Annex F

Criteria and Indicators for the
Conservation and Sustainable Management of
Temperate and Boreal Forests

The Montréal Process

Third Edition, December 2007

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SECTION I
INTRODUCTION

Welcome to the Third Edition of the "Booklet" about the Montréal Process on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests. The Booklet presents the new and improved set of indicators for six of the seven Montréal Process criteria. These indicators were approved by the Montréal Process Working Group in November 2007 in Buenos Aires, Argentina, following a comprehensive review of lessons learned in applying the original set of criteria and indicators established in 1995 in Santiago, Chile.

The 12 member countries of the Montréal Process Working Group are using this set of criteria and indicators to prepare their 2009 Country Forest Reports on national forest trends and progress toward sustainable forest management. The Booklet is supplemented by the Second Edition of the Montréal Process Technical Notes on Criteria 1-6, which provides rationale statements and suggested approaches to measurement for the revised indicators, as well as a glossary of frequently used terms.

An International Process
The Montréal Process Working Group includes 12 countries: Argentina, Australia, Canada, Chile, China, Japan, Korea, Mexico, New Zealand, Russian Federation, United States of America and Uruguay.

These 12 countries account for 90% of the world's temperate and boreal forests, 60% of all forests, 45% of international trade in wood and wood products, and 35% of the world's population.

For more information about the Montréal Process, please visit us at http://www. rinya.maff.go.jp/mpci/ or contact Mr.Yuuichi Sato of the Montréal Process Liaison Office [yuuichi_sato@nm.maff.go.jp].

SECTION II
INTERNATIONAL CONTEXT

1. Forests are essential to the long-term well-being of local populations, national economies and the earth's biosphere as a whole. They provide food, fuel, shelter, clean water and air, medicine, livelihood and employment for people around the world. They reduce concentrations of greenhouse gases in the atmosphere, minimize sedimentation in lakes and rivers, and protect against flooding, mudslides and erosion. Forest are home to 70% of the world's terrestrial animals and plants. When managed sustainably, forests can provide a wide range of essential economic, social and environmental goods and services for the benefit of current and future generations.

2. The contribution of forests and sustainable forest management to sustainable development first received global recognition in 1992 when the United Nations Conference on Environment and Development adopted the "Rio Forest Principles"* and Chapter 11 of Agenda 21. At about the same time, the International Tropical Timber Organizations (ITTO) did some pioneering work on "Criteria for the Measurement of Sustainable Tropical Forest Management."

3. Following the Rio Earth Summit, the concept of "criteria and indicators for sustainable forest management" gained increasing international attention as a tool to

monitor, assess and report on forest trends at national and global levels. By 1995, the Ministerial Conference on the Protection of Forest in Europe (MCPFE) and the Montréal Process had adopted comparable sets of national level criteria and indicators for sustainable management of temperate and boreal forests.

4. The importance of criteria and indicators as tools to assess national forest trends and progress toward sustainable forest management has been recognized by the Intergovernmental Panel on Forests (1995-1997) and its successor Intergovernmental Forum on Forests (1997-2000), the United Nations Forum on Forests (UNFF), and the Food and Agriculture Organization of the United Nations (FAO). They are also relevant to the forest-related programs of member organizations of the Collaborative Partnership on Forests,** including the Rio conventions on biodiversity, climate change and desertification. Today, 150 countries are engaged in one or more regional and international criteria and indicators processes.

5. In 2004 the UNFF identified the following seven "thematic elements of sustainable forest management," which are drawn from the criteria identified by the Montréal Process and other criteria and indicators processes, as a reference framework for sustainable forest management:

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

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* Non-legally Binding Authoritative Statement of Principles for a Global Consensus on Management, Conservation and Sustainable Development of All Types of Forests

** The CPF was established in 2000 to support the work of the UNFF. CPF member organizations include FAO (chair), Center for International Forestry Research (CIFOR), Convention on Biological Diversity (CBD), Global Environment Facility (GEF), ITTO, International Union of Forestry Research Organizations (IUFRO), United Nations Development Program (UNDP), United Nations Environment Program (UNEP), United Nations Framework Convention on Climate Change (UNFCCC), United Nations Convention to Combat Desertification (CCD), World Agroforestry Center (ICRAF), World Conservation Union (IUCN) and World Bank (IBRD)

6. These thematic elements of sustainable forest management have become the framework for the global Forest Resources Assessment coordinated by FAO. They are also enshrined in the Non-Legally Binding Instrument on All Types of Forests adopted by the UNFF in April 2007 **and endorsed by the UN General Assembly in December 2007** as a framework for national action and international cooperation on forests. ***To be confirmed***

SECTION II
BACKGROUND ON THE MONTRÉAL PROCESS

A.. Brief History of the Montréal Process

7. The Montréal Process (MP) Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests --"*The Montréal Process*" -- was launched in 1994 as a response to the Rio Forest Principles. Today, the Working Group has 12 member countries: Argentina, Australia, Canada, Chile, China, Japan, Republic of Korea, Mexico, New Zealand, Russian Federation, United States of America and Uruguay. These countries account for 90% of the world's temperate and boreal forests, 60% of all forests, 45% of international trade in timber and timber products, and 35% of the world's population. ***LO to verify/update percentages as needed.***

8. In February 1995, member countries adopted the Santiago Declaration affirming their commitment to the conservation and sustainable management of their respective forests and endorsing the following 7 criteria and 67 associated indicators as guidelines for policy-makers to use in assessing national forest trends and progress toward sustainable forest management:

1. Conservation of biological diversity
2. Maintenance of productive capacity of forest ecosystems
3. Maintenance of forest ecosystem health and vitality
4. Conservation and maintenance of soil and water resources
5. Maintenance of forest contribution to global carbon cycles
6. Maintenance and enhancement of long-term multiple socio-economic benefits to meet the needs of societies
7. Legal, institutional and economic framework for forest conservation and sustainable management

9. These MP criteria and indicators were the product of extensive consultations with forest managers and users, researchers, the private sector and other stakeholders in member countries, as well as with technical and policy experts from other temperate and boreal countries and the international technical and scientific community.

10. In 2003 MP member countries developed and published their first Country Forest Reports using the agreed MP criteria and indicators. Illustrative trends drawn from the 12 country reports are highlighted in the Montréal Process First Forest

Overview Report 2003. Based on experiences gained in reporting and taking into account international developments, such as the establishment of the UNFF, member countries adopted the Quebec City Declaration in September 2003. The Declaration set forth a "Vision for the Montréal Process: 2003-2008," which identified a set of actions to enhance the effectiveness of the MP, including a major effort to review and refine the MP indicators.

11. In November 2007 in Buenos Aires, the Working Group approved a revised set of indicators for Criteria 1-6. (C7 indicators are still under consideration at the time of this publication.) Member countries are using these improved indicators to prepare their second round of Country Forest Reports in 2009. In establishing an updated set of indicators, the Working Group reconfirmed the national and international relevance of the seven criteria adopted in 1995.

12. Also in November 2007, the Working Group agreed on the conceptual framework for the Montréal Process Strategic Action Plan: 2009-2015. The Strategic Action Plan (SAP) will be based on the following five Strategic Directions:

1. Enhance the relevance of the Montréal Process criteria and indicators for policymakers, practitioners and others;

2. Strengthen member country capacity to monitor, assess and report on forest trends and progress toward sustainable forest management using the Montréal Process criteria and indicators;

3. Enhance collaboration and cooperation with forest related regional and international organizations and instruments and other criteria and indicator processes;

4. Enhance communication on the value of criteria and indicators and the accomplishments of the Montréal Process; and

5. Enhance the effectiveness and efficiency of the Montréal Process Working Group and its Technical Advisory Committee and Liaison Office.

13. Once finalized, the SAP will serve as the overall guiding document for the Montréal Process, as well as a tool for communicating MP objectives and priorities to member countries, domestic stakeholders and the international community.

B. Operation of the Montréal Process Working Group

14. The MP Working Group brings together countries with highly diverse ecological, economic and social conditions to share experiences related to forest monitoring, assessment and reporting. Regular meetings of the Working Group are hosted by member countries on a rotational basis and are open to representatives of other criteria and indicators processes, international organizations, non-governmental organizations and the private sector.

Working Together
As demands and pressures on the world's forests increase, so too does the need for countries to work together to address common issues. The Montréal Process is an example of such collaboration. The Montréal Process has helped all 12 member countries identify shared goals and improve capacities to assess and report on forests. It has built confidence and trust among countries with diverse forest ecosystems, land ownership patterns and socio-economic conditions.

15. The Working Group is supported by the MP Liaison Office (LO) established in 1995 and the Technical Advisory Committee (TAC) established in 1996. The LO is currently hosted by the Government of Japan. From 1995-2006, it was hosted by the Government of Canada. The LO facilitates communication among members, helps organize Working Group and TAC meetings, arranges for translation, printing and dissemination of MP documents, maintains the MP website, and coordinates MP representation at regional and international meetings and events.

16. The TAC is comprised of forest experts from all member countries and provides technical and scientific advice to the Working Group on issues related to data collection, indicator measurement and reporting. The work of the TAC, including the development of the revised MP indicators presented here, is coordinated and facilitated by the TAC Convenor, currently hosted by the Government of New Zealand. From 1997 to 2003, the TAC Convenor was hosted by United States. From 1996-1997, it was hosted by New Zealand.

SECTION IV
CONCEPTUAL BASIS OF THE MONTRÉAL PROCESS CRITERIA AND INDICATORS

17. The MP criteria and indicators provide a common framework for member countries to describe, monitor, assess and report on national forest trends and progress toward sustainable forest management. They also provide a common understanding within and across countries of what is meant by sustainable forest management, and may be understood to constitute an implicit definition of sustainable forest management at the country level.

18. As such, the MP criteria and indicators help provide an international reference for policy-makers in the formulation of national policies and a basis for international cooperation aimed at supporting sustainable forest management.

19. Taken together, the MP criteria and indicators reflect a holistic approach to forests as ecosystems, addressing the full range of forest values. No single criterion

or indicator is alone an indication of sustainability. Rather, individual criteria and indicators should be considered in the context of other criteria and indicators.

20. The seven MP criteria characterize the essential components of sustainable forest management (e.g. biodiversity conservation). Each criterion is characterized by a set of indicators, which provides a way to measure or describe the criterion. No priority or order is implied in the listing of seven criteria or their associated indicators.

21. While many MP indicators are quantitative in nature, others are qualitative or descriptive. Some indicators can be readily measured (e.g. percent of forest cover). Others may require the collection of new or additional data, the establishment of systematic sampling or even basic research.

22. When indicators are measured periodically over time, they indicate change and trends in conditions relevant to sustainable forest management, including natural, social, economic and policy conditions. Monitoring these changes provides information needed to evaluate a country's progress toward sustainable forest management. This information is essential to making informed forest policy decisions.

23. Each MP country is unique in terms of the quantity, quality and characteristics of its forests. Countries also differ in terms of population and land ownership patterns, stages of economic development, governance structures, and expectations of how forests should contribute to society. These differences affect the capacity of countries to collect data, as well as the data collection methods employed. While the MP criteria and indicators facilitate harmonized approaches to forest assessment and reporting among countries, they also allow for flexibility in application to reflect national circumstances.

24. An informed, aware and participatory public is indispensable to promoting sustainable forest management. The MP Process criteria and indicators are a useful tool for involving stakeholders in data collection and forest discussions at national and sub-national levels and in improving the quality of forest-related information available to policy-makers and the public. Stakeholder involvement and awareness should help catalyze improved forest policies and practices.

25. As national level assessment tools, the MP criteria and indicators provide a basis for reporting on all forests in a country, including public and private forests, tropical forests and plantation forests. Although they are not performance standards or designed to assess sustainability at the forest management unit level, they also provide a framework for developing policies, plans and inventories at both national and sub-national levels, and can serve as a model for monitoring and reporting on other natural resources, such as rangelands, freshwater and minerals.

26. Concepts of forest management evolve over time based on enhanced scientific knowledge about how forest ecosystems function and respond to human interventions, as well as in response to changes in how the public views forest values. The MP Working Group will continue to periodically review and as needed refine the MP criteria and indicators to reflect new information, advances in technology and research, and improved understanding of sustainable forest management.

SECTION V
THE MONTRÉAL PROCESS CRITERIA AND INDICATORS (2007)

27. The current set of Montréal Process criteria and indicators continues is based on contemporary scientific understanding of temperate and boreal forest ecosystems and the values society attaches to forests. Criteria 1-6 and associated indicators relate specifically to forest conditions or functions, and to the values or benefits associated with forest goods and services. Criterion 7 and its indicators (which are now under review) relate to the overall policy framework needed to facilitate and support forest conservation and sustainable management. This policy framework includes aspects often external to the forest itself but which affect efforts to conserve, maintain or enhance one or more of the conditions, functions, values or benefits captured in Criteria 1-6.

Criterion 1
Conservation of biological diversity

1.1 ***Ecosystem diversity***

1.1.a Area and percent of forest by forest ecosystem type, successional stage, age class, and forest ownership or tenure

1.1.b Area and percent of forest in protected areas by forest ecosystem type, and by age class or successional stage

1.1.c Fragmentation of forests

1.2 ***Species diversity***

1.2.a Number of native forest associated species

1.2.b Number and status of native forest associated species at risk, as determined by legislation or scientific assessment

1.2.c Status of on site and off site efforts focused on conservation of species diversity

1.3 ***Genetic diversity***

1.3.a Number and geographic distribution of forest associated species at risk of losing genetic variation and locally adapted genotypes

1.3.b Population levels of selected representative forest associated species to describe genetic diversity

1.3.c Status of on site and off site efforts focused on conservation of genetic diversity

Criterion 2
Maintenance of productive capacity of forest ecosystems

2.a Area and percent of forest land and net area of forest land available for wood production

2.b Total growing stock and annual increment of both merchantable and non-merchantable tree species in forests available for wood production

2.c Area, percent, and growing stock of plantations of native and exotic species

2.d Annual harvest of wood products by volume and as a percentage of net growth or sustained yield

2.e Annual harvest of non-wood forest products

Criterion 3

Maintenance of forest ecosystem health and vitality

3.a Area and percent of forest affected by biotic processes and agents (e.g. disease, insects, invasive species) beyond reference conditions

3.b Area and percent of forest affected by abiotic agents (e.g. fire, storm, land clearance) beyond reference conditions

Criterion 4

Conservation and maintenance of soil and water resources

4.1 ***Protective function***

4.1.a Area and percent of forest whose designation or land management focus is the protection of soil or water resources

4.2 ***Soil***

4.2.a Proportion of forest management activities that meet best management practices or other relevant legislation to protect soil resources

4.2.b Area and percent of forest land with significant soil degradation

4.3 ***Water***

4.3.a Proportion of forest management activities that meet best management practices, or other relevant legislation, to protect water related resources.

4.3.b Area and percent of water bodies, or stream length, in forest areas with significant change in physical, chemical or biological properties from reference conditions

Criterion 5

Maintenance of forest contribution to global carbon cycles

5.a Total forest ecosystem carbon pools and fluxes

5.b Total forest product carbon pools and fluxes

5.c Avoided fossil fuel carbon emissions by using forest biomass for energy

Criterion 6

Maintenance and enhancement of long-term multiple socio-economic benefits to meet the needs of societies

6.1 ***Production and consumption***

6.1.a Value and volume of wood and wood products production, including primary and secondary processing

6.1.b Value of non-wood forest products produced or collected

6.1.c Revenue from forest based environmental services

6.1.d Total and per capita consumption of wood and wood products in round wood equivalents

6.1.e Total and per capita consumption of non-wood products

6.1.f Value and volume in round wood equivalents of exports and imports of wood products

6.1.g Value of exports and imports of non-wood products

6.1.h Exports as a share of wood and wood products production and imports as a share of wood and wood products consumption

6.1.i Recovery or recycling of forest products as a percent of total forest products consumption

6.2 ***Investment in the forest sector***

6.2.a Value of capital investment and annual expenditure in forest management, wood and non-wood product industries, forest-based environmental services, recreation and tourism

6.2.b Annual investment and expenditure in forest-related research, extension and development, and education

6.3 ***Employment and community needs***

6.3.a Employment in the forest sector

6.3.b Average wage rates, annual average income and annual injury rates in major forest employment categories

6.3.c Resilience of forest-dependent communities

6.3.d Area and percent of forests used for subsistence purposes

6.3.e Distribution of revenues derived from forest management

6.4 Recreation and tourism

6.4.a Area and percent of forests available and/or managed for public recreation and tourism

6.4.b Number, type, and geographic distribution of visits attributed to recreation and tourism and related to facilities available

6.5 Cultural, social and spiritual needs and values

6.5.a Area and percent of forests managed primarily to protect the range of cultural, social and spiritual needs and values

6.5.b The importance of forests to people

<u>Criterion 7</u>
Legal, institutional and policy framework for forest conservation and sustainable management*

7.1 Extent to which the legal framework (laws, regulations, guidelines) supports the conservation and sustainable management of forests, including the extent to which it:

7.1.a Clarifies property rights, provides for appropriate land tenure arrangements, recognizes customary and traditional rights of indigenous people, and provides means of resolving property disputes by due process;

7.1.b Provides for periodic forest-related planning, assessment, and policy review that recognizes the range of forest values, including coordination with relevant sectors;

7.1.c Provides opportunities for public participation in public policy and decision-making related to forests and public access to information;

7.1.d Encourages best practice codes for forest management;

7.1.e Provides for the management of forests to conserve special environmental, cultural, social and/or scientific values.

7.2 Extent to which the institutional framework supports the conservation and sustainable management of forests, including the capacity to:

7.2.a Provide for public involvement activities and public education, awareness and extension programs, and make available forest-related information;

7.2.b Undertake and implement periodic forest-related planning, assessment, and policy review including cross-sectoral planning and coordination;

7.2.c Develop and maintain human resource skills across relevant disciplines;

7.2.d Develop and maintain efficient physical infrastructure to facilitate the supply of forest products and services and support forest management;

7.2.e Enforce laws, regulations and guidelines.

7.3 Extent to which the economic framework (economic policies and measures) supports the conservation and sustainable management of forests through:

7.3.a Investment and taxation policies and a regulatory environment which recognize the long-term nature of investments and permit the flow of capital in and out of the forest sector in response to market signals, non-market economic valuations, and public policy decisions in order to meet long-term demands for forest products and services;

7.3.b Non-discriminatory trade policies for forest products.

7.4 Capacity to measure and monitor changes in the conservation and sustainable management of forests, including:

7.4.a Availability and extent of up-to-date data, statistics and other information important to measuring or describing indicators associated with criteria 1-7;

7.4.b Scope, frequency and statistical reliability of forest inventories, assessments, monitoring and other relevant information;

7.4.c Compatibility with other countries in measuring, monitoring and reporting on indicators.

7.5 Capacity to conduct and apply research and development aimed at improving forest management and delivery of forest goods and services, including:

7.5.a Development of scientific understanding of forest ecosystem characteristics and functions;

7.5.b Development of methodologies to measure and integrate environmental and social costs and benefits into markets and public policies, and to reflect forest-related resource depletion or replenishment in national accounting systems;

7.5.c New technologies and the capacity to assess the socio-economic consequences associated with the introduction of new technologies;

7.5.d Enhancement of ability to predict impacts of human intervention on forests;

7.5.e Ability to predict impacts on forests of possible climate change.

Footnote: These are the original Criterion 7 indicators established in 1995. The Montréal Process Working Group is currently reviewing these indicators, with a view to refining them as needed.