening the criteria and indicator processes for better implementation

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Acronyms

ATO	African Timber Organization
C&I	Criteria and indicators
CICI	International Conference on the Contribution of Criteria and Indicators for Sustainable Forest Management: <i>The Way Forward</i> , Guatemala 02/2003
CIFOR	Center for International Forestry Research
COFO	Committee on Forestry
CPF	Collaborative Partnership on Forests
DFAS	Dry Forest Asia initiative on criteria and indicators
DZAF	Dry Zone Africa process on criteria and indicators
FAO	Food and Agriculture Organization of the United Nations
FRA	Forest Resources Assessment (coordinated by FAO)
GEF	Global Environment Facility (of the World Bank)
IFF	Intergovernmental Forum on Forests
IPF	Intergovernmental Panel on Forests
ITTO	International Tropical Timber Organization
MAR	Monitoring, assessment and reporting
MCPFE	Ministerial Conference on the Protection of Forests in Europe
MPCI	Montreal process on criteria and indicators
NEP	Near East process on criteria and indicators
SFM	Sustainable forest management
TAC	Technical Advisory Committee
UNEP	United Nations Environment Programme
UNCED	United Nations Conference on Environment and Development
UNFF	United Nations Forum on Forests

Strengthening the criteria and indicator processes for better implementation

By Don Wijewardana¹

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1. INTRODUCTION

The international conference on the contribution of criteria and indicators for sustainable forest management (CICI 2003) recommended that FAO and ITTO convene an expert consultation to consider and make recommendations to UNFF on a number of areas to enhance the role of criteria and indicators in sustainable forest management. Among them, this paper addresses the following:

- i) Assessing the capacities of ongoing C&I processes to influence policy-makers
- ii) Strengthening C&I processes including the need for liaison/secretariat facilities where no such facilities exist
- iii) Promoting inter-process cooperation and sharing of information and know-how.
- iv) Merits of forming an *ad hoc* international technical advisory group to address technical issues related to the development and implementation of criteria and indicators.
- v) The role of FAO, ITTO and other national and international organizations in enhancing and strengthening countries' capacities for better implementation.

In addressing these issues some overlap with papers presented in other sessions of the meeting is inevitable. To minimize overlap, this paper adheres as closely as possible to the above topics.

In order to assess the position of ongoing C&I processes a questionnaire incorporating a number of these issues was sent out to the identified contact points. Responses were received from around 80 percent of them². That information, along with similar recent assessments, papers and consultations were used to facilitate analysis.

2. BACKGROUND

Criteria and indicators have been described as the most important and innovative forest management tool developed in the 20th century. It has also been a very popular instrument as seen by around 150 countries subscribing to it in less than a decade³, and on a voluntary basis. Such popularity stems partly from the fact that through C&I it has been possible to derive a global understanding of what constitutes sustainable forest management at the country level, as reflected in the seven thematic areas that are common to all regional and international C&I processes. The primary value of C&I is as a tool to help assess country progress towards sustainable forest management (SFM).

The Intergovernmental Panel on Forests (IPF) and the Intergovernmental Forum on Forests (IFF) placed great importance on C&I as a vehicle for achieving SFM. This is evident from the many related proposals for action emanating from these two bodies. The UN Forum on Forests (UNFF) is currently engaged in promoting the implementation of these proposals, as well as advocating their use in monitoring assessment and reporting on country progress towards SFM. There are also a number of other international organizations that are involved in the implementing of C&I. The most notable among these are FAO, ITTO and CIFOR. The nine regional and international C&I processes currently in operation are also responsible for promoting their use.

But while there is global recognition of the importance of C&I in promoting sustainable forest management, with nearly 70 percent of all countries belonging to one or more of the processes, their

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² See Appendix 1 for details.

³ See Appendix 2 for list of countries involved.

implementation, except in a few processes, has been slow and uneven. MCPFE, MPCl and ITTO have taken several steps to promote implementation by their 85 member countries. They have also reported on their progress with many countries publishing sustainable forest assessments using C&I. But the other processes have not yet reached the level of reporting. They are in different stages from evaluating their relevance to individual countries to defining national indicators or establishing baseline data to monitor future progress. There are also around 65 countries that do not belong to any C&I process.

The reasons for slow progress in some regions are many and varied. A number of studies, expert consultations and international meetings have focused on identifying the causes and seeking solutions. ITTO, which has undertaken comprehensive field testing and training on C&I, found a number of factors that have contributed to the slow progress in applying C&I (Johnson, 2001). Our own survey of the processes also confirmed the findings of other investigations. The most common reasons for the slow traction identified in them are lack of political commitment, technical and resource capacity, data, and understanding and awareness.

3. CAPACITIES OF ONGOING C&I PROCESSES TO INFLUENCE POLICY MAKERS

As identified in many fora, the lack of political commitment to sustainable forest management in some parts of the world has been a fundamental obstacle to implementing C&I. There are many reasons for this. When faced with urgent and politically sensitive alternative uses of forestland, such as maintaining food security and employment, SFM, where the benefits are largely long term, does not feature high in political priorities. C&I processes themselves could play a part in remedying the situation. At present, however, their capacity to influence policy-makers is varied. MCPFE plays an active role in influencing ministerial level commitment in Europe and shaping the European Union forestry policy. Although a voluntary process, covering 44 European countries and the European Community, many of the resolutions adopted at ministerial level are translated into national forest laws. Also, a common pan-European work programme ensures the implementation of those activities that are of pan-European value. MCPFE is also important for the European Union. Since the European Union does not have a common forest policy, MCPFE plays an important role in EU decisions related to forests.

There is no formal ministerial component to the MPCl process working group deliberations. Each member country determines the extent of the involvement of its own policy-makers at the national/subnational levels. However, the process operates in a manner that generates political interest, visibility and involvement by holding meetings in each of the member countries. This commitment to implementing C&I, as reflected in the recently published first country reports on sustainable forest management and the consolidated first forest overview report, reflects its influence on policy-makers (MPCl 2003).

In ITTO, there is a high level of commitment to C&I. Ministers of producer countries are well aware of C&I work and many attend ITTO meetings regularly. A unique feature of ITTO is that member countries get funding for C&I-related work through projects and policy-related work such as regional/national training workshops and convening international conferences. Members meet twice a year during which all aspects of forest management (including C&I) are discussed. In addition, the ITTO Secretariat maintains regular contact with member countries. In 2003, the forestry ministers or their representatives of the 14 member countries explicitly endorsed the harmonized ATO/ITTO principles, criteria and indicators.

Progress in other processes is not as great. In the Near East process ministers have not signed or endorsed it and no regular reports are provided either, in most countries. In the Dry Forest Asia Initiative ministers have accepted a task force report. Apart from that there are no regular meetings or briefings. In fact there has been very little interaction between members and they have met for the first and last time in 1999. A meeting of national focal points of the Dry Zone Africa process in 1998 recommended that political commitment was essential for effective implementation and sought an assurance of such support. (Dry Zone Africa, 1998). It has been endorsed by the respective Forestry Commissions but not by ministers. But no regular briefings are provided to ministers nor have there been recent meetings of member countries. The Lepaterique process progress included an expert meeting in 1997 followed by regional workshops and seminars with countries carrying out national validation exercises to assess identified C&I. The Tarapoto process has taken a similar path beginning with an expert meeting in 1995 and evaluation of relevance of C&I by member countries in 2000. More recent information on the last two processes was not available.

Overall, the capacity of the processes to influence policy-makers varies, with some processes operating with a high level of political commitment while many are at the other end of the scale with very limited or no political leverage.

In many countries, the responsibility for implementing C&I rests with technical government agencies and/or research organizations, without the involvement or input of those agencies responsible for policy formulation. In addition, the lack of understanding and awareness and the absence of capacity in countries have tended to prevent C&I receiving greater prominence in the political agenda. Also a number of countries have gained membership of C&I processes somewhat automatically by belonging to a particular region or organization where C&I have been promoted, rather than through their own determination. Member countries in some processes established through a high level of international support may feel lack of ownership. In all such instances the level of country commitment has often been low.

There are three levels of action for C&I processes to enhance their capacity to influence policy makers: international or regional, inter-process and domestic levels.

A number of international initiatives have been taken to generate political commitment. One main reason for setting up UNFF itself was to engender political commitment to SFM². High-level segments of many international fora, such as UNFF and FAO's Committee on Forestry, are also aimed at gaining ministerial-level commitment to SFM including implementation of C&I. The recommendations of the recent UNFF *ad hoc* expert group on MAR to use C&I to assess country progress towards SFM (UN Forum on Forests 2003b) and the use of C&I as the framework for the planned update of FAO's global FRA 2005, will also help generate greater commitment to C&I by policy-makers. Bilateral donor relationships are also an important means of encouraging political commitment to C&I (see José Antonio Prado, 2003).

The critical need for political commitment is at the national level where it is mostly lacking in some parts of the world. But in recent times market dictates appear to have stimulated a degree of political commitment to SFM, especially in countries dependent on forest trade. This has taken the form of an interest in the need to adopt timber certification, which is gradually becoming an important marketing tool. C&I are an essential basis on which some certification processes are developed. It is also confirmed by ITTO's C&I training and field-testing which showed that a major motivator for the commitment of a number of countries to C&I was the desire to eventually seek certification of their timber products (Johnson, 2001).

There are several actions that C&I processes can take to gain the commitment of policy-makers. Among them, high priority needs to be given to promoting awareness and understanding among the political leadership as well as senior officials and the general public. Cooperation and collaboration among processes, the availability of a secretariat/liaison office facility to co-ordinate work within processes could go a long way in addressing some of these issues.

4. STRENGTHENING CRITERIA & INDICATOR PROCESSES

I. Strengthening concepts and definitions

i.a) Common concepts and definitions

The need for common concepts and definitions for the healthy and consistent growth of C&I processes has been highlighted by the active processes and endorsed by IPF and IFF. The processes that participated in CICI 2003 recommended further work in improving common understanding of concepts, terms and definitions related to C&I. More recently the UNFF *ad hoc* expert group on MAR (UNFF 2003b) urged the fourth session of UNFF to *“Further encourage the CPF members to continue their efforts to harmonize forest-related definitions, in order to minimize inconsistencies and poor understanding of information and with an aim to reduce the reporting burden”*.

² See ECOSOC Resolution 2000/35.

There has been some ongoing work at international level to address the issue initiated particularly by FAO with the support of a number of other international organizations. (FAO, 2002a and FAO, 2002b). But these efforts were largely focused on harmonizing forest-related definitions by key international bodies that excluded C&I processes. The differences that exist range from definitions of criteria and indicators to determination of forest types. Inconsistencies in concepts and definitions pose problems particularly to countries that belong to more than one process if they are required to provide multiple reports. But so far they have not caused major concerns since there are no formal or operational links between processes. But this situation is likely to change in the future if greater coordination and collaboration takes place. The trend towards using reports from different C&I processes to derive consolidated analyses will also increase in the future with C&I likely to provide the framework for a variety of regular reports. These include FAO's global FRA 2005 and country reporting to UNFF on monitoring, assessment and reporting progress towards implementation of SFM. The compilation of such reports aggregating country data will necessitate the use of consistent concepts and definitions.

The fourth session of UNFF to be held in May 2004 is to address C&I as part of its main agenda. Whatever the outcome of this meeting, continuous improvement towards common understanding of concepts and definitions, as well as ongoing work involving international organizations, with the cooperation of C&I processes, is essential.

i.b) A limited number of Indicators

A notable aspect of global C&I processes is their uneven growth and application. This has affected the consistent implementation of measures towards global SFM. In order for countries to commence application of C&I without delaying until sufficient data on different indicators become available, it has been suggested that a limited number of indicators be identified. Although the issue has been considered at many international fora over the past decade there has been some reluctance to do this. The reluctance is understandable given that sustainability is defined by the complete set of criteria. Unless progress is made on all fronts it does not lead to SFM.

CICI 2003 once again drew attention to the issue. It recommended that "*countries with limited capacity consider starting with an easily measured and understood core set of indicators and expand gradually to cover other indicators of sustainable forest management.*"

Notice that the recommendation refers to a core set of indicators and not a core set of criteria that was also a part of the past debate. The reason is that there appears to be a growing international consensus on the key elements of SFM. There are seven common thematic areas of SFM, based on the criteria of the nine ongoing regional and international C&I processes, acknowledged by CICI-2003, COFO 2003 and now taken into account for example in the global FRA and in the work of the Collaborative Partnership on Forests (CPF) in streamlining forest-related reporting:

1. Extent of forest resources
2. Biological diversity
3. Forest health and vitality
4. Productive functions of forest resources
5. Protective functions of forest resources
6. Socio-economic functions
7. Legal, policy and institutional framework.

This consensus on common thematic areas (or criteria) effectively provides a common, implicit definition of sustainable forest management. It is a significant development in promoting global SFM. The next question is whether there is a need for a core set of indicators. Unlike criteria, which are largely universal, indicators can be region, process or country specific. To obtain useful data indicators need to be tailored to the specific conditions of each of them. In that sense it is questionable whether a universally agreed core set of indicators is necessary. The CICI recommendation for countries with limited capacity to start implementing C&I with an easily measured and understood core set of indicators and expand gradually to cover other indicators, remains a practical approach. In any event, there has been a recent trend to reduce the number of indicators and simplify them in the more advanced processes, because they realized there were too many. This process and continuing research will contribute to a rationalization of indicators in the long term.

i.c) Research

An issue closely linked to a limited set of indicators is research. With C&I still in the developmental stage there are many issues that need to be resolved to make them fully operational. But this does not suggest that countries should delay implementing C&I until more research is completed. It is unlikely that any country completely lacks the basic data required to commence implementation of C&I. The essential step is to commence implementation with whatever information that is available and expand as research results or more information become available. In identifying areas for research CICI captured the situation well when it recommended that *“national and international institutions should carry out research on criteria and indicators that are difficult to assess”*.

There are several issues involved here. Forest area and production data that are currently available for most countries is no longer adequate to show how the forests are being managed or the extent of services provided especially in environmental and social areas. In some cases more funds are required to measure basic data on non-commercial forests, such as conservation lands. In other cases, a better understanding of the indicators to be measured and how to measure them are required. There is also a need to develop simple methodologies for those indicators that have proven difficult to assess. Additionally, forests, being dynamic ecosystems, change over time. Similarly, community values too tend to undergo change with time. These factors underline the need for research and periodic review of C&I systems to ensure their continued relevance and effectiveness. International and research organizations can play an important role in addressing research needs; an international technical advisory group could also play a useful role.

II. Strengthening the processes

There are several aspects of C&I processes that need to be improved as identified in different fora including the CICI 2003 conference³. Our survey found many of the ongoing C&I processes confirming this need and highlighting a number of areas for strengthening if C&I are to play a more effective role in SFM.

ii.a) Establishment of liaison office/secretariat (LO/S) facilities

Only three of the processes, Pan European, Montreal and African Timber Organization, had dedicated LO/S facilities. The Liaison Unit of MCPFE is a ‘moving’ secretariat hosted by one country for a period of five years and overseen by a general coordinating committee comprising four member countries selected to maintain a geographic and political balance. Current members of this committee are Poland, Austria, Norway and Spain with the secretariat in Poland. The four countries also share the funding of the LO/S.

Canada hosts the Montreal process LO/S and some costs are shared by the other member countries.

As a result of an ITTO-sponsored multi-phased project, a Liaison Office has been set up at the ATO Office in Gabon to coordinate the implementation of all the activities of the project that are C&I-related. The specific objectives of the project are:

- (i) establish key elements of the adequate capacity to implement ATO/ITTO PCI at national level in the African producer member countries of ITTO; and
- (ii) establish key elements of adequate capacity building for effective regional-level cooperation through ATO to support individual Member countries to implement the ATO/ITTO PCI.

Apart from the project under which the ATO/ITTO C&I implementation is funded the ITTO process does not have a dedicated LO/S. However, its own secretariat serves as an equivalent. The Secretariat coordinates all aspects of country reporting, as well as back-stopping C&I project training and overseeing various other aspects of C&I-related work, with the costs borne by ITTO's administrative budget.

³ See for instance Prabhu *et al.* 2003.

In responding to our survey, the processes without LO/S facilities were unanimous that the absence has hindered their work. Similarly, one of the reasons for the effectiveness of MCPFE and MPCl was seen as the coordinating role of their liaison offices. Progress with ITTO C&I is to a large extent due to a similar role played by its secretariat.

The processes identified a number of areas where a LO/S could assist in improving the situation:

- coordinate activities among member countries as well as with other processes;
- seek commitment of senior administrators and policy-makers;
- prepare manuals;
- organize training;
- facilitate capacity building;
- act as a focal point for coordinating information;
- attract domestic and international resourcing;
- promote joint projects including demonstration projects using C&I.

All these are proved to be instruments of an effective C&I process, yet most of them are not currently undertaken in many C&I processes.

However, there was no agreed model among the respondents for a LO/S facility. An emerging approach is for a LO/S of an existing process to provide these services to another that does not have such a facility. Such a co-operation arrangement between MPCl and a regional process is currently under consideration. There was support for FAO, through its regional commissions, or similar means, taking on the role of LO/S, emphasizing that such organizations have greater impact than different countries fulfilling that role. Their expertise and neutrality were seen as important elements for success. In fact FAO, in some instances with the support of UNEP, has played an active role in the establishment of several of the regional C&I processes currently without LO/S facilities. Another option could be to tie the LO/S within an existing process, for example the Near East process that could benefit if it were closely linked to the Tehran process.

There is no one model of a LO/S that can fit all international and regional C&I processes that need one. The circumstances of each region are different. When an external body plays the lead role there is a tendency among the member countries to display less commitment. The bottom line for success is to have a facility for each process that is dynamic, responsive and representative. Another critical requirement for their success - adequate technical and financial support - cannot be overemphasized.

ii.b) Capacity building

Lack of capacity is a fundamental obstacle faced by many countries in implementing C&I. ITTO, which carried out a comprehensive training and field-testing programme on its C&I, found that it was a major hindrance to their implementation in most countries (ITTO 2001). Institutional capacity in the forestry sector is generally weak in many countries. Dogru (2004 personal communication), in response to the questionnaire, reflecting on the Near East process, summed up the situation of many developing countries:

“Forestry departments are small and have limited number of staff in most of the region countries. These staff are heavily engaged in the daily implementation activities (conservation of forests against fires, encroachment, other biotic and abiotic agencies, afforestation, combating desertification). Institutional structures and capacities are weak in monitoring-assessment, inventory and planning fields. Forestry education and research units are weak or do not exist in some of the countries”.

Dogru is echoing views that have transpired in many recent international meetings that focused on SFM or monitoring, assessment and reporting. Thus, strengthening C&I cannot be separated from strengthening capacity. Capacity building includes a number of elements ranging from technical and financial to data availability, improving poor and irregular collection procedures, storage and analysis, capacity for monitoring and reporting, and ensuring sufficient stakeholder involvement.

Four recent international meetings have made recommendations on strengthening country capacity related to implementing SFM, in particular C&I. They are CICI 2003, a meeting of the working group of

the Montreal process, September 2003, expert consultation held in Kotka, Finland, in July 2002, and UNFF *ad hoc* expert group on approaches and mechanisms for monitoring, assessment and reporting in, December 2003. They are listed in the box below under five main categories. Addressing them in a coordinated way will be important in strengthening C&I to make them more effective.

Strengthening capacity: proposals from recent international meetings

i) Resources & the role of international organizations

- Country forestry departments and C&I processes should seek support for their work on C&I through country partnerships, FAO, ITTO, the Global Environment Facility (GEF) and other relevant organizations and mechanisms. In this regard, the donor community should support the efforts of developing countries, including provision of financial support, technology and know-how.
- Invite the GEF, within its mandate, to provide funds to strengthen national capacities of developing countries and countries with economies in transition for forest-related monitoring, assessment and reporting as a component of its projects in biological diversity, climate change and land degradation.
- Invite CPF members and other international and regional organizations, instruments and processes to support capacity strengthening of those C&I processes that are at early stages of maturity, and encourage C&I processes to exchange their experience in capacity building efforts.

ii) Co-operation & Co-ordination

- C&I processes and their member countries should strengthen cooperation, including South-South and North-South cooperation, by sharing experience and know-how, such as through joint meetings, workshops, ministerial conferences, e-mail networks and other appropriate mechanisms.
- Countries and processes should use existing mechanisms and fora to enhance collaboration and coordination among C&I processes, including the fostering capacity building.
- C&I processes should increase communication, collaboration and cooperation among their members.

iii) Data collection

- C&I processes should review, refine and share data, and should develop strategies to help countries mobilize resources to collect needed data.

iv) Research and education

- Universities and other educational institutions should be encouraged to incorporate the latest information on sustainable forest management in their curricula and provide skills for developing and implementing C&I, including stakeholder participation, conflict management and public outreach.
- National and international institutions should carry out or facilitate research on C&I that are difficult to assess.

v) Other ways to be effective

- Countries with limited capacity should consider starting with an easily measured and understood core set of indicators, and expand gradually to cover other indicators of sustainable forest management.

ii.c) Stakeholder participation

An area, although not on a par with political commitment, yet very significant for successful implementation of C&I, is stakeholder participation. In democratic societies, political commitment often springs from stakeholder interest. For instance it is the stakeholders that started the SD and C&I concept; certification has more political support than C&I because stakeholders are demanding it. These show that the higher the level of awareness, understanding and commitment of the stakeholders, the better the chances are for wider acceptance and better implementation. It has also been a theme addressed in most international fora dealing with SFM and effective stakeholder involvement is one of the most important catalysts for the success of C&I implementation. Unless there is buy-in from all parties involved, implementing any sustainable management initiative is likely to fail. However, stakeholder processes are usually slow and can be expensive as they inherently seek to influence in some way the behaviour or attitudes of these groups (Prabhu, 2003). As pointed out by many of the respondents to our questionnaire there is at present insufficient involvement of key players in C&I work in many countries. C&I development has been largely a top-down process led by government agencies. International industry and environmental NGOs were also involved, but at national level stakeholder involvement has been low.

Good progress has been achieved in involving stakeholders at regional and international levels. Many fora now have stakeholder advisory groups. UNFF has initiated the multi-stakeholder dialogue that takes place during each session of the Forum. Recognizing the key role that stakeholders can play in the successful implementation of C&I, several international organizations and bilateral development agencies have come forward to support such efforts. Most such examples that were reviewed had received either funding or technical support from one or more extra-national agency.

Effective stakeholder participation involves not merely requests for participation. It should be an opportunity to participate in the selection of C&I themselves. It must be built on providing adequate time and resources as well as treating them as an integral part of the decision-making process. These efforts need to continue at the national level. There is an important role that FAO and ITTO as well as liaison offices of processes can play in bringing about better national-level stakeholder participation.

ii.d) Involving countries that do not belong to any C&I process

Progress in implementing C&I has to be made on two main frontiers. These are progressively increasing the level of application of C&I⁴ and, at the same time, increasing the number of countries involved in implementation (see diagram 1). It is only when both these conditions are met that positive progress towards global sustainable forest management is made. In the diagram it is movement to a new level from the curve A1 towards A3 as shown by the arrow.

But there are a number of problems related to both fronts as noted in this paper and elsewhere. One notable area that has not been addressed so far is the need to bring in the countries that are currently outside any C&I process⁵. There could be several reasons for their lack of involvement. As shown in Appendix 3, many of them are small island states that do not have the capacity or interest to get involved in such processes. Some could be unaware of the growing focus on SFM due to the small size of their forest sector. But all of them could benefit from sustainable forest management and the impetus C&I provide for this.

It is to be noted, however, that the position of these countries is not much different from some others that belong to a process, somewhat automatically, by being part of a region or a grouping that is committed to C&I, but without any in-country effort to absorb or implement them. International organizations such as FAO, ITTO and other CPF members as well as NGOs could play an important role in bringing these countries into the fold and making them active participants.

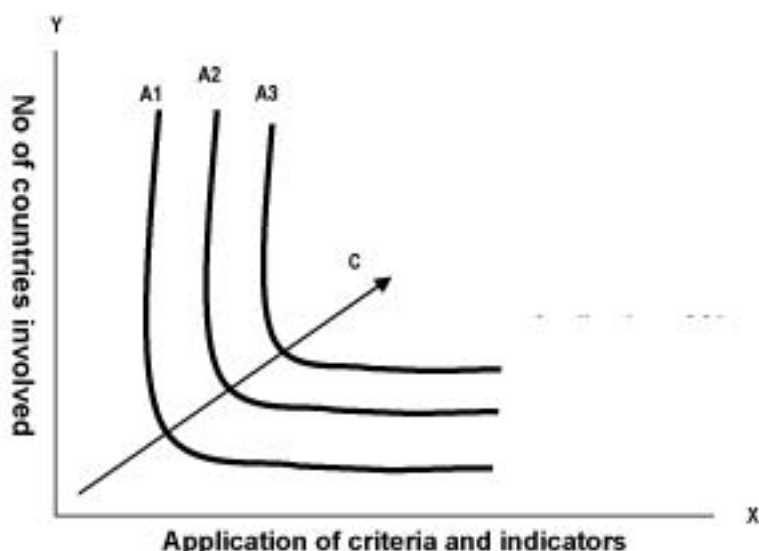


Diagram 1: Achieving progress in C&I Implementation

⁴ This includes the use of C&I at the country level for inventory design, assessments, policy development, sub national sustainability guidelines and assessments etc

⁵ See appendix table 3 for a tentative list of countries.

5. INTER-PROCESS CO-OPERATION

UNFF and its predecessor bodies have highlighted the need for closer cooperation among the C&I processes to promote consistent development and implementation of C&I by learning from each other's knowledge and experience. CICI 2003 was unequivocal on this issue. It recommended that "*Criteria and indicator processes and their member countries strengthen cooperation, including South-South and North-South cooperation, by sharing of experiences and know-how, for example, through joint meetings, workshops, ministerial conferences, e-mail networks and other appropriate mechanisms*". It went further to recommend that for this purpose they should as far as possible "*use existing mechanisms and fora, such as Regional Forestry Commissions, the CPF Task Force and existing expert groups (CICI 2003)*".

Currently there is no formal mechanism for coordination among processes. But fortunately there is already a degree of co-ordination on an informal basis. In fact the very existence of some of the current initiatives is the result of international collaboration. This is seen in the fact that all the C&I processes have adopted the same seven themes as criteria although some have more than this number. Many of the key terms used also have gained global acceptance. In more recent times contacts and interactions between processes have increased due to a number of high-level meetings, such as the international expert consultation in 2001 (FAO 2001), the international expert meeting on monitoring, assessment and reporting, 2001 (MAR Yokohama 2001) and the CICI conference in 2003 (CICI 2003). The level of inter-process interactions has also been enhanced through a number of international initiatives promoting the monitoring, assessment and reporting function under the umbrella of UNFF⁶. In addition experts of different C&I processes sometimes participate in each other's meetings. Furthermore, FAO and ITTO as focal points for C&I within the Collaborative Partnership on Forests (CPF) have worked towards the cohesive development of information on the development and use of C&I.

However, apart from these somewhat *ad hoc*, and largely informal, exchanges the level of cooperation and collaboration among many of the processes has been low. This could be due to the different stages of development of processes, lack of opportunities, cost involved or the perceived lack of mutual advantage. The result has been duplication of effort, inability to benefit from synergies and implementation below potential.

Inter-process cooperation can cover many areas including exchange of concepts, information and experience; further development of C&I and developing common sets of C&I. With regard to information gathering cooperation can help develop data collection protocols, tools and assessment methods, as well as compilation and reporting⁷. In other words it needs to be recognized that cooperation and collaboration are ways to offset, to a large extent, the inadequate capacity in many processes, avoid time-consuming research on matters others may have already studied as well as progressing implementation of C&I in a more consistent way. It could result in reduced developmental costs, better focus and more effective implementation.

There are many different ways that closer coordination and collaboration among processes can be achieved. Some of them are shown below.

6. SETTING UP AN AD HOC INTERNATIONAL TECHNICAL ADVISORY GROUP

CICI 2003 recommended that this forum should consider the "*merits of forming an ad hoc international technical advisory group to address technical issues related to the development and implementation of criteria and indicators*".

Some international forest-related bodies have technical advisory groups on various issues, related to their work. Such organizations include the UNFF, CBD and FAO. For example, CBD's subsidiary body on scientific, technical and technological advice (SBSTTA) reports regularly to COP on all aspects of its work. Its functions include: providing assessments of the status of biological diversity; assessments of the types of measures taken in accordance with the provisions of the Convention; and respond to questions that COP may put to the body. UNFF has also commissioned expert groups to provide advice on monitoring, assessment and reporting; finance and transfer of environmentally sound technologies;

⁶ See for instance UNFF 2003 and Viterbo, Italy, 2003

⁷ See Rameststeiner and Wijewardana (2003) for more information.

and on the issue of a possible legal framework on forests. FAO, as an implementing and technical agency, also has a number of technical groups and networks. For example, in producing its global FRA, FAO regularly seeks broad guidance from a large number of national and international experts and agencies.

Table 1: Possible approaches to enhanced co-ordination and collaboration

Approach to co-ordination/ collaboration	Mechanisms	Examples
Information sharing	Published sources	Websites of C&I processes, publications of processes and international organizations, reports, etc.
Active exchange of information and experience	Continuous exchange: E-mail networks, meetings. Periodic exchange: seminars, workshops, conferences, incl. Internet conferences, etc.	FAO/ITTO/UNEP expert consultations, CICI 2003, IUFRO conferences, active participation in each other's meetings, etc.
Coordination of the further development of C&I sets	Expert groups, joint working groups, joint <i>ad hoc</i> panels, specified workshops, etc.	FAO/ITTO expert consultation 2001
Collaboration on the development of common C&I sets (including core sets)	Expert groups, working groups, <i>ad hoc</i> panels, etc.	Not yet taken place
Collaboration on data collection protocols, data collection tools, assessment methods, international data compilation from national data sources, etc. or Coordination of data collection between different data collection or data compilation institutions. Use of the data, including making international data widely available, reporting to international policy fora, etc.	Expert groups, working groups, <i>ad hoc</i> panels, etc.	FAO meetings of FRA experts-Kotka I-IV; FAO collaboration on national inventory systems. Inter-secretariat working group on forest statistics ITTO/FAO/ UNECE/EUROSTAT - joint questionnaire.
Coordinate training, promote awareness, capacity building activities etc.	Regular reporting	IUFRO task force on GFIS. FAO forest resources assessment, UNFF reports on MAR, ITTO annual review of the world timber situation and many other existing forest-related databases Yet to be undertaken
	Training courses, field visits, expert panels, etc.	

Among the C&I processes it is only that of Montreal that has a technical advisory committee (TAC) at present. It provides technical advice to the working group, which is the policy making body. Although it was initially set up in 1996 as an *ad hoc* group it soon became a permanent body working between the meetings of the working group. All member countries are represented in TAC and the working group sets the main tasks. Since its establishment TAC has dealt with many issues ranging from definition of terms to preparing the outline of its 2003 first forest overview report. With C&I still being in the developmental stage there are many outstanding technical issues in most C&I processes. In relation to that TAC has proved to be an extremely useful tool for MPCI. It is seen as a major factor in its progress so far.

Discussed above are four different models of technical advisory groups used in different forest-related fora. Is there a need for the C&I processes to have an *ad hoc* international technical advisory group and, if so, how should it be formed?

The C&I processes that we surveyed were unanimous in supporting the establishment of a technical advisory group. In particular they noted the sharing of improved scientific knowledge, harmonization of objectives and facilitating increased information flow between processes. But they were also quick to add a number of caveats. They are listed below:

- need some responsible body to determine its tasks and priorities;
- not high priority until all processors have considered it;
- as long as their recommendations can be made operational by processes;
- should compose of experts from all processes;
- based on experience gained in regions;
- goals (TOR) should be identified clearly;
- composition should change with issues to be addressed perhaps including a core group to ensure continuity.

In summary the processes support the establishment of an *ad hoc* technical advisory group with clearly defined objectives, and the composition to be representative of different processes and changing according to the tasks assigned. These are important issues that need to be addressed through closer coordination among the processes and involving FAO, ITTO and other international and national bodies.

7. THE ROLE OF FAO, ITTO AND OTHER NATIONAL AND INTERNATIONAL ORGANIZATIONS

CICI 2003 considered the matter and recommended that *“The FAO Committee on Forestry should reaffirm implementation of criteria and indicators as a FAO programme priority, including technical assistance and capacity building, and through the National Forest Programme Facility based on requests by developing countries with specific needs and requirements. It also recommended a strengthened FAO role in facilitating collaboration among criteria and indicator processes”*.

International organizations have played a critical role in the development and promotion of C&I over the past decade. It was ITTO that pioneered the use of C&I in sustainable forest management in 1992. Over the next ten years it revised the early set, promoted and assisted countries to implement them, trained users and organized reporting on progress of implementation. FAO, along with UNEP, also played an important role in the establishment of most of the C&I processes in Latin America, Africa and Asia. In much of Africa forest management efforts by countries is facilitated largely by NGOs. In fact the credit for the existence of a number of processes should go to FAO, which has also provided technical support. At a policy level FAO and ITTO have convened a number of international and experts meetings in addressing outstanding issues, and maintaining high-level interest in the subject.

In response to our enquiry all C&I processes surveyed agreed that there is an important role for FAO and ITTO to continue to be involved in C&I. Many were concerned that they were in the stage of development but lacked capacity to progress. Ram Prasad (2004 personal communication) expressing the position of DFA countries in response to the questionnaire summed up the position of many developing countries: *“Most nations (in this region) appear unconcerned, ignorant, resourceless and unable to break out of the morass without someone’s help”*. This shows the problem is deeper than the need for resources. The main areas for action identified by processes were capacity building, cooperation and collaboration, promoting awareness and commitment, themselves using C&I, and efforts to involve countries outside any process to join in. Details of the suggestions on future roles of FAO and ITTO are given below.

- a) Capacity building
 - Mobilize/leverage funding
 - Promote availability of information through implementing C&I
 - Promote institutionalizing the gains
 - Facilitate training/research
 - Undertake secretariat facilities

- Organize meetings
 - Establish domestic forestry department contacts within each country for C&I and make him or her the recipient of travel assistance to meetings
 - Expand the rapid assessment idea on which FRA is working
 - Work with NGOs to coordinate their in-country data gathering work
- b) Cooperation
- Promote N-S/S-S co-operation
 - Facilitate within country partnerships with other sectors. Begin with inter-sector coordination as a lead to building country coordination infrastructures.
 - Promote regional project activities including demonstration projects
 - Provide links with other processes
- c) Awareness and commitment
- Promote awareness
 - Promote political commitment
 - Convene a high level meeting on C&I (if necessary in conjunction with other meetings) every four to five years
- d) FAO, ITTO and other international organizations use C&I in appropriate analyses and reports
- e) Promote the Involvement of countries outside any process.

C&I are recognized as the principal tool in the march towards SFM. But they are still at an early stage of development in most countries. The effectiveness of some processes and the survival of others continue to depend on the support and input of these organizations. That effort needs to continue until general viability is achieved.

8. CONCLUSIONS

This paper has addressed five key areas that will have a major bearing on the future progress and viability of criteria and indicators. They are:

- The capacity of ongoing processes to influence policy-makers
- Strengthening C&I through addressing issues related to C&I themselves as well as improving the processes
- Inter-process cooperation, its importance and ways to facilitate it
- The role of an *ad hoc* technical advisory group, and
- The role of FAO, ITTO and other international and national organizations.

The analysis was based on a survey of ongoing processes as well as outputs from a number of recent international fora dealing with C&I or related issues. It was found that the capacity of ongoing C&I processes to influence policy-makers varies, with some processes operating with a high level of political commitment while many at the other end of the scale with very limited or no political leverage. In relation to strengthening C&I processes the paper identified a number of areas that needed to be addressed. It included strengthening concepts and definitions as well as strengthening the processes. While good progress has been made in harmonizing concepts and definitions relating to key international bodies it has tended to exclude C&I processes. Since the C&I process is still in a developmental stage there is a need for continuing research into clarifying indicators where data availability is severely limited or non-existent. A major reason for the failure of many countries to implement C&I is the lack of understanding about their use and the value of reporting. There is an urgent need to promote awareness at all levels to gain greater commitment to this important instrument. There are strong grounds for the establishment of liaison offices, greater inter-process cooperation, as well as enhanced stakeholder participation. At the same time, there were strong caveats to make actions more effective.

There was also support in principle for setting up an *ad hoc* international technical advisory group. Particular advantages of such a group were identified to include sharing of improved scientific knowledge, harmonization of objectives and increased information flow between processes. For its

success, they also underlined the need for clearly defined objectives, and the composition to be representative of different processes and changing to effectively address the tasks assigned. The very existence of a number of C&I processes as well as the continuing policy development relating to them have been largely the result of the work of FAO, ITTO and other national and international organizations. Also, while most of the C&I processes have an understanding and commitment to deliver on SFM, in many cases the individual countries comprising them do not have such understanding or capacity. Also there are about 65 countries that have not subscribed to any of the nine ongoing processes. For these reasons there is a continuing role for these international and national bodies until the C&I process becomes viable.

The principal conclusion that can be drawn from the analysis is that a piecemeal approach will not effectively address these issues that, to a large extent, are interlinked. It will require a package of measures, as identified here, to be undertaken within an agreed timeframe.

9. RECOMMENDATIONS

- a) Continue efforts by international organizations, C&I processes and countries to promote commitment to C&I.
- b) Countries and international organizations to promote linkages between C&I and (i) national forest programmes; (ii) global and national forest assessments; and (iii) certification.
- c) To identify and promote links between C&I and certification and encourage and support country initiatives towards it.
- d) Promote education and awareness relating to C&I and SFM among senior policy-makers, political leaders as well as the general public.
- e) Countries with limited capacity consider starting with an easily measured and understood core set of indicators and expand gradually to cover other indicators of sustainable forest management.
- f) FAO, ITTO and other international and national organizations to continue to work on common concepts and definitions relating to C&I.
- g) FAO, ITTO and other international and national organizations and bilateral donors support the establishment of liaison offices in processes that seek such assistance.
- h) FAO, ITTO and other international and national organizations and bilateral donors support the establishment of an international advisory group to address issues of common interest to C&I processes.
- i) FAO, ITTO and other international and national organizations and processes support inter-process cooperation through all feasible means including periodic meetings.
- j) FAO, ITTO and other international and national organizations support capacity building among processes and countries implementing C&I.
- k) FAO, ITTO and other international and national organizations including universities and research organizations undertake research into indicators for which appropriate data is limited or unavailable.
- l) FAO, ITTO, other international and national organizations and agencies use C&I in their own inventory, assessment and planning work relating to SFM similar to those proposed for FRA 2005.
- m) International organizations, bilateral donors, C&I processes and countries promote stakeholder involvement in all aspects related to C&I, particularly at the national level, and in some cases at the international level.
- n) FAO, ITTO and other international and national organizations make every effort to bring countries that currently do not belong to any C&I process to join one.
- o) Encourage CPF members to continue their work on streamlining forest-related reporting, including through the development of a common information framework on forests that would help countries to compile reports to various international organizations and instruments as well as the secretariats of the bodies to provide analyses and syntheses on global and regional trends.

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Appendix 1: Summary results of the Survey of C&I processes

	PROCESS						
	MCPFE	MPCI	NE	DZ AF	DF AS	ITTO	ATO
1. Main factors inhibiting wider implementation of C&I <ul style="list-style-type: none"> • Lack of (political) commitment • Not generally understood/ appreciated • No driving force- nat. or international • Weak institutional/tech. capacity • Lack of financial resources • Lack of regional co-op/co-ord. mechanism • Lack of training 			• • •	• • •	• • •	•	• • • •
2. Capacity of member countries to influence policy makers <ul style="list-style-type: none"> • Have the Ministers endorsed the process • Regular reports to Ministers • Are regular meetings held? 	Y		N N Y		Y N N	Y	Y
3. Liaison/secretariat facilities	Y	Y	N	N	N		Y
4. If no such facilities, has it affected the process?			Y	Y	Y		
5. Role of FAO, ITTO & other regional and national bodies in strengthening country capacity <ul style="list-style-type: none"> • Promote N-S/S-S cooperation • Mobilize/leverage funding • Facilitate partnerships with other sectors • Promote regional project activities including demonstration projects • Undertake secretariat facilities • Involvement of countries outside any process • Organize meetings • Facilitate training/research • Promote awareness • Promote political commitment • Help capacity building • Themselves use C&I in promoting SFM in member countries • Promote availability of information through implementing C&I • Provide links with other processes 	•	•	• • • • • • • • •	• • • • •	• • • •		• • • • • • • •
6. What other actions are needed to enhance adoption and implementation of C&I in countries? <ul style="list-style-type: none"> • Find ways to use C&I in all forest-related activities • Reduce/simplify current C&I • More national/sub-national demonstration studies • Incorporate C&I in national forest policies • Involve policy makers more closely • Need for capacity building • Better co-ordination among processes 				• • • • •	• • • •		• • • •
7. The role of an <i>ad hoc</i> global technical advisory group <ul style="list-style-type: none"> • Share improved scientific knowledge 	•	•					•

	PROCESS						
	MCPFE	MPCI	NE	DZ AF	DF AS	ITTO	ATO
<ul style="list-style-type: none"> • Achieve harmonization of objectives • Increase information flow between processes 		•					• •
<ul style="list-style-type: none"> • Useful <p>But:</p> <ul style="list-style-type: none"> • Need some responsible body determine its tasks and priorities • Not high priority until all processors have considered it • As long as their recommendation can be made operational by processes • Should comprise experts and administrators from all processes • Based on experience gained in regions • Goals should be identified clearly • Composition should change with issues to be addressed 	• • • •	• • 	• • •	•	• •	• 	

	PROCESS	
	MCPFE	MPCI
<p>1. Lessons other processes could learn from their experience</p> <ul style="list-style-type: none"> • Commitment of countries to finance such a voluntary endeavour • Cooperation with other regional and international institutions • Free participation by stakeholder observers but ultimate responsibility to implement with signatories • Having a technical advisory committee has been helpful to deal with and advise on issues that require in-depth work • Having a liaison office/secretariat very useful 	• • • •	• • •
<p>2. Ways the advanced processors can assist other to progress implementation</p> <ul style="list-style-type: none"> • By exchange of experience, views and lessons learnt • Inviting participation of other processes at meetings workshops, etc. • Providing liaison office /secretariat facilities as feasible • Link with development agencies to assist other countries and processes 	• •	• • • •

Appendix 2: Countries involved in criteria and indicator processes

Country	PROCESSES / INITIATIVES											Totals			
	Pan-European	Montreal	ITTO	Tarapoto	African Timber Org.	African Dry-Zone	Near East	Dry Forest Asia	Lepaterique						
Afghanistan															1
Albania	Y														1
Algeria															1
Angola															2
Argentina		Y			Y										1
Australia		Y													1
Austria	Y														1
Azerbaijan															1
Bahrain															1
Bangladesh															1
Belarus	Y														1
Belgium	Y														1
Belize															1
Bhutan															1
Bolivia				Y											2
Bosnia-Herzegovina	Y														1
Botswana															1
Brazil				Y											2
Bulgaria	Y														1
Burkina Faso															1
Cambodia				Y											1
Cameroon				Y											2
Canada															1
Cape Verde															1
Central African Rep.					Y										2
Chad															1
Chile		Y													1
China		Y													2
Colombia				Y											2
Congo				Y											2
Costa Rica					Y										1
Côte d'Ivoire				Y											2

Country	PROCESSES / INITIATIVES											Totals	
	Pan-European	Montreal	ITTO	Tarapoto	African Timber Org.	African Dry-Zone	Near East	Dry Forest Asia	Lepaterique				
Croatia	Y												1
Cyprus								Y					1
Czech Republic	Y												1
Dem. Rep. of the Congo			Y		Y								3
Denmark	Y												1
Djibouti					Y								2
Ecuador			Y	Y									2
Egypt								Y					1
El Salvador											Y		1
Equatorial Guinea					Y								1
Eritrea													1
Estonia	Y												1
Etiopia					Y								1
European Community	Y												1
Fiji			Y										1
Finland	Y												1
France	Y												1
Gabon			Y		Y								2
Gambia							Y						1
Georgia	Y												1
Germany	Y												1
Ghana			Y		Y								2
Greece	Y												1
Guatemala			Y								Y		2
Guinea Bissau							Y						1
Guyana			Y	Y									2
Honduras			Y								Y		2
Hungary	Y												1
Iceland	Y												1
India			Y								Y		2
Indonesia			Y										1
Iraq								Y					1
Ireland													1
Islamic Rep. of Iran	Y										Y		1

Country	PROCESSES / INITIATIVES										
	Pan-European	Montreal	ITTO	Tarapoto	African Timber Org.	African Dry-Zone	Near East	Dry Forest Asia	Lepaterique	Totals	
Italy	Y									1	
Japan		Y								1	
Jordan							Y			1	
Kenya					Y					1	
Kingdom of Saudi Arabia							Y			1	
Kuwait							Y			1	
Kyrgyz Republic							Y			1	
Latvia	Y									1	
Lebanon							Y			1	
Lesotho			Y		Y					2	
Liberia					Y					1	
Libya							Y			1	
Liechtenstein	Y									1	
Lithuania	Y									1	
Luxembourg	Y									1	
Malawi						Y				1	
Malaysia			Y							1	
Mali					Y					1	
Malta							Y			1	
Mauritania						Y	Y			2	
Mauritius						Y				1	
México		Y								1	
Monaco	Y									1	
Mongolia								Y		1	
Morocco							Y			1	
Mozambique						Y				1	
Myanmar			Y					Y		2	
Namibia					Y					1	
Nepal								Y		1	
Netherlands	Y									1	
New Zealand		Y								1	
Nicaragua									Y	1	
Niger						Y				1	
Nigeria			Y		Y					2	

Country	PROCESSES / INITIATIVES										
	Pan-European	Montreal	ITTO	Tarapoto	African Timber Org.	African Dry-Zone	Near East	Dry Forest Asia	Lepaterique	Totals	
Norway	Y									1	
Oman							Y			1	
Pakistan							Y			1	
Panama			Y					Y		2	
Papua New Guinea			Y							1	
Peru			Y	Y						2	
Philippines			Y							1	
Poland	Y									1	
Portugal	Y									1	
Qatar							Y			1	
Republic of Korea		Y								1	
Romania	Y									1	
Russian Federation	Y	Y								2	
San Marino	Y									1	
Sao Tome et Principe					Y					1	
Senegal						Y				1	
Seychelles						Y				1	
Slovak Republic	Y									1	
Slovenia	Y									1	
Somalia						Y	Y			2	
South Africa						Y				1	
Spain	Y									1	
Sri Lanka								Y		1	
Sudan						Y	Y			2	
Suriname			Y	Y						2	
Swaziland						Y				1	
Sweden	Y									1	
Switzerland	Y									1	
Syria							Y			1	
Tajikistan							Y			1	
Tanzania					Y	Y				2	
Thailand			Y					Y		2	
Togo			Y							2	
Trinidad and Tobago			Y		Y					1	
Tunisia							Y			1	

Country	PROCESSES / INITIATIVES											Totals		
	Pan-European	Montreal	ITTO	Tarapoto	African Timber Org.	African Dry-Zone	Near East	Dry Forest Asia	Lepaterique					
Turkey	Y							Y						2
Turkmenistán								Y						1
Uganda									Y					1
Ukraine	Y													1
United Arab Emirates														1
United Kingdom	Y							Y						1
Uruguay		Y												1
USA		Y												1
Vanuatu						Y								1
Venezuela				Y										2
Yemen											Y			1
Yugoslavia	Y													1
Zambia									Y					1
Zimbabwe									Y					1
149	41	12	32	8	14	30	9	30	7	9	7	183		

Appendix 3: Countries not members of C&I processes¹

ASIA			
Country/area² (totals)	Land area	Forest area	Population
	Total (000 ha)	Total (000 ha)	Total (000)
	1998	2000	1999
Armenia	2 820	351	3 525
Brunei Darussalam	527	442	322
Dem People's Rep of Korea	12 041	8210	23 702
Israel	2 062	132	6 101
Kazakhstan	267 074	12148	16 269
Lao People's Dem. Rep.	23 080	12 561	---
Maldives	30	1	278
Singapore	61	2	3 522
Uzbekistan	41 424	1 969	23 942
Viet Nam	32 550	9 818	78 705
West Bank	580	---	1 660
AFRICA			
Benin	11 063	2 650	5 937
Burundi	2 783	94	6 565
Comoros	186	8	676
Madagascar	58 154	11 727	15 497
Réunion	250	71	691
Saint Helena	31	2	6
Sierra Leone	7 162	1055	4 717

¹ Even though these countries are not members of any of the nine ongoing international processes on criteria and indicators, some of them may be active in developing and implementing their own criteria and indicators.

² Source: Land area and population data based on FAO Global Forest Resources Assessment 2000

OCEANIA			
Country/area	Land area	Forest area	Population
	Total (000 ha)	Total (000 ha)	Total (000)
	1998	2000	1999
American Samoa	20	12	66
Cook Islands	23	22	19
French Polynesia	366	105	231
Guam	55	21	164
Kiribati	73	28	82
Marshall Islands	18	n.s.	62
Micronesia	69	15	116
Nauru	2	n.s.	11
New Caledonia	1 828	372	210
Niue	26	6	2
Northern Mariana Isl.	46	14	74
Palau	46	14	19
Samoa	282	105	177
Solomon Islands	2 856	2 536	430
Tonga	73	4	98
EUROPE			
Andorra	45	---	75
Republic of Moldova	3 296	325	4 380
The FYR of Macedonia	2 543	906	2 011

NORTH AMERICA AND CARIBBEAN			
Country/area	Land area	Forest area	Population
	Total (000 ha)	Total (000 ha)	Total (000)
	1998	2000	1999
Antigua and Barbuda	44	9	67
Bahamas	1 001	842	301
Barbados	43	2	269
Bermuda	5		64
British Virgin Islands	15	3	21
Cayman Islands	26	13	37
Cuba	10 982	2348	11 160
Dominica	75	46	71
Dominican Republic	4 838	1 376	8 364
Greenland	34 170		56
Grenada	34	5	93
Guadeloupe	169	82	450
Haiti	2 756	88	8 087
Jamaica	1 083	325	2 560
Martinique	107	47	392
Monserrat	11	3	11
Netherlands Antilles	80	1	215
Puerto Rico	887	229	3 839
Saint Kitts and Nevis	36	4	39
Saint Lucia	61	9	152
Saint Pierre & Miquelon	23		7
Saint Vincent & Grenadines	39	6	113
US Virgin Islands	34	14	94
SOUTH AMERICA			
Falkland Islands	1 217	---	2
Paraguay	39 730	23 372	5 358

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ANNEX 4
VOLUNTARY INFORMATION PAPER

FAO/ITTO

**Expert Consultation on Criteria and Indicators for
Sustainable Forest Management**

Voluntary Information Paper

**A possible synergy between international criteria and indicator processes and
the CBD expanded programme of work on forest biological diversity
(A note from the Secretariat, Convention on Biological Diversity)**

By

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A possible synergy between international criteria and indicators processes and the CBD expanded programme of work on forest biological diversity

(A note from the Secretariat, Convention on Biological Diversity)¹

By Gijs van Tol²

Introduction

In the past decade criteria and indicators (C&I) for sustainable forest management have been developed by nine different regional initiatives and processes; and 149 countries, representing 85% of the world's forest area, are represented in one or more of these nine processes. A comparable set of principles, criteria and indicators has been developed by the Forest Stewardship Council as a basis for its certification scheme.

In the C&I processes countries collect relevant data to measure progress towards SFM, and several processes report to a regional level. The international conference on the contribution of criteria and indicators for sustainable forest management² recognized that this reporting from countries to regional processes is an important tool at national level for communication with a wide range of relevant stakeholders. The national reporting, and the aggregation of information to regional level, is also relevant for international organizations, e.g. for reporting on the implementation of the IPF/IFF proposals for action. The C&I for SFM have also been recognized by the Convention on Biological Diversity at the sixth Conference of the Parties (decision VI/22 paragraph 34), but the possible benefits of the C&I for reporting on the implementation of the CBD expanded programme of work on forest biological diversity have not yet been elaborated. This paper provides a first attempt at such an elaboration.

CBD and the expanded programme of work on forest biological diversity

The Convention on Biological Diversity has three broad objectives:

1. The conservation of biological diversity
2. Sustainable use of biological diversity
3. Equitable sharing of the benefits of genetic resources.

The Convention provides a legal framework for these objectives

Most forest-related activities under CBD are described in the expanded programme of work on forest biological diversity, which was developed by an *ad hoc* technical expert group, and was adopted in 2002 by the sixth meeting of the Conference of the Parties. The work programme has three main programme elements that are elaborated in more specific goals:

- Conservation sustainable use and benefit sharing (five specific goals);
- Institutional and socio-economic enabling environment (three specific goals);
- Knowledge, assessment and monitoring (four specific goals).

Each of the goals is further elaborated into a number of objectives, and each objective is again elaborated into activities (see Annex 1 or website www.biodiv.org/handbook/cbd-hb-10-06-en.pdf, starting at page 152).

When adopting the work programme COP requested the Executive Secretary to initiate actions towards implementation. At national level, individual countries (the parties to the Convention) are responsible for the implementation of the work programme, and progress is reported in "National Reports" and/or in "thematic reports" submitted by the countries. At an international level the Executive Secretary is invited to collaborate with the United Nations Forum on Forests (UNFF), other members of the Collaborative Partnership on Forests (CPF) and other international organizations to address issues of relevance to forest biological diversity.

¹ Voluntary paper made available to participants of the Expert Consultation On criteria and Indicators for Sustainable Forest Management (Cebu City, Philippines; March 2004). It was handed out for information only and was not presented nor discussed during the event.

² International Conference on the Contribution on Criteria and Indicators for Sustainable Forest Management – The Way Forward, Guatemala City, 3-7 February 2003, hosted by the National Forest Service of Guatemala, supported by the Food and Agriculture Organization of the United Nations (FAO), the International Tropical Timber Organization (ITTO) and the governments of Finland and the United States of America.

Analyses of possible relevant information from C&I processes for the expanded programme of work on forest biological diversity

Reporting of the regional processes on C&I can be relevant for several of the goals and objectives in the CBD expanded work programme on forest biological diversity (see annex 1).

The information provided by indicators under the criterion on “biological diversity” will most likely be relevant for programme element 1 of the expanded work programme, and probably also information from indicators under the criteria on “extent of forest resources”, and “forest health and vitality”. Information from indicators under the criteria on “legal and institutional framework” and “socio-economic benefits and needs” is likely to be relevant for programme element 2.

Further systematic analyses of the information gathered in the different C&I processes (such as the parameters used, the reporting frequency) and the information needed to report on progress towards the implementation of the work programme could contribute to a more harmonized data collection and a reduction of the reporting burden of countries.

A preliminary list of goals and objectives that could benefit from reporting by C&I processes is elaborated below. The list is by no means exhaustive, and only intends to point at a number of goals and objectives where synergy seems easy to achieve. Goals and objectives that are not mentioned could also benefit from information from C&I processes, but there other sources of information might be more relevant.

Programme element 1. Conservation, sustainable use and benefit sharing

This part of the work programme covers mainly factual and technical information on important aspects of conservation of forest biological diversity and sustainable use of forest resources. It seems to have many close and direct links to the C&I processes, but a further analyses of the reported results would be useful.

Goal 1.2 *To reduce the threats and mitigate the impact of threatening processes on forest biological diversity*

For at least five of the six objectives useful information might become available from the reporting on C&I. These include information on the role and observed impacts of:

- Invasive species
- Air pollution
- Climate change
- Forest fires
- Losses caused by fragmentation and forest conversion

Goal 1.3 *To protect, recover and restore forest biological diversity*

For all three of the objectives useful information might become available from the reporting on C&I:

- Restoration of forest biological diversity in degraded ecosystems and plantations
- Conservation of endemic and threatened species
- Ensure adequate and effective protected forest area networks

Goal 1.4 *To promote the sustainable use of forest biological diversity*

This is a fairly broad field, covered by four objectives grouping a rather diverse array of activities:

- Promote the sustainable use of forest resources to enhance the conservation of forest biological diversity.
- Prevent losses caused by unsustainable harvesting of timber and non-timber resources.
- Enable indigenous and local communities to develop and implement community management systems to conserve and sustainably use forest biological diversity.
- *In situ* and *ex situ* conservation of forest genetic diversity.

For the first two objectives information is most likely available in C&I reporting. Regarding the specific genetic information needs, there might be some discrepancy between the information needs for the forestry sector and for conservation interests.

Programme element 2. Institutional and socio-economic enabling environment

The goals and objectives under this programme element are closely linked to the criteria on “socio-economic benefits and needs” and “policy and institutional framework”, but the variation in the nature and content of the information suggests that the relationship is much more complicated than for the items mentioned under programme element 1. Some examples are cited hereafter, but it seems that further study of the possible interactions between the C&I processes, the national work on national forest programmes and national biodiversity strategies and action plans (NBSAPs), and the reporting requirements from CBD and UNFF, would be useful.

Goal 2.1 Enhance the institutional enabling environment

Three of the four objectives will probably be covered to some extent by information from the C&I processes:

- Understanding the causes of forest biodiversity loss.
- Development of good governance practices, review and implementation of forest laws, tenure and planning systems.
- Forest law enforcement and related trade.

Goal 2.2 Address socio-economic failures and distortions that lead to decisions that result in loss of forest biological diversity

The only objective under this goal might be covered to some extent by information from C&I processes:

- Mitigation of economic failures and distortions

Programme element 3. Knowledge assessment and monitoring

This part of the work programme is specifically directed to develop common strategies, from a global to a regional scale, to characterize, define and analyze the forest biological diversity, and to improve and make effective use of the existing information. It seems a field where collaboration between regional C&I processes and CPF could contribute to the development of efficient indicators and parameters to measure the status of and trends in forest biological diversity.

Research results and reporting on practical experience, for instance on the relations between SFM, forest biodiversity and ecosystem functioning, would be another source of relevant information for some of the goals mentioned under programme element 3, and it seems useful to further promote these activities.

Goal 3.1 Improve the assessment of status and trends of forest biological diversity

The relevant objective that is most likely to be covered in C&I processes is:

- Develop, where appropriate, specific forest ecosystem surveys in priority areas for conservation and sustainable use of forest biodiversity.

Goal 3.2 Improve knowledge on and methods for the assessment of the status and trends of forest biological diversity

The only objective under this goal is directly related to C&I:

- Advance the development and implementation of international regional and national C&I based on key regional, sub-regional and national measures within the framework of SFM.

Terms and definitions, indicators and parameters

One of the main problems in both the formulation of work programmes and reporting on progress towards SFM or conservation of forest biological diversity is the appropriate use of many terms and definitions. The expert meeting on harmonized forest-related definitions, organized by FAO³, has demonstrated that the terms and definitions used tend to vary in their interpretation. It is therefore important to ensure that common terms are indeed used in the same sense and with the same meaning.

³ Proceedings second expert meeting on harmonizing forest-related definitions for use by various stakeholders, FAO, Rome, 2002.

Indicators and parameters used for reporting also need some consideration. All C&I processes have a component of (criterion on) forest biological diversity, and include indicators and parameters to describe the actual state and the changes. A question to consider is whether the available parameters and terms and definitions are adequate for reporting on the status of forest biological diversity, and to what extent these parameters are widely accepted.

Some specific technical issues include the threshold value to separate forest from other vegetation types? Is that 10% canopy cover, a forest type based threshold, or a threshold of 30% canopy cover? Another technical issue relevant for reporting on forest biological diversity is the characterization of different levels of “naturalness” or “ecological values” within forest types. Further collaboration between C&I processes and CPF members could help to further improve indicators for forest biological diversity.

All C&I processes also have a component of social and cultural forest values. Several organizations and processes, such as the Center for International Forestry Research (CIFOR), the International Tropical Timber Organization (ITTO) and the process of the Ministerial Conference on the Protection of Forests in Europe (MCPFE), have contributed to the development of a set of effective, meaningful and cost effective indicators and parameters for measuring the range of social and cultural forest values. However, there is room for improvement in the actual information on the impact of forest management on these forest values, and the impact on the livelihood of local and indigenous communities.

Reporting, to whom and by whom

Reporting on progress made in the sustainable management of national forest areas will usually be carried out or coordinated by the national authority responsible for forests. However, the different components of sustainable forest management also relate directly to authorities responsible for land use, water management, conservation of biological diversity and economic development, and, when international reporting is required, authorities on foreign affairs. The variety of responsible organizations can generate a series of problems, due to gaps in information exchange between the organizations, different goals and interests, and different terminology used.

When considering the links between the expanded programme of work on forest biological diversity and C&I processes, it would be important to bridge the gap between the authorities and organizations responsible for the Convention on biological diversity (often the Ministry of Environment or the Ministry of Foreign affairs) and the authorities and organizations responsible for forest management (often the Ministry of Natural Resources or the Ministry of Agriculture). Bridging these gaps could be an important step forward to a cross-sectoral approach of the challenges in sustainable forest management and maintenance of forest biological diversity.

Conclusion

From the foregoing preliminary analyses it seems that the regional C&I processes could provide useful information on progress in implementation of the expanded programme of work on forest biological diversity. They seem to provide a useful integration level between the much more detailed and specific information at country level and the more general aggregated information at international level.

The reporting of the different C&I processes could therefore, in theory, contribute to harmonized data collection and help to fulfill the international reporting obligations. But the difference between the information needs (process information on implementation of agreements, or practical information on forest characteristics), the timing of the information supply and, last but not least, the common understanding of the terms and definitions used are often an important barrier to use the available information to the maximum extent possible.

The efforts of the Collaborative Partnership on Forests (CPF) to increase harmonization in forest-related reporting contribute to reducing these barriers.

Annex: Expanded programme of work on forest biological diversity

(According to the Handbook of the Convention on Biological Diversity)

In undertaking this expanded programme of work, parties, governments, international and regional organizations and processes, civil society organizations and other relevant bodies and all relevant implementers are invited to take into account the following considerations:

- a. The need to focus on key priorities for sustainable use of forest resources and the equitable sharing of benefits.
- b. The need to facilitate adequate participation of indigenous and local communities and to respect their rights and interests.
- c. The need for urgent conservation action for forests that are ecologically significant and/or most important for biological diversity on national and regional scales, in accordance with national priorities, where forest biodiversity loss or threats of loss are significant or of great concern, but also to work to enhance conservation in all types of forests, both within and outside protected areas.
- d. The need to achieve synergies and avoid duplications between the work of the key international instruments and bodies, such as the Secretariat of the Convention on Biological Diversity, and the other members of the Collaborative Partnership on Forests.
- e. The need to ensure capacity-building and the provision of adequate financial, human and technical resources to allow implementation of the work programme by all relevant stakeholders.
- f. The need to ensure that relevant activities be effectively incorporated into national and sub-national forest and biological diversity strategies and programmes.
- g. The need for clarification of the links between the ecosystem approach and sustainable forest management.

Programme element 1: Conservation, sustainable use and benefit-sharing

Goal 1.1: To apply the ecosystem approach to the management of all types of forests

Objective 1.1.1: Develop practical methods, guidelines, indicators and strategies to apply the ecosystem approach adapted to regional differences to forests both inside and outside protected forest areas as well in as both managed and unmanaged forests

Activities:

- a. Clarify the conceptual basis of the ecosystem approach in relation to sustainable forest management.
- b. Develop guidance for applying the ecosystem approach in forest ecosystems.
- c. Identify key structural and functional ecosystem elements to be used as indicators for decision-making and develop decision-support tools on a hierarchy of scales.
- d. Develop and implement guidance to help the selection of suitable forest management practices for specific forest ecosystems.
- e. Develop and implement appropriate mechanisms for the participation of all stakeholders in ecosystem-level planning and management.
- f. Develop an informal international network of forest areas for piloting and demonstrating the ecosystem approach and exchange related information through the clearing-house mechanism.
- g. Hold workshops to train and familiarize decision-makers and managers with the foundations, principles and modalities of the ecosystem approach.
- h. Promote research and pilot projects to develop understanding of the functional linkages between forest biological diversity and agriculture with the aim of developing practices that could improve the relations between forest management and other land use methods. Promote assessment of functional linkages between mining, infrastructures and other development projects and forest biodiversity, and develop best practice guidelines for such development projects to mitigate adverse impacts on forest biodiversity.
- i. Promote activities that minimize the negative impacts of forest fragmentation on forest biodiversity, including afforestation, forest restoration, secondary forest and plantation management, and

agroforestry, watershed management and land use planning aimed at providing a combination of economic and environmental goods and services to stakeholders.

Goal 1.2: To reduce the threats and mitigate the impacts of threatening processes on forest biological diversity

Objective 1.2: Prevent the introduction of invasive alien species that threaten ecosystems, and mitigate their negative impacts on forest biological diversity in accordance with international law

Activities:

- a. Reinforce, develop and implement strategies at regional and national level to prevent and mitigate the impacts of invasive alien species that threaten ecosystems, including risk assessment, strengthening of quarantine regulation, and containment or
- b. Eradication programmes taking into account the guiding principles on invasive alien species if adopted at the sixth meeting of the Conference of the Parties.
- c. Improve the knowledge of the impacts of invasive alien species on forest ecosystems and adjacent ecosystems.

Objective 1.2.2: Mitigate the impact of pollution such as acidification and eutrophication on forest biodiversity

Activities

- a. Increase understanding of the impact of pollution, e.g. acidification and eutrophication and other pollutants (such as mercury and cyanide) on forest biodiversity, at genetic, species, ecosystem and landscape levels.
- b. Support monitoring programmes that help evaluate the impacts of air, soil and water pollution on forest ecosystems, and address the impacts of changing environmental conditions on forest ecosystems.
- c. Encourage the integration of forest biodiversity consideration into strategies and policies to reduce pollution.
- d. Promote the reduction of pollution levels that adversely affect forest biodiversity and encourage forest management techniques that reduce the impacts of changing environmental conditions on forest ecosystems.

Objective 1.2.3: Mitigate the negative impacts of climate change on forest biodiversity

Activities

Taking into account the work of the *ad hoc* technical expert group on climate change and biodiversity:

- a. Promote monitoring and research on the impacts of climate change on forest biological diversity and investigate the interface between forest components and the atmosphere.
- b. Develop coordinated response strategies and action plans at global, regional and national levels.
- c. Promote the maintenance and restoration of biodiversity in forests in order to enhance their capacity to resist to, and recover from and adapt to climate change.
- d. Promote forest biodiversity conservation and restoration in climate change mitigation and adaptation measures.
- e. Assess how the conservation and sustainable use of forest biological diversity can contribute to international work relating to climate change.

Objective 1.2: To prevent and mitigate the adverse effects of forest fires and fire suppression

Activities

- a. Identify policies, practices and measures aimed at addressing the causes and reducing impacts on forest biological diversity resulting from human-induced uncontrolled/unwanted fires, often associated with land clearing and other land use activities.

- b. Promote understanding of the role of human-induced fires on forest ecosystems and species, and of the underlying causes.
- c. Develop and promote the use of fire management tools for maintaining and enhancing forest biological diversity, especially when there has been a shift in fire regimes.
- d. Promote practices of fire prevention and control to mitigate the impacts of unwanted fires on forest biological diversity.
- e. Promote development of systems for risk assessment and early warning, monitoring and control, and enhance capacity for prevention and post-fire forest biodiversity restoration at community, national and regional levels.
- f. Advise on fire-risk prediction systems, surveillance, public education and other methods to minimize human-induced uncontrolled/unwanted fires.
- g. Develop strategies to avoid the negative effects of sectoral programmes and policies that could induce uncontrolled forest fires.
- h. Develop prevention plans against devastating fires and integrate them into national plans targeting the biological diversity of forests.
- i. Develop mechanisms, including early warning systems, for exchange of information related to the causes of forest biodiversity loss, including fires, pests and diseases, and invasive species.

Objective 1.2.5: To mitigate effects of the loss of natural disturbances necessary to maintain biodiversity in regions where these no longer occur

Activities

- a. Develop and promote management methods that restore or mimic natural disturbances such as fire, wind-throw and floods.

Objective 1.2.6: To prevent and mitigate losses due to fragmentation and conversion to other land uses

Activities

- a. Encourage the creation of private reserves and private conservation methods where appropriate, respecting the rights and interests of indigenous and local communities.
- b. Establish ecological corridors on a national and regional basis.
- c. Promote cost-benefit analysis of development projects that might lead to the conversion of forest into other land uses incorporating the impacts on forest biological diversity.
- d. Implement policies, practices and measures aimed at addressing the causes and reducing impacts on forest biological diversity resulting from human-induced uncontrolled clearing or other uncontrolled land-use activities.

Goal 1.3: To protect, recover and restore forest biological diversity

Objective 1.3.1: Restore forest biological diversity in degraded secondary forests and in forests established on former forestlands and other landscapes, including in plantations.

Activities

- a. Promote the implementation of systems and practices for restoration in accordance with the ecosystem approach.
- b. Promote restoration of forest biological diversity with the aim of restoring ecosystem services.
- c. Create and improve where appropriate international, regional and national databases and case studies on the status of degraded forests, deforested, restored and afforested lands.

Objective 1.3.2 Promote forest management practices that further the conservation of endemic and threatened species

Activities

- a. Determine status and conservation needs of endemic or threatened species and the impacts of current forest management practices on these species.
- b. Develop and implement conservation strategies for endemic and threatened species for global or regional application, and practical systems of adaptive management at national level.

Objective 1.2.3: Ensure adequate and effective protected forest area networks

Activities

- a. Assess the comprehensiveness, representativeness and adequacy of protected areas relative to forest types and identify gaps and weaknesses.
- b. Establish [in accordance with Article 8(j)] with the full participation, and with respect for the rights, of indigenous and local communities and other relevant stakeholders, comprehensive, adequate, biologically and geographically representative and effective networks of protected areas.
- c. Establish, in a similar manner, restoration areas to complement the network of protected areas where needed.
- d. Revise in a similar manner and ensure the comprehensiveness, adequacy, representativeness and efficacy of existing protected area networks.
- e. Assess the efficacy of protected forest areas for the conservation of biological diversity.
- f. Ensure that relevant protected areas are managed to maintain and enhance their forest biodiversity components, services and values.

Goal 1.4: To promote the sustainable use of forest biological diversity

Objective 1.4.1: Promote sustainable use of forest resources to enhance the conservation of forest biological diversity

Activities

- a. Support activities of indigenous and local communities involving the use of traditional forest-related knowledge of biodiversity management.
- b. Develop, support and promote programmes and initiatives that address the sustainable use of timber and non-timber forest products.
- c. Support regional cooperation and work on sustainable use of timber and non-timber forest products and services, including through technology transfer and capacity-building within and between regions.
- d. Improve forest management and planning practices that incorporate socio-economic and cultural values to support and facilitate sustainable use.
- e. Promote cooperative work on the sustainable use of forest products and services and its relation to biodiversity conservation with the other members of the Collaborative Partnership on Forests.
- f. Encourage implementation of voluntary third-party credible forest certification schemes that take into consideration relevant forest biodiversity criteria and that would be audited, taking into consideration indigenous and local community rights and interests.
- g. Set up demonstration sites that would illustrate forest conservation and on-ground delivery of goods and services through sustainable forest management, which are also representative of various types of forest, themes and regional needs, through case-studies.
- h. Facilitate and support a responsible private sector committed to sustainable harvesting practices and compliance with domestic laws through effective development and enforcement of laws on sustainable harvesting of timber and non-timber resources.

Objective 1.4.2: Prevent losses caused by unsustainable harvesting of timber and non-timber forest resources

Activities

- a. Establish a liaison group with an associated workshop to facilitate development of a joint work plan with relevant members of the Collaborative Partnership on Forests to bring harvesting of non-timber forest products (NTFPs), with a particular focus on bush meat, to sustainable levels. This group should have a proportionate regional representation, giving special consideration to subregions where bush meat is a major issue and representation of relevant organizations such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The mandate of this group is to:
 - i. consult in a participatory manner with key stakeholders to identify and prioritize major issues pertaining to the unsustainable harvesting of NTFPs, particularly of bush meat and related products;
 - ii. provide advice on the development of policies, enabling legislation and strategies that promote sustainable use of, and trade in, NTFPs, particularly bush meat and related products;
 - iii. provide advice on appropriate alternative sustainable livelihood technologies and practices for the affected communities;
 - iv. provide advice on appropriate monitoring tools.
- b. Promote projects and activities that encourage the use and supply of alternative sources of energy to prevent forest degradation due to the use of firewood by local communities.
- c. Develop any necessary legislation for the sustainable management and harvesting of non-timber forest resources.
- d. Solicit input from parties, other countries and relevant organizations on ways and means to encourage and assist importing countries to prevent the entry of unsustainably harvested forest resources, which are not covered by CITES, and consider this information as a basis for further steps on this issue.

Objective 1.4.3: Enable indigenous and local communities to develop and implement adaptive community-management systems to conserve and sustainably use forest biological diversity

Activities

- a. Taking into account the outcome of the *ad hoc* open-ended inter-sessional working group on Article 8(j) and related provisions of the Convention on Biological Diversity:
 - i. strengthen the capacity of, and provide incentives for, indigenous and local communities to generate opportunities for sustainable use of forest biodiversity and for access to markets;
 - ii. strengthen the capacity of indigenous and local communities to resolve land rights and land use disputes in order to sustainably manage forest biodiversity;
 - iii. encourage the conservation and sustainable use of forest biological diversity by indigenous and local communities through their development of adaptive management practices, using as appropriate traditional forest-related knowledge;
 - iv. provide incentives for the maintenance of cultural diversity as an instrument to enhance forest biological diversity;
 - v. develop and implement education and awareness programmes on traditional uses of forest biological diversity in accordance with Article 8(j);
 - vi. create an environment that fosters respect, and stimulates, preserves and maintains traditional knowledge related to forest biological diversity, innovations and practices of indigenous and local communities.

Objective 1.4.4: Develop effective and equitable information systems and strategies and promote implementation of those strategies for *in situ* and *ex situ* conservation and sustainable use of forest genetic diversity, and support countries in their implementation and monitoring

Activities

- a. Develop, harmonize and assess the diversity of forest genetic resources, taking into consideration the identification of key functional/keystone species populations, model species and genetic variability at the deoxyribonucleic acid (DNA) level.
- b. Select, at a national level, the most threatened forest ecosystems based on the genetic diversity of their priority species and populations and develop an appropriate action plan in order to protect the genetic resources of the most threatened forest ecosystems.
- c. Improve understanding of patterns of genetic diversity and its conservation *in situ*, in relation to forest management, landscape-scale forest change and climate variations.
- d. Provide guidance for countries to assess the state of their forest genetic resources and develop and evaluate strategies for their conservation, both *in situ* and *ex situ*.
- e. Develop national legislative, administrative policy measures on access and benefit-sharing on forest genetic resources, taking into account the provisions under Articles 8(j), 10(c), 15, 16 and 19 of the Convention on Biological Diversity and in conformity with future decisions of the Conference of the Parties, as appropriate.
- f. Monitor developments in new biotechnologies and ensure their applications are compatible with the objectives of the Convention on Biological Diversity with respect to forest biological diversity, and develop and enforce regulations for controlling the use of genetically modified organisms (GMOs) when appropriate.
- g. Develop a holistic framework for the conservation and management of forest genetic resources at national, subregional and global levels.
- h. Implement activities to ensure adequate and representative *in situ* conservation of the genetic diversity of endangered, overexploited and narrow endemic forest species and complement the *in situ* conservation with adequate *ex situ* conservation of the genetic diversity of endangered, overexploited and narrow endemic species and species of economic potential.

Goal 1.5: Access and benefit-sharing of forest genetic resources

Objective 1.5.1: Promote the fair and equitable sharing of benefits resulting from the utilization of forest genetic resources and associated traditional knowledge

Activities

Based on the Bonn guidelines on access to genetic resources and fair and equitable sharing of the benefits arising out of their utilization, as adopted by the Conference of the Parties at its sixth meeting:

1. Establish mechanisms to facilitate the sharing of benefits at local, national, regional and global levels.
2. Strengthen capacity of indigenous and local communities to negotiate benefit-sharing arrangements.
3. Promote dissemination of information about benefit-sharing experiences through the clearing-house mechanism and appropriate means at the local level.

Programme element 2: Institutional and socio-economic enabling environment

Goal 2.1: Enhance the institutional enabling environment

Objective 2.1.1: Improve the understanding of the various causes of forest biological diversity losses

Activities

- a. Each party to carry out, in a transparent and participatory way, thorough analysis of local, regional, national and global direct and underlying causes of losses of forest biological diversity. A

distinction should be made between broad socio-economic causes such as demographic growth and more specific causes such as institutional weaknesses and market or policy failures.

- b. Each party on the basis of the above analysis to implement their recommendations.
- c. Parties to report through the clearing-house mechanism of the Secretariat on successful experience involving control and mitigation of the underlying causes of deforestation, which would make it possible to understand lessons learned.

Objective 2.1.2: Parties, governments and organizations to integrate biological diversity conservation and sustainable use into forest and other sector policies and programmes

Activities:

- a. Parties to formulate appropriate policies and adopt sets of priority targets for forest biological diversity to be integrated into national forest programmes, national sustainable development strategies, poverty reduction strategy papers, related non-forest programmes and national biological diversity strategies and action plans. Ensure that there is coherence and direct interaction between the different programmes.
- b. Seek ways of streamlining reporting between the different forest-related processes, in order to improve the understanding of forest quality change and improve consistency in reporting on sustainable forest management.
- c. Develop a set of indicators that might be used in assessing progress in implementing the national biodiversity strategies and action plans and relevant work programmes;
- d. Donor bodies and other financial institutions to incorporate forest biological diversity and sustainable use principles and targets into forest and related programmes, including watershed management, land use planning, energy, transport, infrastructure development, education and agriculture, mineral exploitation and tourism.
- e. Seek to harmonize policies at regional and subregional levels in the area of forest biological diversity.
- f. Develop strategies for effective enforcement of sustainable forest management and protected area regulations, including adequate resourcing and involvement of indigenous and local communities.
- g. Parties and donor bodies to develop and implement strategies, in particular national financing strategies, in the framework of national biodiversity strategies and action plans and national forest programmes, and provide adequate financial, human and technical resources.
- h. Encourage the Executive Secretary to coordinate and seek synergies between the Convention on Biological Diversity, UNFF and the members of the Collaborative Partnership on Forests, including establishment of memoranda of understanding, as appropriate, between the Convention on Biological Diversity and the other members of the Collaborative Partnership on Forests, and recommend such an memorandum of understanding with ITTO and the United Nations Framework Convention on Climate Change as a first step.
- i. Increase emphasis on capacity-building, research and training, public education and awareness, access to and transfer of information and technology, technical and scientific cooperation, with focus on capacities required to address forest biodiversity-related issues.

Objective 2.1.3: Parties and governments to develop good governance practices, review and revise and implement forest and forest-related laws, tenure and planning systems, to provide a sound basis for conservation and sustainable use of forest biological diversity

Activities

- a. Develop appropriate measures and regulations to secure a permanent forest area sufficient to allow for the conservation and sustainable use of forest biological diversity.
- b. Seek to resolve land tenure and resource rights and responsibility, in consultation with all relevant stakeholders including for indigenous and local communities, in order to promote the conservation and sustainable use of forest biodiversity.
- c. Encourage parties and countries to ensure that forest and forest-related laws adequately and equitably incorporate the provisions of the Convention on Biological Diversity and the decisions of the Conference of the Parties.
- d. Implement effective measures to protect traditional knowledge and values in forest laws and planning tools.

- e. Develop legislation, administrative or policy measures on access and benefit sharing for forest genetic resources, taking into account the draft Bonn guidelines on access to genetic resources and fair and equitable sharing of the benefits arising out of their utilization.
- f. Invite parties, governments and other relevant organizations to submit case studies and research on the role of performance bonds in forest concessions, in the conservation and sustainable use of forest biological diversity; and request the Secretariat to make these available.
- g. Parties, governments and relevant stakeholders to develop mechanisms and processes to work towards good governance to promote conservation and sustainable use of forest biological diversity.
- h. Develop and apply environmental and socio-economic impact assessment methods as appropriate prior to land conversion decisions.

Objective 2.1.4: Promote forest law enforcement and address related trade

Activities

- a. Invite parties, governments and relevant organizations to provide information on a voluntary basis to enable a better comprehension of the effects of unsustainable harvesting, exploitation of other forest resources and associated trade, as well as on the underlying causes, on forest biological diversity. On the basis of dissemination of this information countries may decide to take relevant measures such as enforcement actions.
- b. Evaluate and reform, as required, legislation to include clear definition of illegal activities and to establish effective deterrents.
- c. Develop methods and build capacity for effective law enforcement.
- d. Develop codes of conduct for sustainable forest practices in logging companies and the wood-processing sector to improve biodiversity conservation.
- e. Encourage and support the development and implementation of tracking and chain-of-custody systems for forest products to seek to ensure that these products are legally harvested.
- f. Invite governments and relevant organizations to develop and forward to the Secretariat case studies and research on the impacts of unsustainable timber and non-timber harvesting and related trade.

Goal 2.2: Address socio-economic failures and distortions that lead to decisions that result in loss of forest biological diversity

Objective 2.2.1: Mitigate the economic failures and distortions that lead to decisions that result in loss of forest biological diversity

Activities

- a. Develop mechanisms to ensure that monetary and non-monetary costs and benefits of forest biodiversity management are equitably shared between stakeholders at all levels.
- b. Develop, test and disseminate methods for valuing forest biological diversity and other forest ecosystem goods and services and for incorporating these values into forest planning and management, including through stakeholder analysis and mechanisms for transferring costs and benefits.
- c. Incorporate forest biological diversity and other forest values into national accounting systems and seek to estimate such figures for subsistence economies.
- d. Elaborate and implement economic incentives promoting forest biological diversity conservation and sustainable use.
- e. Eliminate or reform perverse incentives, in particular subsidies that result in favouring unsustainable use or loss of forest biological diversity.
- f. Provide market and other incentives for the use of sustainable practices, develop alternative sustainable income generation programmes and facilitate self-sufficiency programmes of indigenous and local communities.
- g. Develop and disseminate analyses of the compatibility of current and predicted production and consumption patterns with respect to the limits of forest ecosystem functions and production.
- h. Seek to promote national laws and policies and international trade regulations compatible with conservation and sustainable use of forest biological diversity.

- i. Increase knowledge on monetary and non-monetary cost-benefit accounting for forest biodiversity evaluation.

Goal 2.3: Increase public education, participation, and awareness

Objective 2.3.1: Increase public support and understanding of the value of forest biological diversity and its goods and services at all levels

Activities

- a. Increase broad-based awareness of the value of forest biological diversity through international, national and local public awareness campaigns.
- b. Promote consumer awareness of sustainably produced forest products.
- c. Increase awareness amongst all stakeholders of the potential contribution of traditional forest-related knowledge to conservation and sustainable use of forest biological diversity.
- d. Develop awareness of the impact of forest-related production and consumption patterns on the loss of forest biological diversity and the goods and services it provides.
- e. Increase awareness of the value of forest biological diversity amongst public authorities and decision-makers through specific information and training actions.
- f. Implement effective measures to recognize, respect, protect and maintain traditional forest-related knowledge and values in forest-related laws and forest planning tools, in accordance with Article 8(j) and related provisions of the Convention on Biological Diversity.
- g. Develop awareness of the value of forest biological diversity among forestry workers, owners of forest land, logging contractors and consulting firms.

Programme element 3: Knowledge, assessment and monitoring

Goal 3.1: To characterize and to analyze from forest ecosystem to global scale and develop general classification of forests on various scales in order to improve the assessment of status and trends of forest biological diversity

Objective 3.1.1: Review and adopt a harmonized global to regional forest classification system, based on harmonized and accepted forest definitions and addressing key forest biological diversity elements

Activities

- a. Review and adopt a minimum forest classification for forest types, compatible with remote sensing technologies, that includes broad indicators of biodiversity that can be taken into account in all international and regional forest-related programmes, plans and activities.
- b. Adapt frequency of forest resource inventory at regional and global scales, where resources permit, preferably at least every ten years.
- c. Review and contribute (from the biodiversity point of view) to standard forest definitions in cooperation with UNFF and the Collaborative Partnership on Forests to be used in global and regional reporting to the scale of forest types.

Objective 3.1.2: Develop national forest classification systems and maps (using agreed international standards and protocols to enable regional and global synthesis)

Activities

- a. Review existing national forest ecosystem classification systems and maps.
- b. Develop and apply national forest ecosystem classification systems and maps that include key components of forest biological diversity to be used in assessment reports on forest types including socio-economic and cultural aspects.
- c. Use adapted technology, for example geographic information system, to develop a baseline for assessing levels of deforestation and impacts on biodiversity.

Objective 3.1.3: To develop, where appropriate, specific forest ecosystems surveys in priority areas for conservation and sustainable use of forest biodiversity

Activities

- a. To identify and prioritize relevant areas to carry out these surveys.

Goal 3.2: Improve knowledge on and methods for the assessment of the status and trends of forest biological diversity, based on available information

Objective 3.2.1: Advance the development and implementation of international, regional and national criteria and indicators based on key regional, subregional and national measures within the framework of sustainable forest management

Activities

- a. Advance the development and implementation of international, regional and national C&I based on key measures within the framework of sustainable forest management.
- b. Develop and select international, regional and national criteria and, where appropriate, quantifiable, indicators for forest biological diversity, taking into account, as appropriate, existing work and processes on criteria and indicators on sustainable forest management, as well as the knowledge held by indigenous and local communities. Such criteria and indicators should be used for assessment reporting at 10-year intervals, at least.

Goal 3.3: Improve understanding of the role of forest biodiversity and ecosystem functioning

Objective 3.3.1: Conduct key research programmes on the role of forest biodiversity and ecosystem functioning

Activities

- a. Develop and support focused research to improve understanding of the relationship between forest biological diversity and ecosystem functioning, taking into account forest ecosystem components, structure, functions and processes to improve predictive capability.
- b. Develop and support research to understand critical thresholds of forest biological diversity loss and change, paying particular attention to endemic and threatened species and habitats including forest canopies.
- c. Develop and apply forest ecosystem restoration techniques to address biodiversity loss at the ecosystem level.
- d. Develop and support research on impact of current forest management practices for forest biodiversity within forests and on adjacent land.

Goal 3.4: Improve the infrastructure for data and information management for accurate assessment and monitoring of global forest biological diversity

Objective 3.4.1: Enhance and improve technical capacity at national level to monitor forest biological diversity, benefiting from the opportunities offered through the clearing-house mechanism, and develop associated databases as required on a global scale

Activities

- a. Develop and implement a strategy and a plan of action and facilitate transfer of technology to provide infrastructure and training in developing countries, in order to monitor forest biological diversity and develop associated databases.