

Table on Criterion 7 Refinements

This table shows recommendations for refinements to the Montreal Process indicators, the rationales for the indicators, and in selected cases, approaches to measurement. These recommendations were reached through discussion and general agreement at three technical workshops coordinated by the USDA Forest Service and the Roundtable on Sustainable Forests in April 2005 to obtain high-quality input from a diverse set of forest stakeholders. Column 1 shows the location of the text in the *Draft Document: Excerpts from the Montreal Process Technical Notes Modified for the Series of C&I Refinement Technical Workshops*. Column 2 presents the original language with any deleted text underlined and struck out; column 3 presents the refined text with any additional text underlined. Column 4 includes any comments made on the refinement.

Summary of Refinements

Participants in Breakout Session 7A on Criterion 7 Indicators 48–59, note that these indicators represent a broad category for many of the social and economic components of sustainability. Almost one-third of all of the indicators are associated with this criterion. Consequently, many of the legal, institutional, and economic indicators were conflated. The breakout group’s goal was to construct the indicators in a manner that would lend them to easier measurement. Many of the indicators had large differences in scale and scope. The group attempted to clarify the legal, institutional, and economic indicators. They analyzed the 12 legal, institutional, and economic indicators and captured them in five categories by:

- Combining the ideas in 48, 52, and 57 into one legal context indicator.
- Combining 49, 54, and the public participation ideas in 50 and 53 into a planning and assessment indicator.
- Combining the issues in 53 and 55 into a single education and human resource indicator.
- Retaining indicator 51 as a separate operations indicator.
- Combining 58 and 59 and part of 56 into a single economic indicator because trade policies are embedded in the tax code affecting investment and the flow of goods and services from the forest sector.

The group addressed environmental justice and equity issues in the legal context indicator and the planning and assessment indicator. These indicators are qualitative and capacity-based because constructing outcome-based indicators requires value-laden judgments.

Participants in Breakout Session 7B on Criterion 7 Indicators 60 – 67 also combined some indicators, reducing the total number of indicators in this section by two. The group combined Indicators 60 and 61, and 65 and 66, making each new combined indicator more comprehensive. Indicators 62, 63, 64, and 67 were modified.

Other Cross-cutting Recommendations

1. Breakout Session participants 7A proposed that the private infrastructure investment portion of 56 be moved to Criterion 6.

Breakout Group 7A: Criterion 7 - Indicators 48 - 59:

Participants: Don Floyd, Natural Resources Policy, SUNY ESF; Jim Granskog, U.S. Department of Agriculture Forest Service, Southern Research Station; Calder Hibbard, University of Minnesota; Robert Malmshemer, College of Environmental Science and Forestry, SUNY ESF; Samuel Osinde, Department of Natural Resources, State of Wisconsin

Criterion Lead: Michael Kilgore, College of Natural Resources, University of Minnesota

Facilitator: Theresa Heyer, U.S. Department of Agriculture Forest Service

Breakout Group 7B: Criterion 7 - Indicators 60 - 67

Participants: Connie Carpenter, U.S. Department of Agriculture Forest Service, Northeastern Area; Jeff Horan, Forest Resource Planning and Analysis, Department of Natural Resources, Forest Service, State of Maryland; Susan Morre, Department of Forest Resources, Oregon State University; Eric Norland, Forest Biology, Cooperative State Research, Education and Extension Service, U.S. Department of Agriculture; Dave Radloff, U.S. Department of Agriculture, Forest Service; David Zumeta, Minnesota Forest Resources Council

Criterion Lead:

Facilitator: Timothy Swedberg, U.S. Department of Agriculture Forest Service

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<p>Criterion 7 Rationale</p>	<p>All countries possess a legal framework, <u>which</u> includes the body of laws and customary rules that direct the actions of their citizens. In some countries there are <u>also</u> sub-national <u>levels of</u> government that contribute to this legal framework. The conservation and sustainable management of forests can be greatly assisted if the <u>national, or appropriate sub-national,</u> legal framework includes elements relating to forests and their use. This criterion <u>lists</u> five <u>areas where indicators,</u> relevant to the legal system, can be established to demonstrate their contribution to sustainable forest management.</p>	<p>Countries possess a legal framework <u>and institutions that direct their citizens' actions and support an economic system.</u> This criterion <u>includes five indicators which are relevant to the legal system, institutions, and the economic system.</u></p> <p><u>The legal framework</u> includes the body of laws and customary rules that direct the actions of their citizens. In some countries, there are sub-national governments that contribute to this legal framework. The conservation and sustainable management of forests can be greatly assisted if the legal framework includes elements relating to forests and their use. <u>Within the legal framework, countries possess a diversity of national and sub-national institutions that have responsibility for implementing government and private policies and programs that can promote sustainable forest management. These institutions can integrate public needs and aspirations into the policy-making process and should be encouraged. The legal and institutional frameworks also support the economic systems that enable forests to provide goods and services. Government polices influence the economic behavior of producers and consumers of forest goods and services, and should encourage forest sustainability, rather than degradation or depletion.</u></p>	

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Indicators 48, 52, and 57 (7.1.a, 7.1.e, and 7.2.e) Title	<p>Indicator 48: Clarifies property rights, provides for appropriate land tenure arrangements, recognizes customary and traditional rights of indigenous people, and provides means of resolving property disputes by due process</p> <p>Indicator 52: Provides for the management of forests to conserve special environmental, cultural, social and/or scientific values</p> <p>Indicator 57: Enforce laws, regulations and guidelines</p>	<p>The extent to which the legal framework (laws, regulations, and guidelines) <u>and institutions (governmental and non-governmental) support the conservation and sustainable management of forests by defining, adjudicating, and enforcing legal rights and responsibilities and recognizing</u> land tenure arrangements, customary and traditional rights of indigenous people, and environmental, cultural, social and scientific values.</p>	
Indicators 48, 52, and 57 (7.1.a, 7.1.e, and 7.2.e) Rationale	<p>Indicator 48: This indicator measures the extent to which the legal system addresses the issues relating to property rights and land tenure to forested land, including those of indigenous people. Stable property rights, security and certainty of ownership, and the assurance that these rights can be protected or disputed through due process are important for sustainable forest management. People or communities with secure land tenure or property rights are likelier to promote long-term sustainable forest management. In addition, people or communities who are dependent on or have a long association with particular forest areas often assume a higher level of stewardship for forests.</p> <p>Indicator 52: In order to help conserve unique or otherwise special social, cultural,</p>	<p>This indicator measures the extent to which legal system <u>and institutions define, allocate, and enforce rights and responsibilities and recognize</u> property rights, indigenous peoples' <u>rights, and a range of values.</u> Stable rights <u>and responsibilities,</u> security and certainty of ownership, and the assurance that rights can be protected or disputed <u>regardless of peoples' race, ethnicity, income, or education level,</u> through due process are important for sustainable forest management. People or communities with secure land tenure or property rights are <u>more likely</u> to promote long-term sustainable forest management. <u>Legal and institutional mechanisms need to conserve social, cultural, ecological, scientific, and environmental values to support their management and long-term</u></p>	

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	<p>ecological, scientific and environmental values, formal legal mechanisms may be needed. Legal mechanisms appropriate for the conservation of special values are diverse. The absence, however, of any legal framework supporting the management of special forest values and their long term sustainability may result in their loss.</p> <p>Indicator 57: The effectiveness of laws and regulations that are intended to promote forest conservation and sustainable management will be increased with adequate oversight and enforcement.</p>	<p><u>sustainability.</u></p>	
<p>Indicators 48, 52, and 57 (7.1.a, 7.1.e, and 7.2.e) Approaches to Measurement</p>	<p>Indicator 48: Useful data for measuring this indicator might be based on the following:</p> <ul style="list-style-type: none"> • Compilation of laws and customs that address property rights, land tenure and indigenous people's rights; • Compilation of laws and legal instruments that provide clear due process for resolving property disputes; <u>and/or</u> • Outcomes of surveys of property owners and rights holders, including indigenous people, regarding the adequacy of existing systems of property rights and tenure. <p>Indicator 52: <u>Useful data for measuring this indicator might be based on:</u></p> <ul style="list-style-type: none"> • A description of procedures for identifying such values and their location; 	<p>Useful data for measuring this indicator might be based on the following:</p> <ul style="list-style-type: none"> • Compilation of laws and customs that address property rights, land tenure and indigenous people's rights; • Compilation of laws and legal instruments that provide clear due process for resolving property disputes; • Outcomes of surveys of property owners and rights holders, including indigenous people, regarding the adequacy of existing systems of property rights and tenure; • A description of procedures for identifying such <u>social, cultural, ecological, scientific, and environmental</u> values and their location; • A compilation of the laws and legal 	

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	<ul style="list-style-type: none"> • A compilation of the laws and legal instruments that define and enable the creation and effective management of the above values. These might include laws for the establishment of protected areas (e.g. parks, historic sites, natural/wilderness areas, conservation easements), complementary management outside protected areas through conservation arrangements, purchase of development rights, private-public partnerships, the establishment and maintenance of research sites and scenic reserves; • Assessment of capacity for managing forests with special values (e.g. level of funding, number of management personnel); and/or • Number, diversity, and extent of forests conserved for special values. <p>Indicator 57: <u>Useful data for measuring this indicator might be based on the following:</u></p> <ul style="list-style-type: none"> • Number of personnel per hectare of forest responsible for enforcing laws, regulations and guidelines; • Training level of enforcement personnel relative to the general population; • Outcomes of surveys of stakeholders/interest groups to assess adequacy of enforcement efforts; • Rate of fines/penalties for infractions/duration of jail sentences; 	<p>instruments that define and enable the creation and effective management of <u>social, cultural, ecological, scientific, and environmental</u> values. These might include laws for the establishment of protected areas (e.g. parks, historic sites, natural/wilderness areas, conservation easements), complementary management outside protected areas through conservation arrangements, purchase of development rights, private-public partnerships, the establishment and maintenance of research sites and scenic reserves;</p> <ul style="list-style-type: none"> • Assessment of capacity for managing forests with <u>social, cultural, ecological, scientific, and environmental</u> values (e.g. level of funding, number of management personnel); • Number, diversity, and extent of forests conserved for <u>social, cultural, ecological, scientific, and environmental</u> values; • Number of personnel per hectare of forest responsible for enforcing laws, regulations and guidelines; • Training level of enforcement personnel relative to the general population; • Outcomes of surveys of stakeholders/interest groups to assess adequacy of enforcement efforts; 	

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	<ul style="list-style-type: none"> • The number of forest management related breaches and prosecutions; • Statistics on the rate of compliance with the forest regulatory framework; • Statistics on the effectiveness of self-regulation and enforcement strategies in forest sector industries (e.g., wood and non-wood forest products, recreation, tourism); and/or • A narrative report on the effectiveness of monitoring, compliance and enforcement activities 	<ul style="list-style-type: none"> • Rate of fines/penalties for infractions/duration of jail sentences; • The number of forest management related breaches and prosecutions; • Statistics on the rate of compliance with the forest regulatory framework; • Statistics on the effectiveness of self-regulation and enforcement strategies in forest sector industries (e.g., wood and non-wood forest products, recreation, tourism); and • A narrative report <u>describing</u> the effectiveness of monitoring, compliance and enforcement activities. 	
Indicators 49, 50, and 54 (7.1.b, 7.1.c, and 7.2.b) Title	<p>Indicator 49: Provides for periodic forest-related planning, assessment, and policy review that recognizes the range of forest values, <u>including co-ordination with relevant sectors</u></p> <p>Indicator 50: Provides <u>opportunities</u> for public participation <u>in public policy and decision making related to forests and public access to information</u></p> <p>Indicator 54: <u>Undertake and implement periodic forest related planning, assessment, and policy review including cross sectoral planning and co-ordination</u></p>	<p><u>The extent to which the legal framework (laws, regulations, and guidelines) and institutions (governmental and non-governmental) support the conservation and sustainable management of forests by providing for periodic forest-related planning, assessment, and policy review that recognizes the range of forest values and provides for public participation.</u></p>	
Indicators 49, 50, and 54 (7.1.b, 7.1.c, and 7.2.b) Rationale	<p>Indicator 49: This indicator addresses whether there is a legal framework that provides for forest related planning, assessment and policy review. <u>Forests are</u></p>	<p>This indicator addresses <u>the</u> legal framework and the capacity of institutions to undertake planning and reviews and to coordinate these with other relevant</p>	

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	<p>affected by a wide variety of influences, including many beyond the forest sector such as agriculture, transportation, energy, pollution, trade, and fiscal policies. Sustainable forest management is dependent on societies having the means to:</p> <ul style="list-style-type: none"> • Recognize environmental, social, and economic conditions; • Identify trends within and outside the forest sector that affect forests; • Plan for the effective management of the full range of forest values; and • Respond to needed change. <p>Indicator 50: Forests may be managed more sustainably if citizens and communities have the responsibility and opportunity to actively influence and contribute to policies and programs for sound forest management. Public participation can in turn foster practical and political support for sustainable management. Timely public access to accurate information will enhance this participatory process.</p> <p>Indicator 54: This indicator measures the capacity of institutions to undertake planning and reviews and to co-ordinate these with other relevant sectoral activities. Effective sustainable forest management requires both the existence and application of formal procedures for planning forest activities, assessing the effectiveness of forest management activities, reviewing</p>	<p>sectors. Effective sustainable forest management requires both the existence and application of formal procedures <u>and a legal framework for planning and assessing the effectiveness of</u> forest management activities, reviewing forest policies, ensuring that forest policies and plans are coordinated with other sectors, <u>and recognizing</u> environmental, social, and economic conditions. <u>Citizens and communities should have the opportunity to actively influence and contribute, regardless of race, ethnicity, income, or education, to sound forest management policies and programs. Public participation can in turn foster practical and political support for sustainable management. Timely public access to accurate information will enhance this participatory process.</u></p>	

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	forest policies ensuring that forest policies and plans are co-ordinated with other sectors, and the implementation of needed changes.		
Indicator 51 (7.1.d) Title	Encourages best practice codes for forest management	Provides <u>best practice standards that recognize the full range of forest resource values and outputs</u>	
Indicator 51 (7.1.d) Rationale	Best management codes of practice set standards and stipulations governing forest planning, management and operational activities on the ground. The presence of, and adherence to, such codes is integral to achieving forest sustainability.	Best practice <u>standards stipulate planning, management and operations. Their implementation is integral to achieving forest sustainability.</u>	
Indicators 53 and 55 (7.2.a and 7.2.c) Title	Indicator 53: Provide for public involvement activities and public education, awareness and extension programs, and make available forest related information Indicator 55: Develop and maintain human resource skills across relevant disciplines	<u>The extent to which public, professional and technical education, awareness and extension programs support sustainable forest management.</u>	
Indicators 53 and 55 (7.2.a and 7.2.c) Rationale	Indicator 53: A well informed and knowledgeable public promotes civic participation in forest activities, contributes valuable ideas and information, and is a foundation of support for sustainable forest management. Indicator 55: This indicator measures the extent to which institutions demonstrate the capacity and commitment to develop and maintain the essential skills of their staff. A broad range of disciplines and skills is necessary to achieve the goals of sustainable forest management, including research, management, protection, education,	<u>This indicator addresses educational needs—one for the public, the other for the development and maintenance of adequate numbers of forest scientists, managers, and workers. These needs are addressed through formal and informal education programs that are delivered through a variety of mechanisms.</u>	The public participation in decisionmaking component has been moved to the new indicator combining Indicators 49, 50, and 54.

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	<p>recreation and tourism, as well as in the wood and non-wood forest products industries. Skills are developed through formal experience as well as through professional certification and licensing requirements, professional societies, continuing education programs, extension landowner outreach programs, and technical and trade training and assistance programs. The indicator recognises that to maintain institutional capacity in the evolving approaches to sustainable forest management, staff needs access to ongoing developments for the maintenance of their special skills.</p>		
<p>Indicators 53 and 55 (7.2.a and 7.2.c) Approaches to Measurement</p>	<p>Indicator 53: Useful data for measuring this indicator might be based on the following:</p> <ul style="list-style-type: none"> • Percent of schools and other institutions with active forest related education and extension programs; • Some measure of the number of popular publications, broadcasting or extension material available to the public on the subject of forests and their management; • Compilation of programs for public involvement, education, awareness and extension programs; • Expenditure on public involvement activities and education, awareness and extension programs; or • Outcomes of surveys of stakeholders regarding the adequacy of such activities and programs. 	<p>Useful data for measuring this indicator might be based on the following:</p> <ul style="list-style-type: none"> • <u>The number of individuals completing certification programs e.g. certified logger, master forest owner, certified forester, etc.</u> • <u>Enrollment and completion in educational institutions that provide programs related to sustainable forest management.</u> • Level of agency recruitment of forest-related professionals <u>and technicians</u> by discipline and by sector (e.g., forestry, biology, governmental agency, private sector etc.) 	

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	<p>Indicator 55: Useful data for measuring this indicator might be based on the following:</p> <ul style="list-style-type: none"> • Level of agency recruitment of forest-related professionals by discipline and by sector (e.g., forestry, biology, governmental agency, private sector etc.); • Number of trained or graduate professionals per year; • The number of government and private institutions that have formal programs to increase and maintain the essential skill base of their employees, and the number of staff that completed such programs in the year; and • Compilation of programs for the accreditation of technical and professional skills. 		
<p>Indicator 56 (7.2.d)</p>	<p>Develop and maintain efficient physical infrastructure to facilitate the supply of forest products and services and support forest management</p>	<p>Moved to Criterion 6</p>	<p>Indicator 56 fits better under Criterion 6 under the “Investment in the Forest Sector” section because it relates to forest investment and maintenance.</p>

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<p>Indicators 58 and 59 (7.3.a and 7.3.b) Title</p>	<p>Indicator 58: Investment and taxation policies and a <u>regulatory environment</u> which recognise the long-term nature of investments and permit the flow of capital in and out of the forest sector in response to market signals, non-market economic valuations, and public policy decisions in order to meet long-term demands for forest products and services</p> <p>Indicator 59: Non-discriminatory trade policies for forest products</p>	<p><u>Extent to which</u> investment, taxation, <u>regulatory</u>, and <u>trade</u> policies recognize the long-term nature of <u>private and public</u> investments and permit the <u>free</u> flow of capital to meet <u>society's</u> long-term demands for <u>market and nonmarket</u> forest products and services</p>	<p>Indicators 58 and 59 and part of 56 were combined because trade policies are embedded the tax codes affecting investment and the flow of goods and services from the forest sector.</p>
<p>Indicators 58 and 59 (7.3.a and 7.3.b) Rationale</p>	<p>Indicator 58: There are many ways in which investment and taxation policies may cause the stock of forest capital to be maintained and/or developed in the long term. Taxation policies, for example, are critical to whether forestland is maintained, degraded or converted to other uses. Different types of taxation could provide different incentives to maintain forests as long-term investments.</p> <p>Taxation policies should recognize forest investment is long-term, and often characterized by irregular income, and should avoid penalizing forest owners for these conditions.</p> <p><u>Full and fair accounting for the economic and environmental services from forests for example water quality, carbon stores, recreation, wildlife and biodiversity, is important for the sustainable management of forests.</u></p>	<p><u>Incentive, tax, and trade</u> policies affect <u>long-term investment in forest resources.</u> <u>Tax and incentive</u> policies should recognize forest investment is long-term, <u>provides for a variety of market and nonmarket benefits,</u> is often characterized by irregular income, and should avoid penalizing forest owners for these conditions. Trade policies that distort market signals affect sustainable forest management. Discriminatory trade policies may include tariff and non-tariff barriers, such as quotas, export subsidies, subsidies on inputs (such as power or processing), and domestic price support. <u>Public investments in infrastructure facilitate access for sustainable forest management.</u></p>	

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	<p>Indicator 59: Discriminatory trade policies that distort market signals can affect sustainable forest management. On the other hand, trade liberalisation can have both positive and negative impacts on sustainable forest management depending on environmental, economic, and social policies that accompany it. Policies should not provide market signals that inadvertently work against sustainable forest management.</p> <p>Discriminatory trade policies may include <u>quotas</u>, tariff and non-tariff barriers, export subsidies, subsidies on inputs (such as power, transportation, or processing), and domestic price support. Obvious distorting measures are quantitative restrictions such as import and export quotas that block market signals. Another example is "escalating tariffs" where countries impose relatively low import duties on less processed forest products such as logs, but progressively higher duties on more processed products.</p>		
<p>Indicators 58 and 59 (7.3.a and 7.3.b) Interpretation</p>	<p>Indicator 58: From the compiled information, it will be possible to evaluate whether or not investment and taxation policies support sustainable forest management and services.</p>	<p>From the compiled information, it will be possible to evaluate whether or not investment, taxation, and <u>trade</u> policies support sustainable forest management and services.</p>	

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Indicators 60 and 61 (7.4.a and 7.4.b) Title	<p>Indicator 60: Availability and extent of up-to-date data, statistics and other information important to measuring and describing indicators associated with Criteria 1–7</p> <p>Indicator 61: Scope, frequency and statistical reliability of forest inventories, assessments, monitoring and other relevant information</p>	Availability, extent, statistically <u>reliability</u> and <u>currency</u> of data and information important to measuring and describing <u>all</u> indicators associated with Criteria 1–7	Indicators 60 and 61 are combined for the purpose of monitoring the data collected for all indicators for clarity, simplification, and to reduce duplication. The intent is to make this combined indicator more comprehensive.
Indicators 60 and 61 (7.4.a and 7.4.b) Rationale	<p>Indicator 60: Widespread, accessible, and up-to-date information covering Criteria 1–7 is important for timely and effective decision making.</p> <p>Indicator 61: Public information and decisions should be based on comprehensive, current, and sound data.</p>	<p>Widespread, accessible, and up-to-date information covering Criteria 1–7 is important for timely and effective decision making.</p> <p>Public information and decisions should be based on comprehensive, current, and sound data.</p>	
Indicators 60 and 61 (7.4.a and 7.4.b) Approaches to Measurement	<p>Indicator 60:</p> <ul style="list-style-type: none"> • A table showing the availability, coverage and currency of data for each indicator. <p>Indicator 61:</p> <ul style="list-style-type: none"> • Frequency, coverage and currency of inventories and assessments • The percentage of Montréal Process indicators covered by inventories • Frequency and type of data collection pertinent to Montréal Process C&I, by private forest managers and other stakeholders • Statistical confidence of inventory statistics 	<ul style="list-style-type: none"> • A table showing the availability, frequency, coverage and currency of data, inventories and assessments for each indicator. • The percentage of Montréal Process indicators covered by inventories • Frequency and type of data collection pertinent to Montréal Process C&I, by private forest managers and other stakeholders • Statistical confidence of inventory statistics 	

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Indicator 62 (7.4.c) Title	Compatibility with other countries in measuring, monitoring and reporting on indicators	Compatibility with other countries in measuring, monitoring and reporting on indicators	No modifications suggested

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<p>Indicator 62 (7.4.c) Rationale</p>	<p>Compatible protocols for measuring and reporting can provide for enhanced co-operation and collaboration, thus increasing the efficiency of data gathering. Compatibility also enhances the accuracy and usefulness of global assessments and improves global dialogue. Further, similar data sets <u>allow</u> for adjacent countries to assess their shared ecosystems.</p>	<p>Compatible protocols for measuring and reporting can provide for enhanced co-operation and collaboration, thus increasing the efficiency of data gathering. Compatibility also enhances the accuracy and usefulness of global assessments and improves global dialogue. Further, similar data sets <u>are essential</u> for countries to assess their shared ecosystems <u>and interdependent social and economic systems</u>.</p>	<p>The change strengthens the rationale by stating that similar data sets “are essential” and including indicators in the social and economic spheres. The participants believe the use of international standards is an important means of moving toward compatibility in assessing global forest sustainability. The use of common protocols enables the aggregation of data and information from participating countries into global assessments of forest sustainability. This is the only indicator that references U.S. participation in the international Montreal Process.</p> <p>The group also discussed clarifying the meaning of “compatibility with other countries” as suggested in summaries of online consultations and previous workshops. They considered substituting “compatibility with other countries” with “use of international standards to report on indicators” but decided to leave the language of the indicator alone and confine our suggested changes to the rationale statement.</p>

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Criterion 62 (7.4.c) Approaches to Measurement	<p>Useful data for measuring this indicator might be based on the following:</p> <ul style="list-style-type: none"> • Report on the extent to which your country provides C&I data to, and engages in C&I-related scientific and technical co-operation with, other countries and international processes or organizations on sustainable forest management. • Description of relevant international standards, protocols, and systems for data collection and reporting to which your country ascribes 	<p>Useful data for measuring this indicator might be based on the following:</p> <ul style="list-style-type: none"> • Report on the extent to which your country provides C&I data to, and engages in C&I-related scientific and technical co-operation with, other countries and international processes or organizations on sustainable forest management. • Description <u>and adoption</u> of relevant international standards, protocols, and systems for data collection and reporting to which your country ascribes 	
Research and Development Subcriterion	<p>Research and Development</p>	<p><u>Capacity to Conduct and Apply</u> Research and Development <u>Aimed at Improving Forest Conservation and Sustainable Management</u></p>	
Research and Development Rationale	<p>Countries rely upon a base of knowledge to support the conservation and sustainable management of forests. New methods, approaches, concepts, and techniques to enhance this knowledge base should be developed and integrated within decision-making frameworks if full benefits from forests are to be realised. <u>Goals of sustainability can be achieved</u> by enhancing the <u>capacity to conduct research and development</u>.</p> <p>Capacity to conduct and apply research and development <u>aimed at improving forest management and delivery of forest goods and services, including:</u></p>	<p>Countries rely upon a base of knowledge to support the conservation and sustainable management of forests. New methods, approaches, concepts, and techniques to enhance this knowledge base should be developed and integrated within decision-making frameworks if full benefits from forests are to be realized. <u>Progress toward sustainability can be made</u> by enhancing the capacity to conduct and apply research and development.</p>	

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Indicator 63 (7.5.a) Title	Development of scientific understanding of forest ecosystem characteristics and functions	<u>Capacity to develop and apply scientific, practitioner, and indigenous knowledge of forest ecosystem characteristics and functions, and social and economic dimensions of forest conservation and sustainable management.</u>	As rewritten, the indicator is inclusive of ecological, social, and economic spheres. It recognizes and includes practitioners and indigenous peoples as sources of knowledge. Finally, it recognizes that the development and application of knowledge are interrelated and important components of forest conservation and sustainable management.
Indicator 63 (7.5.a) Rationale	A good understanding of forest ecosystems is essential to the conservation and <u>sustainable</u> management of these ecosystems.	A <u>thorough</u> understanding of <u>all three dimensions of sustainability</u> is essential to the conservation and management of forest ecosystems. <u>Knowledge emanates from other sources in addition to research activities. New knowledge without appropriate application is of little value.</u>	
Indicator 64 (7.5.b) Title	Development of methodologies to measure and integrate environmental and social costs and benefits into market and public policies, and to reflect forest related resources depletion or replenishment in national accounting systems	<u>Capacity to measure the social and economic values of forest ecosystem services and integrate their benefits and depletion costs into market systems, social systems, and public policy decisions</u>	This change brings clarity and specificity to the indicator based on the subcriterion and indicator rationale. The intent is to better measure the social and economic values of forest ecosystem services and integrate those values into decision making.

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<p>Indicator 64 (7.5.b) Rationale</p>	<p>This indicator describes national emphasis being given to developing methods that integrate forest-related resources and environmental and social values into market and public decision-making. In the past, decision-makers have generally been unable to quantify many important social and environmental values of forests. Therefore, decisions were often based primarily on traditional economic measurements of forest market values. The indicator also shows progress in the development of methods that incorporate forest resource, environmental and social data into national accounting systems.</p>	<p>This indicator describes national emphasis being given to developing methods that integrate forest-related resources and environmental and social values into market and public decision-making. In the past, decision-makers have generally been unable to quantify many important social and environmental values of forests. Therefore, decisions were often based primarily on traditional economic measurements of forest market values. The indicator also shows progress in the development of methods that incorporate forest resource, environmental and social data into national accounting systems.</p>	<p>No modifications were suggested.</p>
<p>Indicators 65 and 66 (7.5.c and 7.5.d) Title</p>	<p>Indicator 65: New technologies and the capacity to assess the socio-economic consequences associated with the introduction of new technologies</p> <p>Indicator 66: Enhancement of ability to predict impacts of human intervention on forests</p>	<p>Capacity to predict and assess impacts of human interventions and new technologies on forest <u>ecosystems, economic systems, and social systems.</u></p>	<p>The rewrite of Indicator 63 recognizes that new technologies are one component of new knowledge. Also, other indicators (e.g., those in subcriterion 6.5) seem to address the impacts of new technology on forest-related communities. The wording of the combined Indicators 65 and 66 adequately addresses the needs of both indicators.</p>

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<p>Indicators 65 and 66 (7.5.c and 7.5.d) Rationale</p>	<p>Indicator 65: The forest sector should be broadly defined to include not only the wood and non-wood forest products industries, but also forest research, management, protection, education, recreation, and tourism. New technologies can have positive or negative effects on the forest sector. It is important to assess these potential effects, in order to <u>determine whether to promote or discourage new technologies.</u></p> <p>Indicator 66: Effective public decision making on sustainable forest management requires the accurate prediction of impacts of forest-based activities. This indicator aims to demonstrate the current capacity of research to predict the <u>impacts</u> of human intervention on forests.</p>	<p>Effective public decision making on sustainable forest management requires the accurate prediction of effects of forest-based activities. This indicator <u>measures</u> the current capacity of research to predict the <u>effects</u> of human intervention <u>including new technologies,</u> on forests. <u>Human interventions and</u> new technologies can have positive or negative effects on <u>forests and society.</u> It is important to assess these potential effects in order to <u>enhance the benefits or mitigate the consequences.</u></p>	

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<p>Indicators 65 and 66 (7.5.c and 7.5.d) Approaches to Measurement</p>	<p>Indicator 65: Useful data for measuring this indicator might be based on the following:</p> <ul style="list-style-type: none"> • Listing new technologies that can have potentially significant impact on forests and the forest sector; • Person-years of research and development devoted to assessment of consequences associated with the introduction of new technologies; • Description of cases where such assessments have been carried out; and • Reports on the monitoring and evaluation of the consequences of new technologies on forest management and delivery of forest goods and services. <p>Indicator 66: <u>Useful data for measuring this indicator might be based on the following:</u></p> <ul style="list-style-type: none"> • Reviews on the capability and currency of techniques available to predict human induced impacts on forests; • List of research and development activities devoted to predicting human induced impacts on forests; and • List of laws requiring environmental impact assessments. 	<p>Text merged in its entirety.</p> <p>Indicators 65 and 66 (7.5.c and 7.5.d) : Useful data for measuring this indicator might be based on the following:</p> <ul style="list-style-type: none"> • Listing new technologies that can have potentially significant impact on forests and the forest sector; • Person-years of research and development devoted to assessment of consequences associated with the introduction of new technologies; • Description of cases where such assessments have been carried out, • Reports on the monitoring and evaluation of the consequences of new technologies on forest management and delivery of forest goods and services. • Reviews on the capability and currency of techniques available to predict human induced impacts on forests; • List of research and development activities devoted to predicting human induced impacts on forests; and • List of laws requiring environmental impact assessments. 	
<p>Indicators 65 and 66 (7.5.c and 7.5.d) Interpretation</p>		<p>Text merged in its entirety.</p>	

Text in the Montreal Process Technical Notes	Original Language with Recommended Deletions Underlined and Struck Out	Refined Language with Recommended Additions Underlined	Comments on Recommended Change
Indicator 67 (7.5.e) Title	Ability to predict <u>impacts</u> on forests of possible climate change	Ability to predict <u>effects</u> on forest <u>ecosystems, economic systems, and social systems</u> from climate change	Note: At the request of the Atlanta criterion 5 workshop we considered their suggestion for a new indicator on carbon sequestration to be included in Criterion 7. After thoughtful discussion, it is our recommendation that it is not needed and should not be included.
Indicator 67 (7.5.e) Rationale	This indicator measures the ability to predict potentially significant impacts on forests from climate change.	This indicator measures the ability to predict potentially significant <u>effects</u> on forest <u>ecosystems, economic systems and social systems</u> from climate change.	