

USDA FOREST SERVICE
WORKSHOP ON MONTREAL PROCESS INDICATORS
CRITERIA 6 AND 7
WASHINGTON, DC
JULY 19 & 20, 2005

INTRODUCTION

In April of 2005, the Roundtable on Sustainable Forests (Roundtable) and the USDA Forest Service sponsored a series of three technical workshops on the indicators. The purpose of the workshops was to review the Montreal Process (MP) indicators and recommend refinements to be used by the U.S. delegation participating with the 11 other Montreal Process countries to improve those indicators.

Indicator refinement recommendations, from all of the April Workshops, were reviewed by Roundtable participants at the May 2005 Roundtable in Denver, Colorado. The purpose of the review was to establish priorities for the U.S. delegations attending the international discussions. During the May Roundtable Workshop, participants expressed concern regarding some of the Criteria 6 and 7 indicator refinement suggestions. These concerns led the USDA Forest Service to hold a special workshop in Washington, DC on July 19 and 20, 2005, to address those concerns. Participants attending the Washington workshop represented a cross section of individuals who took part in the April Workshop on Criteria 6 & 7 and other technical experts identified by the USDA Forest Service.

The basis of the Washington workshop was the material produced at the April workshop on the indicators in Criteria 6 and 7 and related input from the May Roundtable Workshop. The results of the Washington workshop deliberations are presented below. Recommendations from the Washington workshop served as the basis for formulating U.S. suggestions for Criteria 6 and 7 indicator revisions, although not all recommendations were used.

To avoid any confusion, the origin of the text presented and modified in this document is from the April workshop on Criteria 6 and 7, not the original language on the Montreal Process indicators. New language proposed at the Washington workshop for Criterion 6 is underlined. The text for Criterion 7, however, has so many new words and organizational changes that the new and rearranged text it is not underlined.

Note: As a general comment that applies to all of the indicators, Washington workshop participants suggested that for all indicators, a regional geographic presentation of national data would vastly increase the usefulness of national sustainability reports to a larger audience. It was agreed that rather than note this language for each indicator, the delegation would suggest that this point be included in the introductory section of the revised MP C&I documentation.

REFINEMENT RECOMMENDATIONS

CRITERION 6

THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM MULTIPLE SOCIO-ECONOMIC BENEFITS TO MEET THE NEEDS OF SOCIETIES

SUB-CRITERION -- PRODUCTION AND CONSUMPTION

Indicator 6.1.a (29) Value and volume of ~~wood~~timber harvested and ~~wood~~ forest products production, including value added through downstream ~~processing~~

Rationale

This indicator measures the size and economic health of the forest products sector by identifying trends in the value and volume of timber harvests and forest products production, and allowing comparison of those trends with forest management objectives.

Indicator 6.1.b (30) Value and volume quantities of ~~non-wood~~ non-timber forest products-production-and consumption.

Rationale

This indicator measures trends in the value, volume, and quantities of non-timber products derived from the forests that may be economically important to indigenous people and local communities. Cultural, social, or spiritual values are monitored under other indicators.

Indicator 6.1.c (31) Value and volume of timber and forest products consumption, including consumption per capita.

Rationale

This indicator measures the domestic demand, and extent to which, the supply of timber and forest products meets the needs for domestic consumption when compared to indicator 6.1a. A measure of consumption per capita might reflect a cultural affinity to wood products, the level of disposable income, imports, the price or availability of wood products and their substitutes, or the efficacy of conservation, recycling and reuse measures. High per capita consumption levels may also reflect pressures on forest resources.

Indicator 6.1.d (32) Value of forest products-and non-timber forest products production as a percentage of GDP.

Rationale

This indicator measures trends in the value and quantities of non-timber products derived from the forest that may be economically important to indigenous people and local communities. Cultural, social, or spiritual values are monitored under other indicators.

Indicator 6.1.e (33) Degree of recycling of forest products and the degree of substitution of forest products by non-renewable materials.

Rationale

As global demands for forest products increase, there is a growing awareness of the opportunity and need to extend, and improve the efficiency of the use of forest products through recycling. This indicator identifies the extent to which recycling/reuse of forest products occurs, and can be linked to conservation of forest resources, as well as reduction in solid waste. The substitution of forest products by non-renewable materials has impacts on sustainable forests and broader environmental consequences such as energy consumption.

Old Indicator 6.1.f (34) ~~Supply and consumptive/use of non-wood products~~

New Indicator 6.1.f (34) Revenue and quantity of environmental services consumed.

Rationale

~~This indicator measures the domestic demand, and helps determine the extent to which the supply of non-timber forest products meets the needs for domestic consumption when compared to Indicator 30.~~

This indicator measures the ability of the forest sector to capture revenues from previously free forest values. This includes watershed protection, carbon sequestration, scenic easements and, hunting rights. Increased revenue from forest lands will attract investment and maintain forest land competitiveness with other uses of the land.

Approaches to measurement

Useful data might include the following:

- Description of environmental services for which payments are made to landowners, or where land is purchased primarily for environmental services other than for timber or recreation.
- Description of types of institutional arrangements actually installed to make payments.
- Area of land for which payments are made by type of service.
- Amount of payments made (revenues) by type of service.

SUB-CRITERION --RECREATION AND TOURISM

As population and income levels increase, and as populations become more urbanized, societies tend to utilize forests increasingly for the purpose of outdoor recreation and tourism. At the same time, urban and other development may impact the availability of natural, aesthetically pleasing, or reasonably undisturbed forest lands to provide recreation and tourism opportunities. Indicators 6.2a through 37 consider the degree to which forest management is providing sustained availability of forest areas and facilities to society in the form of recreation and tourism. ~~For these activities to be sustainable, supply and demand of recreation and tourism opportunities should be considered.~~ This element considers recreation and tourism values from both supply and demand perspectives. ~~and in~~

~~consideration of the sustainability of the resource base. It considers trends in visitor use days, as well as availability of recreation, and tourism opportunities.~~

Old Indicator 6.2.a (35)— Area forest land managed for general recreation and tourism at or below Levels of Acceptable Change (LAC), as a percent of the total area of forest land

New Indicator 6.2.a (35)—Area, and spatial distribution and quality of forest land available for a variety of public recreational and tourism demands.

Rationale

~~This indicator provides a measure of the extent to which forest management programs recognize the recreational needs of the community. The indicator reflects (in a trend line over time) the impact of recreation/tourism on the sustainability/integrity of the resource base used for recreation and tourism. The indicator is an integrator of supply and demand impacts on the resource base. LAC is a commonly accepted process or approach for establishing a use threshold for recreation and tourism (see glossary). Identifying the LAC assures the protection of cultural, social, and spiritual needs and values associated with recreation and tourism.~~

Increases or decreases in forest available for recreation and tourism indicate whether forest policy is sustaining these benefits for the public. The maintenance of a spatial distribution of available forest land that can serve the distribution of population and tourism demand are indicators that recreation and tourism benefits are being sustained. Measuring the distribution of available forest land relative to population indicates sustaining effective recreation opportunities for local population (i.e., communities). Measuring distribution of forest land relative to tourism destinations indicates sustaining recreation opportunities for non-local populations. Forest quality measures can be derived from indicators identified in Criteria 1 through 4.

Approaches to measurement

- Area and percent of forest land available for recreation by ownership.
- Distribution of available forest land relative to the distribution of population.
- Distribution of available forest land relative to the distribution of tourism demand (travel destinations).
- Index of health condition of available forest land from indicators in Criteria 1 through 4.
- ~~Total land area managed for recreation and tourism at or below the level of acceptable change.~~
- ~~Established sustainable thresholds identified in operational and management plans dedicated to recreation and tourism.~~

Old Indicator 6.2.b (36) Effectiveness in matching forest recreation and tourism opportunities with demand

New Indicator 6.2b (36) Number, and type and quality of forest-based sites, facilities and services available and managed for public and recreation and tourism.

Rationale

~~This indicator assesses the availability of specific facilities for forest-based recreation. It can imply changes in public recreational preferences, the cost-benefit relationship of various recreational developments or the priority placed on providing recreational facilities in a country. This indicator assures that a forest's available natural and physical resources match demands for recreation and tourism opportunities in a sustainable manner.~~

Considered along with the quantity distribution of forest land area available for recreation and tourism, sites and facilities managed for recreation and tourism indicate increased capacity to sustain more use and a greater variety of use than forest area itself could sustain. Sites may include downhill ski areas, wildlife viewing areas, and scenic viewing areas. Facilities may include roads, parking, ski lifts, lodges, and camping facilities. Services may include outfitters and guides, reservation services, interpretation programs, transportation, and information web sites. Sites, facilities and services provided by both public and private sectors are to be considered. Quality indicates management to sustain different levels of visitor experiences, and thus different levels of sustained benefits.

Approaches to measurement

- ~~• Type and number of recreation and tourism facilities available in forests (e.g., picnic sites, camp sites, toilets, visitor centers, walking trails, or major tourism developments).~~
- ~~• Public satisfaction with forest land managed for general recreation and tourism~~
- ~~• Location of forest recreation and tourism facilities.~~

Population size and density

- Number of forest-based recreation and tourism sites, facilities, and services available for a variety of recreation activities including land, water, and snow/ice types of activities and including public and private providers.
- Distribution of sites, facilities, and services relative to the distribution of population.
- Distribution of sites, facilities and services relative to the distribution of tourism demand (travel destinations).
- And/or percentage of sites, facilities, and services managed to standards of health, safety, and aesthetic quality.

Indicator 6.2.c (37). Number of visitor days attributed to , type and distribution of recreation and tourism, in relation to population and forest area visits to forest areas, sites, and facilities and percentage of visits providing satisfying experiences.

Rationale

Provision of forest land, sites, facilities, and services indicates the intention of forest management to provide a sustained flow of recreation and tourism benefits. Use of that land and the sites, facilities, and services indicate realized recreation and tourism benefits. Measures of satisfaction indicate the quality of visitor experiences.

Approaches to Measurement

- Number of visits to forest areas by recreational activity.
- Number of visits to forest areas by type of recreational resource--land, water and snow/ice.
- Per capita visitation to forest areas by residents of local communities.
- Percentage of forest visitors satisfied with their recreation experiences by general type of activity.

SUB-CRITERION --INVESTMENT IN THE FOREST SECTOR

Rationale

Investment reflects the interest of society in producing goods and services from the forest. Investment is closely linked to the ~~production of goods and services and continued investment depends largely on the~~ expected rate of return on that investment. The investment source may be from either the public or private sectors. Investment is commonly made in plantation establishment, forest growing, harvesting, protection, and processing and in the social and educational sectors, to support the forest sector. Therefore, the level of investment in the forest sector can reflect the direction of the sector's economic activities.

Indicator 6.3.a (38) Value of investment, including investment in forest growing, forest health, and protection, management, planted forests, wood processing, forest based outdoor recreation, and tourism, and environmental enhancement.

Rationale

This indicator measures the short and long-term commitment of societies to forest growing, site improvement, ecological restoration, forest processing of forest products, and the use of forests for environmental, economic and social purposes. This is important information related to the ability to manage forests for forest products and forest health, and to maintain and enhance the long term multiple socio-economic benefits to meet the need of society.

Approaches to measurement

Useful data could include investment and annual expenditure on the following activities:

- Plantation establishment and maintenance.
- Silviculture.
- Forest management activities related to protection and conservation objectives.
- Forests managed for recreation and conservation, e.g., parks.
- Plantation and natural forest harvesting and transport equipment.
- Recreation and tourism facilities.
- Wood processing.
- Non-wood products.
- Other forest management infrastructure, e.g., roads, ports.

This indicator may be measured by analysis of current and historical investment data using standard commercial accounting methodologies. Data for this purpose may be available from government and private sector sources. It may be useful to differentiate between capital investment and operating costs and between sub-sectors such as wood production in natural forest and plantation, conservation forests, and non-wood products and uses. Countries may wish to report domestic and foreign sources of investment separately.

Interpretation

Increasing investment may result in multiple benefits that can be documented with a number of other indicators. Investment trends should be considered in the context of forest management objectives. For example, growth in expenditure in forest recreation and tourism facilities may reflect a recreation forest management emphasis.

Suggested additional indicator from Bloomington -- Number of forest product mills and capacities by sector.

Rationale

This is an important piece of information related to the ability to manage forests for forest products and forest health, and to maintain and enhance the long-term multiple socio-economic benefits to meet the needs of societies.

Indicator 6.3.b (39) Level of expenditure on forest and product research and development and education.

Rationale

New knowledge through research and development, and its communication, extension, and education to practitioners and the public will improve the practice of forest management in economic, social, and environmental terms. A good Adequate understanding of forest ecosystems is essential to the conservation and sustainable management of those ecosystems.

Indicator 6.3.c (40) ~~Advances in productivity linked to~~ Extension and use of new and improved technologies.

Rationale

This indicator (productivity) measures continuous improvement in forest management and forest products industries. Productivity measures could include industrial wood productivity, timber yield per acre, or other measures of output over input ratios. This indicator is based on the assumption that improvements in forest management are related to the level of effort in seeking out and implementing better technologies in production, processing, and use.

Approached to measurement

Measures could include industrial wood productivity, timber yield per acre, or other measures of output over input ratios.

Indicator 6.3.d (41) Value of land related to the rates of return on forest investment.

Rationale

~~Society's values and needs include cultural and spiritual connections of society to the forest. These cultural and spiritual connections and needs will vary substantially among and within countries and local communities. For example, the spiritual and cultural needs and values of indigenous peoples may be unique and distinct from the spiritual and cultural value of forests of people who live in urban environments.~~

The retention of land in forest cover is dependent on the value of uses provided by forests in relation to the value of the land converted to agriculture or residential/commercial development. Society also has the option of holding forest land in public ownership. These alternate land values are associated with the rates of return on investment for investments in the forestland compared to investments in alternative land uses or other sector investment, domestically and in other countries.

Approaches to measurement

Available data might include forest land values compared to alternate land values under uses such as agriculture such as low, medium and high density residential development. Comparative data might also include the rates of return on investment for saw and paper mills, eco-tourism or emerging opportunities such as bio-prospecting or carbon sequestration. Another useful category would be plantation versus natural forest management regimes, although measurement will be more complex for natural and multiple-use forests. Use of the UN's System of National Accounts, Satellite Environmental Accounts should be considered. If these are not adequate, recommends should be made to augment those accounts. Such statistics would facilitate inter-sector coordination. It might be useful to display the trends in rate of return and land value on the same chart so the relationship of the two values would be evident.

Interpretation

To attract the rational investor, the rates of return for investment in the forest sector must be competitive with alternative investment opportunities with similar risk. Competitive rates of return in forest management are, in turn, the foundation for competitive forest land prices thus preventing the conversion of forest land to other uses. Interpretation should be linked to other indicators, including indicators 6.3.a, 6.3.b, and 6.3.c. Access to rate of return on investment data may be difficult to acquire from private owners, since such information is proprietary.

SUB-CRITERION -- CULTURAL, SOCIAL AND SPIRITUAL NEEDS AND VALUES

Society's values and needs include cultural and spiritual connections of society to the forest. These cultural and spiritual connections and needs will vary substantially among and within countries and local communities. For example, the spiritual and cultural needs and values of indigenous peoples may be unique and distinct from the spiritual and cultural value of forests of people who live in urban environments.

New indicator 6.4.a (42) Degree to which people are “satisfied” that the range of cultural, social, and spiritual needs and values are met.

Extent to which forest land is managed to provide for cultural, social, and spiritual needs, values, and practices.

Rationale

~~This includes land that is formally recognized as being under indigenous or other citizen’s tenure. The cultural, spiritual, and social values of people embody the full range of uses of forest land. We are focusing on the degree of satisfaction, which will better reflect intra- and inter-generational equity.~~

~~Recognize that lands have been set aside for various reasons (e.g., aesthetics, cultural heritage, etc.)~~

People derive many benefits from forests and natural areas, including meeting cultural, spiritual, and social values, needs, and practices. These will vary substantially among and within countries and local communities, but can be understood at regional and national scales. These benefits can be derived from protected lands other various land classifications, diverse forms of working landscapes, and they can be derived across different land tenures. Many of these benefits depend on forested settings. Because these benefits are important for strong and sustainable societies, forest management and policy should take them into account. Long-term sustainability of forests links the maintenance of ecological integrity and provision of these forest benefits.

Approaches to Measurement

Area and percent of forest land by tenure, including indigenous, and management regimes that is formally managed to protect indigenous and non-indigenous peoples’ cultural, social, and spiritual values, needs, and practices;

- Percent of cultural, social, and spiritual and sites or area of degraded cultural, social, religious, and spiritual values.
- Percent of public reporting satisfaction with management for these benefits in surveys, e.g., using established forest value scales.
- Content analysis of planning comments over time can assess trends and severity of conflicts or problems.

Indicator 6.4.b (43) Public use of quality non-consumptive forest use values opportunities.

Rationale

The non-consumptive use of the forest is a traditional common activity in many societies. Ecosystem provision of services such as production of clean water, scenery, other aesthetic experiences, existence values; and other off-site values are also non-consumptive uses of forests important to many people whether they live near or far from the forest. It also includes similar non-consumptive uses of urban and community forests.

Alternative Rational:

The non-consumptive use of the forest is a traditional and common activity in many societies. These uses include of services such as clean water; scenery and other aesthetic experiences and existence values. These apply to on and off-site perception of use

Approaches to Measurement

- Survey of whether people feel adequate non-consumptive experiences are available. Population migration to areas with known environmental amenity values.
- Percent of population indicating non-consumptive values important in forest land management (via survey).
- Survey of whether people feel adequate non-consumptive experiences are available.

SUB-CRITERION -- COMMUNITY WELL-BEING ~~EMPLOYMENT AND~~ ~~COMMUNITY NEEDS~~

Forests and forest communities are highly inter-related systems. Forest management policy affects the well-being of forest-based communities. In turn, the well-being of forest-based communities and the livelihood of their members can affect forest sustainability, and public decision-making and policy regarding forest sustainability. This relationship changes through time. The indicators in this sub-criterion contribute to understanding and responding to this evolving relationship.

Suggested definition for forest-based community

Measured as low, medium, or high based on index/measures. Forest dependence may be aesthetic, spiritual, or economic. Researchers have classified dependence with as little as 5 to 10 percent of the workforce involved the forest products sector. Aesthetics is much harder, but it is hard to deny that the many second-home owners throughout the rural West and elsewhere are living next to forests because of the forest. It's a different but nonetheless powerful form of dependence.

Indicator 6.5.a (44) 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 to community employment. This is useful information at the national, regional, and local levels and a key element of socio-economic health of a community that can be affected directly by managers of the forest sector. Employment opportunities help keep families together, provide taxes for provision of local services, and improve opportunities for home ownership, etc.

Approaches to measurement

- Total employment in all sectors.
- Direct employment in the various forest sectors.

- Indirect employment in appropriately identified downstream activities.

Old Indicator 6.5.b (45) The Contribution of the forest to community livability and welfare

New Indicator 6.5.b (45) The percent of forest-based and or indigenous communities at various levels of socioeconomic health.

Rationale

This indicator builds a clear understanding of the general welfare needs of the community and then identifies the contributions of forests towards these basic needs. Basic needs refer to a minimally acceptable level of welfare. These include employment, health, education, etc. To the extent that these needs are met, a community is considered livable.

McKillop Addition: Sectors such as the timber industry, which pay higher salaries and bring in income from outside a region by exporting goods from it or reducing its level of imports, are especially important as sources of employment and income because they stimulate economic activity in other sectors of the economy.

Socio-economic well-being includes residents' education, impoverishment, health care, home ownership, employment, and access to fair and reasonably paid work and to public services. Measures of these concepts reflect critical aspects of socio-economic health and well-being. Socio-economic health, in turn, affects resident activities in the forest and has a bearing on people's attitudes about forests. This is especially true if there is a community perception that forest management practices are responsible for community conditions, both positively and negatively. The forest sector may directly affect community well being through changes in jobs, business opportunity, taxes etc.

Approaches to Measurement

- ~~Total employment in all sectors.~~
- ~~Direct employment in the various forest sectors.~~
- ~~Indirect employment in appropriately identified downstream activities.~~
- ~~Data to measure this indicator include wage and injury rates by different components of the forest sector, including non wood industries and services.~~
- ~~Government, union, industry, or research health and safety sources may be useful.~~
- ~~Number of permits requested and issued for access to harvesting rights for particular products or land.~~
- ~~Information on policies relating to access to these areas.~~
- ~~Reports from custodians of land on any difficulties related to access.~~
- ~~Uses related to a particular forest type, species, product or service.~~
- ~~Employment and labor force (rate of unemployment, years worked in the forest sector, experience in other industries, age structure of the workforce, education or skill level attained, level of non indigenous employment).~~
- ~~Level of community dependence on individual forest commodities or industries, or services.~~

- ~~Socio-demographic structure of communities (level of household income, population distribution, age structure, ethnicity, presence of dependent children, years of residence in area).~~
- ~~Community vitality (quantitative and qualitative assessment of proportion of family in community, degree of pride in community, length of residence, desire to relocate, political efficacy, crime rates, housing ownership, income distribution, dependence on social security, unemployment rate).~~
- ~~Community infrastructure (number of schools, enrolments, childcare facilities, retail and trade services, community groups and use of local services).~~
- ~~Town size.~~
- ~~Traditional and social uses such as shelter, instruments, art, healing, food, fuel, transport, weapons, trade, water finding, ceremonies, and gatherings.~~
- ~~Economic uses including cultural tours or camps, artifacts, medicines, bush food, seed.~~
- ~~How local communities are involved in forest management practices, possibly including the number of indigenous people employed in the forest sector, and the number of forest-based enterprises owned by indigenous people.~~
- ~~Local economic viability (industry by employment, size of businesses, income or profit derived from the forest sector, dependence of businesses on forest sector).~~

This is an index comprised of:

- Average wage rates.
- Percent of families at various levels of income.
- Poverty intensity.
- Number of families with children receiving public assistance. (This is about children and the aged, and how well these groups are being treated).
- Number of doctors per thousand people.
- Income disparity/inequality, the GINI coefficient.
- Education level by primary school, high school, undergrad, graduate.
- Percent of people unemployed—is this one category of level of employment?

Old indicator 6.5.c (46) The Contribution of the forest to community resiliency

New indicator 6.5.c (46) The percent of forest-based and indigenous communities at various levels of resiliency or capacity.

Rationale

Community resiliency reflects the ability of communities to respond to internal and external change. Community resiliency is predicated on four community dynamics. First, social infrastructure such as associations, clubs and churches must be in place to provide community space in which to gather, learn, and collaborate. Second, the community must collectively possess the relevant knowledge, skills, and abilities to anticipate and respond to change. Third, local political leadership is required to facilitate the accomplishment of community objectives. Finally, community members need be actively engaged in problem resolution and the accomplishment of community objectives.

Resilient communities are better able to respond to internal and external stresses, including change, maintain and improve their social well-being and advance forest conservation and sustainable management. Community resiliency includes five types of community capital: social, physical/financial, human, cultural, and political. Forest sector effects on community resilience is more indirect than community well-being but awareness of existing community resiliency can be an important tool to judge how to best implement change in forest policy affecting communities.

Approaches to Measurement

- ~~Historical response to change (qualitative assessment of historical responses of communities, to other significant economic changes, in recent years).~~
- ~~Community vitality; participation in community groups.~~
- ~~Folklore and oral history from elders.~~
- ~~Social well-being (qualitative assessment of attachment to place, sense of community, quality of life).~~
- ~~Community vision (qualitative assessment of the potential for alternative development of options or scenarios).~~

Understanding community resiliency and capacity requires both qualitative and quantitative assessment. Quantitative measures should not be misconstrued as providing complete picture of the community's resiliency. This is an index comprised of the following measures:

- **Social capital** is the ability and willingness of community members to work together toward community ends. Some metric proxies include:
 - Number of volunteer-based organizations or groups (churches, social service, and youth organizations).
 - Membership networks.
 - Average per capita hours of community volunteerism.
 - Diversity of organization and percent of population involved in community groups and celebrations.
- **Physical and financial capital** includes roads, utilities, schools, and physical structures in which community associations might meet, as well as the financial resources for community purposes. Associated metrics include:
 - Quality and capacity of physical infrastructure (schools, roads, libraries, water, sewer, waste, housing stock). Percent of forest-dependent towns with road systems not maintained to standard.
 - Dollars available to address community needs.
- **Human capital** is the relevant knowledge, skills, experience and abilities, including leadership.
 - Level of education.
 - Percent of forest-dependent communities by journeyman workers, professional, administrative, unskilled.
- **Cultural capital**
 - Native land use and traditional environmental knowledge. Involves historic land management and knowledge systems to understand future paths to sustainability historic use that influences present conditions.
 - Forest-related traditions and rituals.

- Traditional, local and practical knowledge.
 - Cultural heritage sites.
- **Political capital** is the active engagement of community members in problem resolution and the accomplishment of community objectives. Metrics might include:
 - Number and duration of collective action.
 - Voter participation rates.
 - Community governance infrastructure (town council) that facilitates community action.

Indicator 6.5.d (47) Area and percent of forest land used for subsistence purposes.

Rationale

This indicator measures the extent to which forest land is used to provide basic products for survival outside the economic or market-based system. Such uses of the forest can be valid, their extent known, and forest management regimes developed to provide for them.

Subsistence could refer to many things—the forest is necessary but not sufficient for viable communities.

Approaches to Measurement

- Historical response to change (qualitative assessment of historical responses of communities, to other significant economic changes, in recent years).
- Community vitality; participation in community groups.
- Folklore and oral history from elders.
- Social well-being (qualitative assessment of attachment to place, sense of community, quality of life).
- Community vision (qualitative assessment of the potential for alternative development of options or scenarios).

New indicator suggested in Bloomington --The Contribution of the forest to community livability and welfare

Rationale

This indicator builds a clearer understanding of the general welfare needs of the community and identifies the contributions of forests toward these basic needs. Basic needs refer to a minimally acceptable level of welfare, including employment, health, education, etc. To the extent that these needs are met, a community is considered livable.

Approaches to measurement

- Total employment in all sectors.
- Direct employment in the various forest sectors.
- Indirect employment in appropriately identified downstream activities.
- Data to measure this indicator includes wage and injury rates by different components of the forest sector, including non-wood industries and services. Government, union, industry, or research health and safety sources may be useful.

- Number of permits requested and issued for access to harvesting rights for particular products or land.
- Information on policies relating to access to these areas.
- Reports from custodians of land on any difficulties related to access.
- Uses related to a particular forest type, species, product, or service.
- Employment and labor force (rate of unemployment, years worked in the forest sector, experience in other industries, age structure of the workforce, education or skill level attained, level of non-indigenous employment).
- Level of community dependence on individual forest commodities, industries, or services.
- Socio-demographic structure of communities (level of household income, population distribution, age structure, ethnicity, presence of dependent children, years of residence in area).
- Community vitality (quantitative and qualitative assessment of proportion of family in community, degree of pride in community, length of residence, desire to relocate, political efficacy, crime rates, housing ownership, income distribution, dependence on social security, unemployment rate).
- Community infrastructure (number of schools, enrolments, childcare facilities, retail and trade services, community groups and use of local services).
- Town population.
- Traditional and social uses such as shelter, instruments, art, healing, food, fuel, transport, weapons, trade, water finding, ceremonies, and gatherings.
- Economic uses including cultural tours or camps, artifacts, medicines, bush food, seed.
- How local communities are involved in forest management practices, possibly including the number of indigenous people employed in the forest sector, and the number of forest-based enterprises owned by indigenous people.
- Local economic viability (industry by employment, size of businesses, income or profit derived from the forest sector, dependence of businesses on forest sector).

CRITERION 7

LEGAL, INSTITUTIONAL AND ECONOMIC FRAMEWORK FOR FOREST CONSERVATION AND SUSTAINABLE MANAGEMENT

The group chose to redefine the sub-criteria and indicators and changed the indicators to “measures.” In addition, the Montreal Process indicators were regrouped and new indicators were added.

New indicator 7.1. Extent to which the legal framework supports the conservation and sustainable management of forests.

Approaches to Measurement

Measures include the extent to which the legal framework:

- Recognizes land tenure arrangements and property rights.
- Protects customary and traditional rights of indigenous people.
- Provides for periodic forest-related planning, assessment, and policy review with public participation.
- Provides for public access to information.
- Encourages best practices codes for forest management.
- Conserves special environmental, cultural, social and/or scientific values.
(Includes old indicators 48 to 52)
- Considers impacts from other sectors on forest functions and values.

New indicator 7.2 Extent to which the institutional framework supports the conservation and sustainable management of forests.

Approaches to Measurement

Measures include the extent to which the institutional framework:

- Enforce laws, regulations and guidelines, as specified under [new] indicator 48.
- Provides for public, professional, technical education, awareness and extension programs across relevant disciplines *(including training and professional development opportunities for all members of the forest community – private and government)*.
- Undertake and implement periodic forest-related planning, assessment and policy review including cross-sectoral planning and coordination.
(Includes old indicators 53-54, 57 – 55 included in 2nd bullet)
- Capacity and expertise for measurement, monitoring, research and development *(see new indicator 51 below)* as expressed in staffing, funding, training, and institutional reward structure.
- Supports collaboration and volunteer participation and leadership.
- Employs multi-disciplinary approach to conservation issues.
- Engages indigenous peoples, communities, under served groups and others affected by forest management, policy, and practices.
- Builds capacity and encourages leadership of affected groups to participate.

New Indicator 7.3 Extent to which the economic framework supports the conservation and sustainable management of forests.

Approaches to Measurement

Measures include the extent to which the economic framework:

- Encourages production of market and non-market-based forest products and environmental services from forests through:
 - Tax laws
 - Incentives
 - Investment laws
 - Trade policies.
- Provides for development and maintenance of the physical infrastructure for conservation and sustainable forest management.
- Supports natural capital and environmental services accounting systems.
- Supports maintaining contiguous forested land base.
(Includes old indicators 56, 58)

New indicator 7.4 . Capacity for sustainable management.

Approaches to Measurement

Measures include laws and institutions:

- Encourage production of market and non-market-based forest products and environmental services from forests through:
 - Tax laws
 - Incentives
 - Investment laws
 - Trade policies.
- Provide for development and maintenance of the physical infrastructure for conservation and sustainable forest management.
- Support natural capital and environmental services accounting systems.
- Support maintaining contiguous forested land base.

New Indicator 7.4a Capacity to measure and monitor changes in the conservation and sustainable management of forests.

Approaches to Measurement

Measures include:

- Availability, statistical reliability and currency of data and information important to measuring or describing all indicators associated with criteria 1-7.
(Includes old indicators 60–61)
- Compatibility with other countries in measuring, monitoring and reporting on indicators.
(Includes old indicator 62)

New Indicator 7.4b Capacity to conduct and apply research and development aimed at improving forest management and delivery of forest goods and services.

Approaches to Measurement

Measures include:

- Integration of scientific, practitioner, and indigenous knowledge.
- Understanding of forest ecosystem characteristics and functions.
- Knowledge of social and economic dimensions of forest conservation and sustainable management.
- Research into impacts of public policy on sustainable forest management.
- Capacity to measure the value of forest resources, including a full range of natural capital and environmental services.

(Includes old indicators 63–64)

New Indicator 7.4c. Capacity to integrate research, monitoring, and learning into adaptive management.

Approaches to Measurement

Measures include:

- Extent to which institutions have systems that spatially link forest-related data over time to management policy and action.
- Ability to predict and assess the effect of human activities and decisions, including new technologies, on forests and related economic, environmental, and social systems.
- Ability to predict the impacts on forests of possible climate change.

(Includes old indicators 65–67)

- Extent to which environmental management systems (ISO 14000 or equivalent system) are used.
- Extent to which systems-based thinking and related tools are incorporated into education, both formal and informal.