

# Montreal Process Capacity Building Workshop

## Summary

Montréal Process  
Capacity Building Workshop  
26-31 August 2001  
Portland, Oregon, USA

### Objectives

The main objective of the workshop was to build country capacity for producing quality 2003 Country reports on national progress in sustainable forest management. The workshop provided for the sharing of information and experiences in the collection and reporting of Montréal Process criteria and indicators by people actually doing the work; building new technical networks, and facilitating consistency in reporting methods.

Country presentations on selected indicators served as the basis for discussions by the participants including both experts in the collection of data for programs related to the indicators and those with national responsibility for reporting. A major outcome of the workshop was the production of a set of guidelines for the seven highlight indicators to supplement the existing TAC (Technical Advisory Committee) Technical Notes. These Guidelines are intended as a technical aid to assist in the interpretation and reporting of the seven highlight indicators for the 2003 Overview Report

A secondary objective of the workshop was facilitating the development of a consistent 12 country presentation in the 2003 Overview Report. To this end, one representative indicator, that all countries had some ability to report on, was drawn from each of the seven Montréal Process Criteria for presentation and discussion. Whilst the seven indicators were the principle focus, it was intended that a number of the approaches and principles agreed could also be applicable to the other indicators of each criterion.

The workshop was opened by Mr. Gary Larsen, Supervisor, Mount Hood National Forest. The workshop also provided an opportunity for participants to be informed about the development and implementation of sub-national criteria and indicators within the Mt. Hood National Forest (local federal forest management unit) and across the State of Oregon (State forests).

### Outcomes

The workshop identified and discussed issues surrounding the collection and reporting of the seven highlight indicators and provided recommendations for each of these issues.

The outcomes of these discussion sessions were documented by the USA, Australia and New Zealand and are included on the accompanying CD (these can be obtained by contacting the Montréal Process Liaison Office). Technical recommendations from the workshop have been formatted into Guidelines and are reported below. The Guidelines are presented as a supplement to the Montréal Process Technical Notes.

The Guidelines from the workshop are comprehensive and include agreed definitions (such as for forest land and forest types), scope and reporting requirements for each indicator as well as methods for interpretation and reporting.

**Included on the CD are :**

- Workshop agenda and list of delegates (to be provided)
- Country presentations on 2003 Overview Report highlight indicators (PowerPoint presentations to be provided)
- Guidelines for how to calculate and present each highlight indicator (attached)
- Additional workshop papers
  - Rapid Rural Appraisal summary
  - Montréal Process Technical Notes

**DRAFT GUIDELINES FOR SEVEN HIGHLIGHT INDICATORS FOR 2003 MONTRÉAL PROCESS OVERVIEW REPORT**

Note: Recommended approaches to reporting are indicated in *bold italics*.

**Seven Highlight indicators for 2003 Montréal Process Overview Report**

**The seven Montréal Process Criteria are:**

- Criterion 1 Conservation of Biological Diversity
- Criterion 2 Maintenance of Productive Capacity of Forest Ecosystems
- Criterion 3 Maintenance of Forest Ecosystem Health and Vitality
- Criterion 4 Conservation and Maintenance of Soil and Water Resources
- Criterion 5 Maintenance of Forest Contribution to Global Carbon Cycles
- Criterion 6 Maintenance and Enhancement of Long Term Multiple Socio-Economic Benefits to Meet the Needs of Societies
- Criterion 7 Legal, Institutional and Economic Framework for Forest Conservation and Sustainable Management

In May 2001, a Montréal Process Technical Advisory Committee (TAC) meeting was held in New Zealand. Objectives for the TAC meeting were established by the Montréal Process Working Group at their meeting held in Beijing, China in November 2000. At the request of the Working Group, the TAC identified a number of "highlight" indicators that all countries could report on to be included as part of the "Highlights" section of the Montréal Process 2003 Overview Report. The TAC also further developed the outline of the 2003 Overview Report.

One indicator under each Criterion was selected for reporting by all countries for the 2003 Overview Report. They are:

- 1.1a - Extent of area by forest type relative to total forest area
- 2a - Area of forest land and net area of forest land available for timber production

- 3a - Area and per cent of forest affected by processes or agents beyond the range of historic variation, e.g., by insects, disease, competition from exotic species, fire, storm, land clearance, permanent flooding, salinisation, and domestic animals. **The focus of this indicator for the Overview report will be fire.**
- 4b - Area and per cent of forest land managed primarily for protective functions, e.g., watersheds, flood protection, avalanche protection, riparian zones
- 5a - Total ecosystem biomass and carbon pool, and if appropriate, by forest type, age class, and successional stages
- 6.5a - Direct and indirect employment in the forest sector and forest sector employment as a proportion of total employment
- 7.4b - Scope, frequency and statistical reliability of forest inventories, assessments, monitoring and other relevant information

These indicators are not considered "key" indicators of the Montréal Process. They are seven indicators that all countries each had some data on that could be presented on one graph in a similar manner. The Highlights section of the Overview Report illustrates the kind of data that can be found in each country report.

### **Guidelines for reporting Montréal Process indicator 1.1.a**

#### **Indicator**

Extent of area by forest type relative to total area

#### **Rationale**

Ecological processes and viable populations of species that are characteristic of forest ecosystems are dependent on a contiguous ecosystem or ecosystems of a certain minimum size. Each forest type is considered to represent a separate ecosystem and is itself composed of a variety of ecosystem components. If sufficient area of each forest type is not maintained, these ecosystems become vulnerable to loss from fires, hurricanes or typhoons, disease, and other disasters.

#### **Guidelines**

##### **1) Issue - Definition of Forest Land**

- Forest land is defined as 'land with existing forest' (see Montréal Process Technical Notes). The categories of forest type will vary by country. See below.
- The country definition of forest will be used for both the country and Overview reports. This will not necessarily be the same as the FRA/ECE definition as this does not adequately describe the basis for characterising forests in a number of countries.
- ***All countries agree to report on existing forest land for the Overview report. Countries have the option to also report on potential forest land in their country reports. Where a country definition of forest differs from the Montréal Process Technical Notes definition this should be clearly described.***

## 2) Issue - Should total forest area include wetlands/water bodies/inclusions?

- **Linear features, water bodies, and other non-forest areas should be excluded from the forest area unless they are smaller than the minimum mapping unit.**

## 3) Issue - Definition of forest type

- See Montréal Process Technical Notes for the agreed definition of forest type. It was agreed countries can use their own definition of forest types for the country reports as well as aggregate to the 4 ecological classes in the table below. The four broad FRA2000 forest type classes will be used. These are: broadleaved, conifer, mixed, bamboo/palm.
- **Natural forest area should be reported separately from plantation area. In addition, plantation land should be separated into native (indigenous to the area) and exotic plantation types.**
- **For the Overview report, each country will aggregate their forest types under the following broad forest type categories, shown in the example table below:**

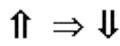
Forest type (000's ha)	Natural forest	Plantation		Total
		Native	Exotic	
Conifer	10 (50%)	10	20	30
Broadleaf		20		20
Mixed				
Palm/bamboo	10 (50%)			10
TOTAL	20	30	20	70



For Overview report, report these columns as a minimum.

## 4) Measuring Trends and Changes

- **Issue - Should trends be reported when consistent, good quality data are not available?**
- **Yes, there are two methods for reporting trends in this indicator.**
  1. For good quality and consistent data, report as a graph or chart using absolute numbers.
  2. For poor and inconsistent data over time where numerical comparisons are inappropriate, state positive, negative, and stable trends based on data and expert opinion with an arrow (refer to Working Group paper - Country Outline report)



Trends may be more important than absolute numbers for tracking progress in an indicator. Anecdotal information may be used to supplement numbers.

- ***Always use qualifiers to document a lack of precision where needed (e.g., a change in methods, definitions between one period of time or another).***
- ***Where possible trends should be provided in the Overview report unless this is not possible and method two is being used.***

### **Guidelines for reporting Montréal Process indicator 2.a**

#### **Indicator**

Area of forest land and net area of forest land available for timber production.

#### **Rationale**

This indicator provides information fundamental to calculating the timber productive capacity of existing forests. It shows how much land is available for timber production, compared with the total forest area of a country. The difference between total area and net area demonstrates that some forests are not going to be harvested for a variety of reasons. Statistics on plantation forests may be identified and presented separately.

#### **Guidelines**

##### **1) Issue - Definition of Forest Land**

- ***Clarify the difference between forest land (land containing existing forest as described in Indicator 1.1a and land designated for forest (that does not contain existing forest at the time of reporting) if such differences exist. Designated or potential land considered part of total forest land should be reported separately from existing forest to avoid confusion in interpreting this indicator.***

##### **2) Issue - Clarification of the terms "timber" and "available".**

- ***Timber: is taken to mean primary wood products such as sawlogs, pulpwood, firewood, poles, posts, chips and tree burls. It does not include non-wood goods and services such as tourism and hunting.***
- ***Available: is taken to mean forest land where wood product extraction is not legally restricted. For example, parks and other areas removed from harvest for protective purposes (i.e. soil protection) is legally restricted. Where harvesting is not legally restricted on private or public land and owners do or do not have a management intent to harvest, all this land would still be considered available for harvest.***
- The definition of available has been limited to "not legally restricted" to ensure the indicator does not include lands that are available based on changes in economic or technological conditions affecting merchantability and land availability. The extent of merchantable wood products (volume) economically available from forest land legally available for timber production is adequately dealt with in indicator 2b.

- ***For the 2003 reports, legally enforceable exclusion areas within a larger legally designated harvest area should be excluded from land available for timber production (e.g., land restricted from harvest because of best management practices, stream management plans/zones etc.) The areal extent (e.g., total hectares) can be estimated if it cannot be directly measured.***
- In some countries harvesting will be restricted in certain areas by codes rather than legislation. These codes may include best management practices, stream management plans/zones etc. As long as these codes are legally binding on the forest owners then the areas should be included in the "legally enforceable exclusion areas", otherwise they should not.
- **The Workshop participants recommend that the Montréal Process Working Group consider replacing the term 'timber' with 'wood products' for this indicator in the longer term. This is consistent with the current interpretation of the term timber to include all primary wood products.**

### **Guidelines for reporting Montréal Process indicator 3.a**

#### **Indicator**

Area and percent of forest affected by processes or agents beyond the range of historic variation, e.g., by insects, disease, competition from exotic species, fire, storm, land clearance, permanent flooding, salinisation, and domestic animals.

#### **Rationale**

This indicator identifies and monitors the effects that a variety of processes and agents, both natural and human-induced, might have on basic ecological processes in forests. Impacts include land conversion, harvesting, species introductions, changes to natural fire cycles and floods, and the introduction of non-native species especially pathogens. Where these processes are altered beyond some critical threshold they may produce significant changes to the condition of the forest. By regularly examining specific indicators, it may be possible to detect deleterious changes and modify management strategies to reverse the change.

***Note - While indicator 3a refers to a range of processes and agents affecting forests, the Montréal Process TAC meeting in New Zealand (May 2001) recommended that, for the Overview Report this Indicator be restricted to fire since all countries can report on fire. Many country reports will report on more than fire.***

#### **Guidelines**

##### **1) Issue - Treatment of natural variation in fire regimes. Do the Montréal Process Technical Notes provide guidance on defining historic variation?**

- The Montréal Process Technical Notes define historic range of variation as "*The range of spatial, structural, compositional, and temporal variation of ecosystem elements (plants, soils, animals) within a period specified to represent baseline conditions.*"
- Historic range of variation provides a useful estimate of the long-term ecological fire regime. This may be difficult to assess and requires extensive knowledge/research.

The concern is the impact of long term human activities on the ecological fire regime and resultant changes in biodiversity and productivity etc. If this is not available then use average, rolling average, statistical variation about the mean, etc. of the data available.

- Where fire cycles are outside the range of historical variation for the forest type care is needed in interpreting the result (refer Montréal Process Technical Notes).
- ***For country reports, trend data, rather than exceptional events, should be included where possible in order to provide a basis for interpretation of possible variation in ecological fire regimes.***

## 2) Issue - Treatment of incomplete or partial data

- If countries only have partial data, it is still worth reporting. In some cases it will be possible to extrapolate to a national picture, in other cases the partial information that is available may relate to specific areas of importance. It may also be possible to identify the scale of the problem.
- ***It is important to qualify or quantify what is unknown along with reporting the partial information. In the future, more complete data may be available but this will not negate the value of previous reporting of more limited data.***
- Where only a single point of data exists, options include presenting comparisons within the datum (e.g., comparing planted with natural figures). It may also be useful to compare the data with data from other countries, where appropriate.

## 3) Issue - What will be reported between the Overview and country reports?

- ***It was agreed that area of fire will be reported by all countries for the Overview report. However, each country should report on all relevant significant agents or processes affecting forest health and vitality in their country reports. This is likely to vary between countries.***

## 4) Issue - How should plantations be treated with respect to this indicator?

- Forest health is important for both planted and natural forests. A "natural" baseline level of fire incidence may not be applicable for plantations.
- ***If possible, it would be illustrative to separate out plantation forest fire statistics from those of the natural forest.***

## 5) Issue - Classification of forest fires and area statistics

- There is wide variation in the monitoring and reporting of forest fires among forest owners, depending on management capability and management regime of forest areas. Fire management on private land, for example, is often focussed on prevention affecting the type of information collected (e.g property damage, commercial vegetation types, fire severity and area burnt).
- ***Countries should identify what is included in their fire statistics in order to identify the common data available for the Overview report and help readers interpret the basis of fire area statistics on the Overview and country reports.***

## **6) Issue - For this indicator, should a composite of health indicators or the individual health indicators be reported?**

- The benefit of a composite indicator is that it can provide an overall assessment of the cumulative risk to forest health. However, it is often difficult to aggregate data on different factors that are recorded in different ways. This requires a determination of the respective importance (e.g., through weighting) of the factors involved. A range of value judgements may in turn influence assigning weights.
- While a total composite indicator may not be possible or desirable, aggregating some of the data within the indicator may be possible. For example, it may be possible to combine spatial coverage and data related to diseases.
- ***Each country should make an individual assessment of whether to include composite approaches in their Country reports.***
- For country reports, all data should be related to forest management practices where possible (e.g., data on the coverage or degree of control undertaken). This allows the impact of human causal activities or responses to be monitored in relation to the trend in the data.

### **Guidelines for reporting Montréal Process indicator 4.b**

#### **Indicator**

Area and percent of forest land managed primarily for protection functions (e.g., watersheds, flood protection, avalanche protection, riparian zones)

#### **Rationale**

This indicator provides a measure of the area and proportion of forest land managed primarily for protective functions. In harvested forests, it is important that measures are implemented that give protection to water courses, if soil erosion is to be reduced and water quality maintained. Recording how much land is specifically allocated to soil and water quality protection provides an indication of the extent to which these elements are specifically considered in forest management.

#### **Guidelines**

##### **1) Issue - Clarify the difference between the terms: protective functions and protected used in 1.1.c and 4b.**

- The indicator 4b addresses land managed for protective 'functions' (i.e. the forest's ability to protect particular soil or water values) while indicator 1c deals primarily with protection of the forest land for all of its natural functions and ecosystem services.

##### **2) Issue - Clarify what forest areas are to be reported as providing protection for soil and water**

- ***Forest areas that have a legal designation to be managed primarily for soil and water protection should be included. For example, areas within***
  - ***Production forest;***

- *Private land;*
- *National parks (all or a portion of); with a primary function of soil and water protection.*

The Montréal Process Technical Notes indicate that an area should only be included if it meets the intent of "primarily" soil and water protection (stream buffers, etc.).

- ***Voluntary protection areas i.e. those not legally gazetted for a protective function, will not be included in the Overview report, however, they may be included in the country report if relevant. If such areas are included, these should be reported separately.***
- Forest land that has legal protection for a variety of reasons including soil and water protection (e.g., conservation, recreation) should not be included when reporting on indicator 4b. Nor should a percentage or portion of general protection areas, be included even where soil and water protection is one of the functions.
- "Primarily" implies that the most important function (dominant) of the forest area is to conserve soil and water values. See Montréal Process Technical Notes.

### **Guidelines for reporting Montréal Process indicator 5.a**

#### **Indicator**

Total forest ecosystem biomass and carbon pool, and if appropriate, by forest type, age class, and successional stage.

#### **Rationale**

This indicator measures the national carbon pool provided by forest ecosystems. Globally, forest ecosystems are one of the largest reservoirs of both biomass and carbon. Reports on trends in this indicator are important for determining national strategies in forest management as a means to help stabilise global climate. Stabilisation of global climate is, in turn, important to national strategies regarding sustainable forest management, as climate change can significantly disturb the ecological balances that have produced the kind and distribution of forest we have today. Global changes in climate could result in the reduction of area available for forests, and/or the reduced productivity of these forests in some countries, an increase in the extent of forests or their productivity in other countries, and a loss of forest biodiversity globally.

#### **Guidelines**

##### **1) Issue - What should be included in total ecosystem biomass?**

- Total ecosystem biomass can include the following components:
  - Merchantable tree biomass (bole)
  - Non-merchantable tree biomass (e.g., branches, foliage)
  - Leaf litter Woody debris
  - Roots

- o Soil
- The amount of physical carbon is typically estimated from total ecosystem biomass using relevant factors for converting biomass to carbon.
- Total forest ecosystem carbon should be classified into: above ground living and dead carbon (merchantable and non-merchantable tree biomass, leaf litter and woody debris); below ground living carbon (roots) and below ground non-living carbon (dead organic matter in the soil).
- ***In order to ensure consistency with related international reporting processes such as the United Nations Framework Convention on Climate Change (UNFCCC), it was agreed to refer to measurement approaches for forest ecosystems developed by the International Panel on Climate Change. Further details can be found at the IPCC web site:***  
  
<http://www.ipcc-nggip.iges.or.jp/public/gl/invs5.htm>
- ***It was agreed that soil carbon would be reported separately. It is considered a part of total ecosystem biomass. Peat land within forest ecosystems was recognised as a potentially important reservoir in some countries and if appropriate this should be reported as a separate category. The review of IPCC measurement approaches will be taken into account and modifications made if appropriate.***

**2) Issue - How do we report forest ecosystem biomass?**

- The indicator refers to ecosystem biomass, and if appropriate, by forest type, age class and successional stages. It is recognised that not all countries will be able to report against all these categories. ***For the Overview report, countries will report total ecosystem carbon, with additional sub-categories by age class, and successional stage, intended only for Country reports, if available.***
- ***For the Overview report, each country should report, if possible, the amount of above ground living and dead carbon (Pool 1); below ground living carbon (Pool 2) and below ground non-living carbon (Pool 3) for each of the four broad forest type categories. See table below. This is consistent with the proposed format for indicator 1.1a for the Overview report.***

Forest type	Natural forest ecosystem carbon (Pools 1 and 2)	Plantation forest ecosystem carbon (Pools 1 and 2)		Total Forest Ecosystem Carbon (Pools 1 and 2)	Total Forest Soil Carbon (Pool 3)
		Native	Exotic		
Conifer					
Broadleaf					
Mixed					

Palm/bamboo					
TOTAL					



For Overview report, report these columns as a minimum.

### 3) Issue - What should be the soil depth when estimating soil carbon?

It was agreed that the IPCC guidelines on CO<sub>2</sub> Emissions or Uptake by Soil from Land-Use Change and Management (<http://www.ipcc-ggip.iges.or.jp/public/gl/guidelin/ch5wb2.pdf>) and other relevant climate change specialists should be consulted regarding soil depth. In particular the following guidance on methodology may be relevant - *"Estimates of soil carbon stocks are based on the top 30 cm of the soil profile only. Deeper soil layers can also have appreciable carbon stocks, particularly in tropical soils, but they are generally much less impacted by changes in land use/management than are topsoil layers and there are less data available for deeper soil layers"*.

Member countries reports should indicate what soil depth their soil carbon estimates are based on.

### 4) Issue - Reliability of data

- What level of accuracy is acceptable to report on this indicator?
- This is a decision that would need to be determined by the respective countries. However, the confidence or reliability of the data should be identified, particularly where this is known to be low.

### 5) Opportunities to improve reporting capacity in cases with limited inventory data and carbon modelling systems.

- There are opportunities for exchange of technical information on methods and potential application of models that are applied in other member countries. Related technical reports, web site information and specialists contact information can be coordinated through the Montréal Process Working Group Liaison Office, or directly through the Montréal Process country report coordinators.
- For example, a range of carbon stock models have been developed by member countries which include growth, decomposition and transfers/fluxes between carbon pools that draw on traditional forest inventory and/or remote sensing techniques. These include:
  - Australian Greenhouse Office Technical Report Series (National Carbon Accounting System) at <http://www.greenhouse.gov.au>
  - Kurz and Apps (1999), *Ecological Applications*, 9: 526-547
  - USDA Forest Service Research Reports, Northeastern Research Station
- The IPCC has also developed a series of technical workbooks and manuals to assist countries estimate forestry carbon stocks in cases where countries may have limited

inventory and other information. These manuals should be consulted in such circumstances.

- The proposed review of IPCC measurement approaches and development of Good Practice Guidance for land-use, land-use change and forestry activities should be taken into account and modifications made if appropriate.

### **Guidelines for reporting Montréal Process indicator 6.5.a**

#### **Indicator**

Direct and indirect employment in the forest sector and forest sector employment as a proportion of total employment

#### **Rationale**

This indicator measures the contribution of the forest sector in providing employment, at regional and national levels.

#### **Guidelines**

##### **1) Issue - Limited capacity for reporting through lack of data or models (e.g., population census, input/output models, general equilibrium models)**

- If countries are unable to use these types of models or utilise an existing population census, it is possible to estimate direct employment through a range of statistical sampling or survey techniques. In addition, secondary sources of information can be used to infer employment levels. For example, the Rapid Rural Assessment approach, as outlined by FAO, offers an option for collecting this information. A summary of the range of techniques that can be used is shown below. Further information can be obtained from the FAO web site at:

<http://www.fao.org/docrep/W3241E/w3241e09.htm>

##### *Rapid Rural Assessment - Key features*

- Bridge between systematic formal surveys and need for quick appraisal
- Interview and question design techniques
- Designed for getting quantitative data in a short time
- Methods of cross-checking information from different sources
- Uses secondary sources
- Group interview techniques
- Uses expert observation
- Useful for understanding local dependency patterns - Macro results can be determined

- Uruguay, for example, does not presently have statistically sound data on employment for a proportion of their agrarian sector (forest growing). Options for gathering this data include telephone surveys of key industry contacts to capture large industry stakeholders and a simple survey of other smaller groups.
- Other possible methods included a survey of all relevant experts (i.e. Delphi technique) to provide an initial estimate that can be reviewed over time. A group of experts can provide insight with reasonable confidence. Such options, however, may be more problematic with a large country like China.

## 2) Issue - What is direct employment?

- ***For the Overview report, it was agreed all countries would report direct employment for the forest sector and total national employment for all sectors. This data would be displayed as a graph. For country reports, both direct and indirect employment should be reported.***

## 3) Issue - At what point in the production chain should we distinguish between direct and indirect forest sector employment? What definition of direct employment should be adopted for the Overview report?

- The Montréal Process Technical Notes refer to an indicative list of forest sector categories (wood and non-wood forest product industries, research, management, protection, education, recreation and tourism) but do not distinguish between direct and indirect employment within each category.
- In Australia, for example, direct employment is interpreted as employment in the wood and wood product industries and forest contact industries - that is, those industries in direct contact with forests. Indirect employment is "other" employment which is generated as a result of the direct forest employment, that is - the potential multiplier effect of direct forest employment.
- For the wood products industries, options include delineating between:
  - wholesale production and retail sales
  - the first point of primary processing (e.g., converting logs to sawn timber) and secondary processing
  - primary goods (e.g., logs), intermediate goods (e.g., sawn timber) and final goods (e.g., furniture manufacturing).
- ***It was agreed direct employment would be determined on whether it is "directly related to forests". See table below. Countries would need to assess the good or service in direct employment categories and determine the point at which further downstream processing is considered indirect employment. A guide to identifying direct employment for the major forest sector categories is shown in the table below. This is a suggested approach for reporting direct employment for the Overview report.***
- ***It is important that countries identify in their reporting the point at which they have distinguished between direct and indirect employment in order to allow information to be aggregated for the 2003 Overview Report.***

Indicative examples of direct employment categories

FOREST SECTOR CATEGORIES	DIRECT EMPLOYMENT
Wood products industries	
Forest product growing	Pruning, log hauling, seed sales, nurseries, planting, spraying, thinning, harvesting etc
Forest product processing	Primary processing, yarding, pulp and paper production, saw milling etc
Non-wood products industries (growing and processing)	Harvest of fur, berry picking, apiary, wildflower, oil, moss, mushroom, bamboo shoots, grazing, commercially hunted animals etc
Protection	Insect, disease, fire, water and soil, border inspection, etc
Research	Employees of research organisations (all forest related research) etc
Tourism and recreation	(In-forest, on-site) Tour guides, outdoor recreation professionals (e.g., hiking, camping and hunting), on-site restaurants and accommodation etc
Forest management	Administration, planning, policy, forest operations, consultants, law enforcement, construction, engineering, maintenance etc
Education	Staff of experimental forests or universities (e.g., forest professors), non-governmental forest organisations (e.g., interpretive centres), forestry education extension etc

- The capacity to report on forest employment will be influenced by each country's data collection system. The suggested format is only a guide as it may be difficult to modify existing national classification systems. However, it is important that each country identify the basis for estimating direct and indirect employment to ensure transparency in reporting.
- Consideration should be given to the extent of employment generated from domestic and imported forest resources (e.g., logs for further processing) where there exists a significant proportion of imported wood. This would enable a better interpretation of the impact of domestic forest resources and management on employment within a particular country.

**4) Issue - In addition to gross employment, what are other measures are useful for reporting against this indicator (e.g., total only, total per hectare, total per output)?**

- Providing employment data as a ratio against a qualifying measure (such as forest area) allows better interpretation of the data. For example, the data can be expressed as the number employed per hectare. This allows the employment that has resulted as a result of the expansion of the forest estate to be identified. If the

employment within the forest estate differs significantly between forest types (e.g., planted and native) further breakdown may be required. Another option is to express the employment per unit output of wood products (e.g., per cubic metre). This then reflects efficiency of production and clarifies employment numbers and causes for changes.

- Employment by geographic region may also be a useful division. This is particularly useful where national information is made up of variable data and the use of maps and other figures can indicate the regional significance of forest sector employment across a country (refer Overview report format at Attachment B of the Aide Memoire from the 12th Meeting of the Montréal Process Working Group). This format is available on the Montréal Process web site.

**5) Issue - Is it useful to sub-divide forest sector employment figures into social categories (e.g., ethnicity, gender, age) at a national level for country reports?**

- Such a breakdown may be particularly useful for broader social analysis and would be a decision for each respective country.

**Guidelines for addressing Montréal Process indicator 7.4b**

**Indicator**

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

**Rationale**

Public information and decisions should be based on comprehensive, current and sound data.

**Guidelines**

**1) Issue - Integration of forest value information into traditional forest inventory systems.**

- This topic is important but is more appropriately addressed at a later stage. It is a long term issue that does not pertain specifically to this indicator. The indicator specifically relates to scope, frequency and reliability of data.

**2) Issue - Overview report content**

- The TAC in New Zealand agreed that only scope and frequency of forest inventories can be reported in the Overview report. This meeting added 'indicator reporting capacity' to the 2003 Overview Report requirements.

- For the Overview Report:

Scope	=	Indicator coverage and geographic scope
Frequency	=	Periodic mean frequency for countries.
Capacity	=	Overall ability to report fully on the indicators as described

**3) Issue - What format can be used for reporting this indicator for the 2003 Overview Report.**

*The following 3 sub-indicator categories should be included as a minimum.*

- A** = *Percent of forest area (1.1a) covered by inventory and (estimate of associated total forest error).*
- B** = *Frequency of inventory*
- C** = *Percent of total Montréal Process indicators currently reportable (+ 5 year prognosis).*

*Where appropriate clarifications should be included in the form of footnotes to the table.*

*Suggested tabular format for Indicator 7.4b*

<i>sub-indicator categories</i>	<i>Country</i>				<i>Summary or range</i>
	<i>1</i>	<i>2</i>	<i>3</i>		
<b>A</b>	<i>50 (+3%)</i>	<i>100 (7)</i>	<i>80 (6)</i>	<i>(1)100 (30)</i>	
<b>B</b>	<i>5 yr</i>	<i>10 yr</i>	<i>1 yr</i>	<i>5 yr</i>	
<b>C</b>	<i>20 (30)</i>	<i>15 (30)</i>			

(1) Natural forest, very low intensity plus explanatory notes.  
Note: it may be possible to present table as a graph.

**4) Issue - Reporting Institutional Capacity**

- Criterion 7 addresses institutional capacity in general and this is an opportunity to highlight the complicated array of institutions collecting and managing forest information in each country and to describe the success of these current arrangements.
- ***In the country report, describe the institutions and arrangements in the country using narrative or organisational charts. Include information on what data can be, and are, publicly available, who the custodians are, and ease of access.***
- A lot of the issues listed raised for this indicator may reflect the institutional frameworks existing in each country.