



# Roundtable on Sustainable Forests

*A Partnership for the Future*

## What Are Montréal Process Criteria & Indicators?

The Montreal Process Criteria and Indicators (Montréal C&I) are a tool for data collection and reporting for the Conservation and Sustainable Management of Temperate and Boreal Forests. They are designed and used to characterize the essential components of sustainable forest management (SFM), and provide a framework for describing the value and condition of forests. The Montréal C&I characterize forests as ecosystems that provide a wide, complex and dynamic array of environmental and socio-economic benefits and services. They are used to monitor and assess national trends in forest conditions and forest management, and provide information essential to the formulation of policies that promote SFM.

The Montréal C&I were formally agreed upon in 1995 by the ten countries, including the United States, which were then participating in an international technical working group known as the Montréal Process. Today, the Montréal Process Working Group includes 12 countries: Argentina, Australia, Canada, Chile, China, Japan, Korea, Mexico, New Zealand, Russian Federation, United State of America, and Uruguay. These 12 countries account for 83% of the world's temperate and boreal forests, 49% of all the forests, 40% of the world's wood products, and 33% of the world's population.

The seven criteria identified by the Montréal Process include vital functions and attributes (biodiversity, productivity, forest health, the carbon cycle, and soil and water protection), socio-economic benefits (timber, recreation and cultural values) and the laws and regulations that constitute the forest policy framework. The indicators are ways to assess or describe the criteria. Many indicators are quantitative, such as the percentage of a country's forest cover. Others are qualitative or descriptive, such as indicators related to forest planning, public participation, and investment or taxation policies. All indicators provide information about present forest conditions and, over time, signal the direction of change in the forests.

Together, the seven criteria and, following a recent indicator review and refinement process, the 54 indicators of the Montréal Process reflect an ecosystem-based approach to SFM and the need to serve human communities. The number of indicators falling under each of the seven criteria is listed below. The complete list of indicators can be found on pages 2-5 of this fact sheet.

1. Conservation of biological diversity (9 indicators)
2. Maintenance of productive capacity of forest ecosystems (5 indicators)
3. Maintenance of forest ecosystem health and vitality (2 indicators)
4. Conservation and maintenance of soil and water resources (5 indicators)
5. Maintenance of forest contribution to global carbon cycles (3 indicators)
6. Maintenance and enhancement of long-term multiple socio-economic benefits to meet the needs of societies (20 indicators)
7. Legal, institutional and economic framework for forest conservation and sustainable management (10 indicators)

The Montréal Process C&I will be continually reviewed and refined to reflect new research findings, advances in technology and an increased capability to measure indicators. As a tool, the Montréal C&I provide a framework for data collection and reporting. As such, they are neither management standards nor regulations. They do not assess whether SFM has been achieved. They provide a common frame of reference from which to engage in complex, shared discussions about how the diverse forest stakeholder community in the United States can work together to achieve the goal of SFM at the national level.

For additional information, please visit the Montréal Process website at <http://www.montrealprocess.org>

## **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

#### **CRITERION 7: Legal, institutional, and economic framework for forest conservation and sustainable management**

- 7.1.a Legislation and policies supporting the sustainable management of forests
- 7.1.b Cross-sectoral policy and programme coordination

- 7.2a Taxation and other economic strategies that affect the sustainable management of forests
- 7.3a Clarity and security of land and resource tenure and property rights
- 7.3.b Enforcement of laws related to forests
- 7.4.a Programmes, services and other resources supporting the sustainable management of forests
- 7.4.b Development and application of research and technologies for the sustainable management of forests
- 7.5.a Partnerships to support the sustainable management of forests
- 7.5.b Public participation and conflict resolution in forest-related decision making
- 7.5.c Monitoring, assessment and reporting on progress towards sustainable management of forests

### **Other C&I processes**

Ministerial Conference on the Protection of Forests in Europe (Pan-European Process): <http://www.mcpfe.org/>

International Tropical Timber Organization (ITTO): [http://www.itto.int/policypapers\\_guidelines/](http://www.itto.int/policypapers_guidelines/)

The Tarapoto Proposal: Criteria and Indicators for the Sustainability of the Amazon Forest:  
<http://www.fao.org/docrep/004/ac135e/ac135e0a.htm>

Lepaterique Process of Central America on Criteria and Indicators for Sustainable Forest Management:  
<http://www.fao.org/docrep/004/ac135e/ac135e07.htm>

FAO Indicators Site: <http://www.fao.org/forestry/ci/en/>