



Forest Management Bureau
Department of Environment and Natural Resources

International Tropical Timber Organization



Philippine Set of Criteria and Indicators for Sustainable Forest Management (SFM)

MANUAL & REPORTING FRAMEWORK

ITTO PROJECT PD 225/03 REV. 1 (F)

**“Adoption and Implementation of Appropriate Criteria and Indicators for
Sustainable Forest Management in the Philippines”**

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INTRODUCTION

Background

The Philippines has embraced the concept of Sustainable Forest Management as the main policy thrust in order to guarantee the long-term stability of its forest resources. The policy to SFM is largely attributable to the implementation of measures embodied in the 1987 Constitution; the Philippine Strategy for Sustainable Development and Philippine Agenda 21; the Master Plan for Forestry Development; and the adoption of the community-based forest management and watershed/ecosystem approaches as the main strategies for SFM. These key measures were supported by various policy and institutional reforms embodied in the major forestry programs and project supported by multi-lateral and bilateral funding institutions.

To measure the progress towards SFM, the DENR formulated a proposed criteria and indicators for SFM. Initially, the Environmental Performance Monitoring (EPM) System was developed under Natural Resources Management Program (NRMP). Apart from the EPM, the Model Forest Project assisted by FAO and Japan has also designed a model forest level measurement of indicators. However, similar to EPM, the tool is specifically designed for a particular forest management unit managed by organized forest-dependent communities.

To assess the current state of SFM in the Philippines, it is necessary to have a full understanding of the various components of SFM and their impacts on forest resources and ecosystems. These require a system of criteria and measurable indicators to evaluate the changes and conditions and management systems at national and forest management unit levels like timber concessions, industrial forest management areas, and community based forest management areas. In this context, the DENR through the FMB implemented the Project "PD 225/03 Rev. 1 (F)".

This project is intended to address the need for a system for tracking the progress towards the achievement of SFM in the Philippines. It also seeks to harmonize and/or consolidate previous and ongoing efforts within the DENR, which oftentimes are too focused or configured mainly for a particular forest management unit. Efforts under the project will also lead to the determination of the level or degree upon which various stakeholders have gone in the development of their areas. It would also lead into the assessment of the state-of-knowledge vis-à-vis SFM requirements and the present capabilities of the Philippine forest managers.

The C and I for SFM will provide a common yardstick by which the various stakeholders can determine the state of the country's forest resources at any given time at any particular location. With the adoption of mutually agreed upon yardstick, the contentious debates that characterized discussions on Philippine forestry will be minimized.

It will also lead to a common understanding of how to achieve SFM in the country by highlighting activities or gaps that constrain or veer away from SFM. Remedial measures by means of key management interventions can be applied to put back on track the country's efforts towards SFM.

The project was implemented with the basic philosophy of applying C and I as management tools for reporting progress towards SFM and enhancing capability of FMU's in managing their forest resources on a sustainable basis.

The Philippine C and I was pre-tested in selected FMUs in the country and were presented in a series of consultations and discussions with forest managers, non-governmental organizations, academic institutions, peoples' organizations, other government agencies, and other civic society groups.

Presently, the DENR is developing an appropriate audit system for the Philippine C and I. Similar to the C and I framework, the audit systems will be pilot-tested in selected FMUs and will be presented to

concerned stakeholders. Alongside the development of Philippine C and I and the appropriate auditing system is a comprehensive analysis of the existing regulations governing the implementation of various modalities of forest land and/or resource access and other forest management schemes. The analysis is aimed at determining the gaps vis-à-vis SFM requirements and existing forest management strategies.

The development of a user-friendly database and management information system for the Philippine C and I is also being developed to facilitate information management, analysis, and retrieval.

Purpose of Criteria and Indicators

The Purpose of the Philippine Set of Criteria and Indicators is to provide Forest Managers within the country an improved tool for assessing changes and trends in forest conditions and forest management systems. The criteria and indicators will also provide means of assessing progress towards the attainment of the objective set under Executive Order 318 otherwise known as “Promoting Sustainable Forest Management in the Philippines” and towards to the commitment to ITTO Year 2000 Objective.

Using the criteria and indicators as management tools will provide the forest managers a framework for understanding, planning and implementing improved forest management technique. They will have or enhanced capacity to comprehensively assess the situations of their forest management units whether they are moving towards or away sustainable forest management. This will also help policy and decision makers in developing policies and necessary actions to further strengthen SFM, focusing on aspects where knowledge is still deficient, and in identifying those areas which are in need of assistance.

By the time that the indicators are made operational and appropriate prescriptions and standards are set, a sound basis would be created for measuring sustainable forest management. The indicators identified in this publication were thoroughly assessed through a series of consultations with different stakeholders and forest managers to see to it that the identified indicators fit the forestry situation in the Philippines.

The Criteria and Indicators identified in this document will be reviewed and refined repeatedly to benefit from experiences of different stakeholders and to reflect new concepts of sustainable forest management. The revision should take into account evolving knowledge about the performance of forest ecosystems, human impacts on the forests whether planned or unplanned and the changing needs of society for forest goods and services. Moreover, the capability to measure indicators will increase and knowledge will improve about the nature of “best” indicators to assess forest management in the Philippines.

The Criteria

The criteria identified by ITTO were adopted as elements of sustainable forest management in the Philippines. Every criterion was accompanied with a full meaning and description as to what this particular criterion pertains.

Criterion 1, ***Enabling Conditions for Sustainable Forest Management***, covers the general institutional requirements for sustainable forest management to succeed. Criterion 2, ***Extent and Condition of Forests***, deals with Forest Resource Security relates to the extent to which the Philippines has a secure and stable forest state to meet the production, protection, and other social, cultural, economic and environmental needs of the present and future generations. Criterion 3, ***Forest Ecosystem Health***, relates to the condition of the country’s forests and the healthy biological functioning of its forest ecosystem and it deals with the forest conditions and health as affected by a variety of human actions and natural causes. Criterion 4, ***Forest Production***, deals with the production of wood and non-wood forest products with perceptions that production can only be sustained in the long-term if it is economically and financially viable, environmentally sound and socially acceptable. Criterion 5, ***Biological Diversity***, relates to the conservation and maintenance of biological functioning of the forests. Criterion 6, ***Soil and Water Protection***, this criterion deals with the protection of soil and water in the

forest and Criterion 7, ***Economic, Social, and Cultural Aspects***, relates to the economic, social, and cultural function of the forest.

The Indicators

The indicators presented here have been carefully and comprehensively assessed and identified through a series of consultations with the different stakeholders to fit in the situation of the Philippine forestry setting.

Criterion 1 has a total of eleven (11) indicators and mainly descriptive in nature. Criterion 2 is composed of Six (6) indicators. In Criterion 3, there are two (2) indicators identified. Criterion 4 has a total of twelve (12) indicators that were designed relate to the flow of forest produce. There are a total of seven (7) indicators that were identified in Criterion 5. Criterion 6 is composed of five (5) indicators and a total of fourteen (14) indicators identified for Criterion 7. A total of 56 indicators compose the Philippine C and I.

DEFINITION OF TERMS

The following are definitions of important terms as they are used in this manual.

Biological Diversity

The variability among living organisms from all sources including, i.e., terrestrial, marine and aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Criterion

An aspect that is considered important by which sustainable forest management may be assessed. A criterion is accompanied by a set of related indicators. (ITTO 1992)

Economic Instruments

These are interventions designed to influence the behavior of those who highly regard the natural environment, utilize it or cause adverse impacts as a side effect of their activities e.g. user's fee, forest charges, performance bonds, user's right etc. (ENRA)

Encroachment

The act or action of using forest land contrary to the provisions provided for in forestry laws and regulations with regard to forest land uses.

Endangered species

Species or subspecies that is not critically endangered but whose survival in the wild is unlikely if the causal factors continue.

Forest Management Unit

A clearly defined forest area, managed under a set of objectives and according to a long-term management plan.

Forest Type

A community of generally similar tree species composition, structure and function.

Forest workers

A person engaged or employed to do forest work and includes a person engaged under a contract who supplies equipment or employs others to do forest work. (<http://www.bcli.org>)

Indicator

A quantitative, qualitative or descriptive attribute that, when periodically measured or monitored, indicates the direction of change.

Natural Forest

Forests composed of indigenous trees, not planted by man.

Non-wood forest products

These are classified and referred to as minor forest products or all other forest products except timber, pulpwood and chipwood. These includes firewood, charcoal, rattan, bamboo, daluru, bark resin, gum, wood oil, beeswax, nipa, buri, fibre, dyewood, vine, flowering plants, ferns, orchids and other forest growth. (<http://www.fao.org>)

Permanent Forest Estate

Land, whether public or private, secured by law and kept under permanent forest cover. This includes land for the production of timber and other forest products, for the protection of soil and water, and for the conservation of biological diversity, as well as land intended to fulfill a combination of these functions.

Plantation Forest

Forest stands established by planting or/and seeding in the process of afforestation or reforestation.

Protection Forest

An area wholly or partly covered with woody vegetations, managed primarily for its beneficial effects on water, climate, soil, aesthetic value and preservation of genetic diversity.

Rare species

Species with small populations which could be threatened if the environment worsens.

Sustainable Forest Management

Sustainable forest management is the process of managing forest to achieve one or more clearly specified objectives of management with regard to production of a continuous flow of desired forest products and services without undue reduction of its inherent values and future productivity and without undue undesirable effects on the physical and social environment.

Threatened species

General term to denote species or subspecies considered as critically endangered, vulnerable or other accepted categories of wildlife whose population is at risk of extinction.

**REPORTING QUESTIONNAIRE FOR INDICATORS
AT THE FOREST MANAGEMENT UNIT (FMU) LEVEL**

Country: _____

Name of the Forest Management Unit: _____

Geographical Coordinates: _____
(Attach maps of (a) the country showing the position of the FMU; and (b) the area of the FMU itself (ha))

Date of the Report: _____

Is this the first report you have submitted according to this format? _____

Institutions/agency responsible for completing the report

Name and address of contact person:

Tel: _____ Fax: _____

E-mail: _____

Date report submitted: _____

Short Description of the Forest Management Unit

A large, empty rectangular box with a thin black border, intended for a short description of the Forest Management Unit. The box is currently blank.

CRITERIA AND INDICATORS – REPORTING FRAMEWORK

Criterion 1: Enabling Conditions for Sustainable Forest Management

This criterion addresses the general institutional requirements that are necessary to make sustainable forest management possible. Most of related indicators cover the legal, policy and institutional frameworks and are mainly descriptive in nature. Taken together, the information gathered indicates the extent of a country's political commitment to sustainable forest management.

Policy, legal and governance framework

To ensure sustainable forest management, it is important that the forest resources, especially the permanent forest estate, are secured and protected and that they are managed in accordance with best management practices involving all stakeholders, in particular local communities who are dependent on the forest.

Indicator 1.1

Existence and implementation of policies, laws and regulations to govern forest management.

- (a) national objectives for forest including production, conservation, protection and investment
- (b) the establishment and security of the permanent forest estate
- (c) forest tenure and property rights in relation to forests
- (d) the participation of local communities and other stakeholders in forest management
- (e) the control of illegal activities in forest areas
- (f) the control of forest management
- (g) the health and safety of forest workers

Table 1.1 Presence (+) or absence (-) of laws, policies and regulations

	Laws	Policies	Regulations
national objectives for forest including production, conservation, protection and investment			
the establishment and security of the permanent forest estate			
forest tenure and property rights in relation to forests			
the participation of local communities and other stakeholders in forest management			

the control of illegal activities in forest area			
the control of forest management			
the health and safety of forest workers			

NOTE:

- List all relevant laws, policies and regulations.
- For each of the laws, policies and regulations, give a brief description of any sections that are significant in relation to the categories (a) to (g).
- List any significant gaps in the coverage of laws, policies and regulations and indicate how it is proposed that these gaps will be filled.
- List any significant changes that have been made to the laws, policies and regulations listed in your first or most recent report and give the date of each change

Indicator 1.2

Forest tenure and ownership

Table 1.2 Extent of forest tenure and ownership of forests

Type of Forest Tenure	Class	Area (ha)

NOTE:

- Specify tenure and ownership situation according to the country's laws.

Economic framework

One of the most important requirements for sustainable forest management to succeed is the availability of financial resources, as well as the provision of incentives and appropriate economic instruments that promote and support sustainable forest management.

Indicator 1.3

Amount of funding in forest management, administration, research, and human resource development

Table 1.3 Amount of funding for the latest available year

Source	Year	Funding (US Dollar)	Comments
Government sources - national government - sub- national government			
International development partners - grant - loan			
Private sources - domestic - foreign			

NOTE:

- Provide exchange rate if reported in national currency.
- Indicate if funding is annual or multi-year budget.

Indicator 1.4

Existence and implementation of economic instruments and other incentives to encourage sustainable forest management

NOTE:

- Are economic instruments and other incentives being implemented to encourage sustainable forest management?
- If yes, give name of each economic instrument/incentive, a short description and explanation of how it is used and the main institution(s) responsible for its implementation.

Institutional framework

Besides the availability of financial resources, there must be adequate institutions and personnel to undertake sustainable forest management. These include effective implementing agencies, research institutions and appropriately trained personnel to ensure that management is in accordance with scientific and technical knowledge.

Indicator 1.5

The structure and staffing of institutions responsible for sustainable forest management

Table 1.5 Institutions responsible for SFM

Name	Nature of Responsibilities	Staff (Number)	Contact (Website)
Primary ministry in charge - - -			
Other institutions - - -			

Indicator 1.6

Number of professional and technical personnel at all levels to perform and support forest management

Table 1.6 Personnel implementing and supporting forest management

Category of personnel	Number
<i>Governmental</i>	
Professionals (university or technical qualification)	
Trained forest workers, full and part time	
Others	
<i>SUB-TOTAL</i>	
<i>Non-Governmental</i>	
Professionals (university or technical qualification)	
Trained forest workers, full and part time	
Others	
<i>SUB-TOTAL</i>	
<i>TOTAL</i>	

Indicator 1.7

Existence of communication strategies and feedback mechanism to increase awareness about SFM

Indicator 1.8

Existence of, and ability to apply, appropriate technology to practise sustainable forest management and the efficient utilisation and marketing of forest products

NOTE:

- Describe any technology (especially forest engineering and harvesting technology) used to enhance SFM and the effects of using such technology.
- Describe any recent changes in the technology used.
- Are any improvements proposed?
- Are there any constraints to introducing improvement?

Planning framework

Adequate planning, the use of proper technologies and effective monitoring and control are essential to achieve sustainable forest management.

Indicator 1.9

Capacity and mechanisms for planning sustainable forest management and for periodic monitoring, evaluation and feed-back on progress

NOTE:

- Describe the mechanisms used for planning SFM (including periodic monitoring, evaluation and feed-back on progress).
- Describe the capacity available and institutions responsible for these purposes.
- List the major constraints encountered in planning

Indicator 1.10

Public participation in forest management planning, decision making, data collection, monitoring and assessment

NOTE:

- List the institutions responsible for these processes.
- Describe the processes of public participation, indicating the parties involved and their level of involvement.
- Are any improvements proposed, and are there constraints for their introduction?

Indicator 1.11

Existence of forest management plans.

Table 1.11 Existence of forest management plans.

	Number of management plans	Area (ha)
<u>PFE</u>		
Production forests		
Protected forests		
<u>Non-FPE</u>		
Production forests		
Protected forests		

NOTE:

- Describe the effectiveness of implementation of forest management plans.
- Are any improvements proposed, and are there constraints for their introduction?

Criterion 2: Extent and Condition of Forests

Sustainable forest management is a long-term enterprise and depends critically upon the stability and security of a nation's forest estate. Hence, this criterion lays the basic foundation for sustainable forest management within production and protection forests. It considers the extent and percentage of land under natural and planted forests, the needs for the conservation of biological diversity through the maintenance of a range of forest types and the integrity and condition of forest resources.

Description of resource base

An overall land-use plan is important to ensure sustainable forest management, especially of the permanent forest estate, in relation to other sectors of the economy. In this context, the external boundaries of the permanent forest estate should be clearly demarcated and changes in their extent should be regularly monitored.

Indicator 2.1***Extent (area) and percentage of total land area under comprehensive land-use plans.***

NOTE:

- Provide the area (1000 ha) and percentage of total land area under comprehensive land-use plans.

Indicator 2.2***Extent of forests committed to production and protection:*****Table 2.2 Extent of Forest Cover**

Land Cover/Land-use	Natural		Plantation		Total Area	Percentage of Total Land Area ⁺
	Ha	%	ha	%	ha	%
PUBLIC FOREST LAND						
PRODUCTION FOREST						
PROTECTION FOREST						
Sub-Total						
A & D LANDS						
PRODUCTION						
PROTECTION						
Sub-Total						
TOTAL						

+ Refers to total land area of the Forest Management Unit, excluding inland water bodies and A&D.

Indicator 2.3

Extent (area) and percentage of total land area under each forest type.

Table 8: Area and percentage of total land area under each forest type

Forest Type	PFE (ha)	Non-PFE (ha)	Total (ha)

NOTE:

- Describe the forest type classification used.
- Classifications of forest types based on species composition, if available, are more useful than those based on forest structure.

Indicator 2.4

Percentage of PFE with boundaries physically demarcated.

Table 2.4 External limits of the permanent forest estate

PFE Class	Area (Ha)	Percentage Demarcated (%)	Comments on effectiveness of demarcation
Production			
Protection			

Indicator 2.5

Changes in forested area

Table 2.5 Changes in Forested Area

Area	Description	Permanent Forest Estate (ha)	Non-PFE (ha)
Area at last reporting (give date)			
Area formally converted to agriculture			
Area formally converted for settlements and infrastructure development			
Area formally converted for other purposes (please specify)			
Area formally added			
Area converted illegally (estimate)			

NOTE:

- Periods for which changes are reported should correspond to reporting intervals. For the first report provide details of periods corresponding for all data.

Indicator 2.6

Forest Condition

Table 2.6 Forest Condition

Area	PFE (ha)	Non-PFE (ha)
Area of primary forest		
Managed primary forest		
Area of degraded primary forest		
Area of secondary forest		
Area of degraded forest lands		

Criterion 3: Forest Ecosystem Health

This criterion relates to healthy biological functioning of forest ecosystems. This can be affected by a variety of human actions such as encroachment, illegal harvesting, human induced fire and pollution, grazing, mining, poaching, etc. and natural phenomena such as fire, insect attacks, diseases and climate change related events such as severe wind and rainfalls, flooding, drought, etc.

Indicator 3.1

The extent and nature of forest encroachment, degradation, and disturbance caused by humans and the control procedures applied

Table 3.1 The five human activities most damaging to the PFE and Non-PFE

5 major activities	Area affected (ha)	Control procedures	Area of control (ha)	Estimated effectiveness

NOTE:

- Indicate institutions responsible for implementing control procedures.
- List constraints in implementing control procedures and any proposed improvements.

Indicator 3.2

The extent and nature of forest degradation, and disturbance due to natural causes and the control procedures applied.

Table 13: The five natural causes most damaging to the PFE and Non-PFE

5 major causes	Area affected (ha)	Control procedures	Area of control (ha)	Estimated effectiveness

NOTE:

- Indicate institutions responsible for implementing control procedures.
- List constraints in implementing control procedures and any proposed improvements.

Criterion 4: Forest Production

This criterion is concerned with forest management for the production of wood and non-wood forest products. Such production can only be sustained in the long-term if it is economically and financially viable, environmentally sound and socially acceptable.

Forests earmarked for timber production are able to fulfil a number of other important forest functions, such as environmental protection, carbon storage and the conservation of species and ecosystems. These multiple roles of forest should be safeguarded by the application of sound management practices that maintain the potential of the forest resource to yield the full range of benefits to society.

Resource Assessment

Forest resource assessments carried out periodically are vital for ensuring the sustainable production of forest goods and services for society. They provide the necessary information not only on the level of yield that may be harvested but also the type and quality of forest produce that may be extracted.

Indicator 4.1

Extent and percentage of forest for which inventory and survey procedures have been used to define the quantity of the main forest products

Table 4.1 Forest areas inventoried by product

Type of Forest Products	Source of Forest Products	Public Ownership						Private Ownership												Source of Information
		State			Other Public Institution			Individuals			Forest Industries			Other Private Institutions			Indigenous or Tribal People			
		Area (ha)	%	Av. Vol./Ha.	Area (ha)	%	Total Net Vol	Area (ha)	%	Total Net Vol	Area (ha)	%	Total Net Vol	Area (ha)	%	Total Net Vol	Area (ha)	%	Total Net Vol	

Note:

1. Exclusivity of rights and ownership over the area should be clarified/defined properly;
2. Under Other Public Institutions, it includes reservation (military, civil, etc)
3. Other tenurial instruments i.e. TLA, IFMA, SIFMA, CBFM etc are all under the state ownership
4. Source of forest products is either plantation forest or natural forest
5. Source of Information must include the date of inventory

Indicator 4.2

Actual and sustainable harvest of wood and non-wood forest products

Table 4.2 Harvesting level of the principal forest products

Forest Products	Unit of Measure	Volume by source											
		Annual										Total	Average
		1		2		3		4		5			
		N	P	N	P	N	P	N	P	N	P	N	P

Indicator 4.3

Composition of harvest

Table 4.3 The most important species or species groups harvested

PFE		Non-PFE	
Products	Harvesting quantity	Products	Harvesting quantity

NOTE:

- Report the 5 most important species or species groups.
- Report average harvest levels over the latest 3-year period together with the source of the data and the unit of measurement.
- Forests from which harvested include natural forest types as specified in Table 8 as well as planted forests.

Indicator 4.4

Total amount of carbon stored in forest stands.

Table 4.4 Estimate of carbon stock in forests

CARBON STOCK	AMOUNT
Above ground (forest vegetation carbon stock)	
Soil carbon stock	

Note: Describe methods of measurement. Express in tonnes of elemental carbon (C).
Indicate reference year.

Planning and Control Procedures

Planning procedures have to be sound and effective as the production of forest goods and services generally requires a long gestation period. It is through proper planning and control that investment in forestry activities will yield the desired returns to society.

Indicator 4.5

Existence and implementation of:

- (a) Forest harvesting/operational plans (within forest management plans); and***
- (b) Other harvesting permits (small, medium and large scale permits without forest management plans).***

NOTE:

- Describe the procedures and processes for formulating plans and assessing effectiveness of implementation of:
 - (a) Forest harvesting/operational plans
 - (b) Any other type of harvesting/cutting permits within and outside the PFE

Indicator 4.6

Extent of compartments/coupes harvested according to:

- (a) Harvesting/operational plans; and***
- (b) Any other harvesting/cutting permit.***

NOTE:

- Calculate average over most recent 3-year period.
- Specify the different types of permits and report on their effect(s) on forest sustainability.

Indicator 4.7

Existence of a log tracking system or similar control mechanisms

NOTE:

- Describe type of system(s) and its implementation (including responsible parties).

Indicator 4.8

Long-term projections, strategies and plans for forest production.

NOTE:

- Describe any projections (5 years and beyond), strategies, or plans for production (included expanded use of planted forest) to bring current management of harvesting practices and patterns into alignment with sustainable forest management objectives.

Indicator 4.9

Availability of historical records on the extent, nature and management of forests

NOTE:

- Are historical records available about the extent, nature or management of the forests? Describe the type of records.
- Do archives of forest data (e.g. growth, yield, health, uses, etc.) exist and are they accessible for forest planning and management?
- Have such records/data been used? Have they proved useful?

Silvicultural and harvesting guidelines

Clear guidelines will ensure that all forestry operations are carried out according to high standards. These can include pre-felling inventories for prescribing sustainable cutting levels, post-felling inventories for assessing the condition of logged-over forests and the types of silvicultural treatments required, harvesting procedures to reduce damage to the forest ecosystem, silvicultural prescriptions for planted forests and procedures for periodic monitoring and evaluation of management practices.

Indicator 4.10

Availability and implementation of silvicultural procedures for timber and non-wood forest products.

NOTE:

- Does a country have recommended silvicultural systems? What are they?
- Are they being implemented?
- Is their effectiveness being monitored? At what geographical scale? Describe post-harvesting surveys to assess the effectiveness of silvicultural activities.
- Are monitoring data being archived to evaluate cumulative effects of silvicultural systems over time?
- Do silvicultural systems include the use of chemicals? If yes, specify and assess risks.

Indicator 4.11

Availability and implementation of harvesting procedures for timber and non-wood forest products

NOTE:

- Does a country have recommended harvesting systems? What are they?
- Are they being implemented?
- Is their effectiveness being monitored? At what geographical scale? Describe post-harvesting surveys to assess the effectiveness of harvesting activities, establishment and monitoring of silvicultural treatment and regeneration plots, etc.
- Are monitoring data being archived to evaluate cumulative effects of harvesting system over time?

Indicator 4.12

Area over which silvicultural and harvesting procedures are effectively implemented

Table 4.12 Implementation of Silvicultural and harvesting procedures

Procedures	PFE (ha)	Non-PFE (ha)
<i>Silvicultural</i> - - - - -		
<i>Harvesting</i> - - - - -		

Criterion 5: Biological Diversity

This criterion relates to the conservation and maintenance of biological diversity, including ecosystems, species and genetic diversity. The general principles and definitions used here are those established by CBD and IUCN.

Ecosystem Diversity

The conservation of ecosystem diversity can best be accomplished by the establishment and management of a system of protected areas (combinations of IUCN Categories I to VI)¹ containing representative samples of all forest types linked as far as possible by biological corridors or 'stepping stones'. This can be ensured by effective land-use policies and systems for choosing, establishing and maintaining the integrity of protected areas in consultation with and through the involvement of local communities.

Indicator 5.1

Protected areas containing forests

Table 5.1 Forest Protected Area

Type of Protection Forest	Location w/in FMU (UTM/GC)	Extent (area)	Percentage of each Forest Type Covered	Percentage of Boundaries demarcated or clearly defined

Indicator 5.2

Protected areas connected by biological corridors or stepping stones

Table 5.2 Forest protected areas connected by corridors

IUCN Category	Number connected	Percent of total number of forest protected areas
I-II		
III-IV		
V-VI		

Species Diversity

Although the conservation of biological diversity is best assured by preventing species from becoming rare, threatened or endangered in the first place, it is also important to have national procedures to monitor and protect such species effectively.

Indicator 5.3

Existence and implementation of procedures to identify and protect endangered, rare and threatened species of forest flora and fauna

Procedures	Institutions Responsible	Proposed Improvements	Possible Constraints

NOTE:

- Describe procedures to identify, list, and protect endangered, rare and threatened species of forest flora and fauna.
- List the institutions responsible.
- Describe any recent changes in the procedures.
- Are there any constraints to introducing improvements?

Indicator 5.4

Number of endangered, rare and threatened forest-dependent species

Table 5.4 Number of endangered, rare and threatened forest-dependent species

Forest-dependent species group (1)	Name of Species (2)	Endangered (3)	Endemic species (4)	Legally protected at national level (5)
Trees - -				
Flowering Plants - -				
Ferns - -				
Birds - -				
Fresh Water Fish - -				
Amphibians - -				
Reptiles - -				
Mammals - -				
Butterflies - -				
Others (Pls. Specify)				

NOTE:

- Put a "check sign" in the column 3, 4, and 5 if the identified forest dependent species is endangered, endemic, or legally protected species at the national level.

Genetic Diversity

Effective conservation of biological diversity requires the maintenance of the genetic diversity of all species of fauna and flora. Although this may be difficult to achieve in practice, an appropriate place to focus limited resources is on species that are rare, threatened or endangered, as well as species with identified commercial value.

Indicator 5.5

Measures for in situ and/or ex situ conservation of the genetic variation within commercial, endangered, rare and threatened species of forest flora and fauna

Description	Institutions Responsible	Recent Changes	Proposed Improvements	Possible Constraints

NOTE:

- Describe the measures applied to conserve genetic diversity, both in situ and ex situ, of endangered forest dependent species.

Procedures for biodiversity conservation in production forests

An important contribution to conservation of biological diversity can be made by management measures in production forests that contribute to forest quality and enable neighbouring protected areas to be more effective. Detailed guidelines are given in Recommended Actions 8-17 of the ITTO Policy Development Series No.5 (*ITTO Guidelines on the Conservation of Biological Diversity in Tropical Production Forests*).

Indicator 5.6

Existence and implementation of procedures for protection and monitoring of biodiversity in production forests by:

- (a) Retaining undisturbed areas;***
- (b) Protecting rare, threatened and endangered species;***
- (c) Protecting features of special biological interest (e.g. nesting sites, seed trees, niches, keystone species, etc); and***
- (d) Assessing recent changes in (a) to (c), above through inventories, monitoring/assessment programs, and comparison with control areas.***

NOTE:

- Describe any procedures being implemented.
- Is their effectiveness being monitored? At what geographical scale?
- Describe procedures for assessing changes in production areas compared to control areas.
- Are records kept over time?

Indicator 5.7

Extent and percentage of production forest which has been set aside for biodiversity conservation.

Table 5.7 Area set aside for biodiversity conservation in production forests

Area (ha)	
Percentage (%)	

Criterion 6: Soil and Water Protection

The importance of this criterion is two-fold. First, it has a bearing on maintaining the productivity and quality of soil and water within the forest and its related aquatic ecosystems (and therefore on the health and condition of the forest, Criterion 3); secondly, it also plays a crucial role outside the forest in maintaining downstream water quality and flow and in reducing flooding and sedimentation.

Quantitative indicators of the effects of forest management on soil and water are, therefore, such measures as soil productivity within the forest and data on water quality and average and peak water flows for streams emerging from the forest. This information is difficult and expensive to obtain and is seldom available for more than a limited number of sites, as each site has its own characteristics in this respect (e.g. slope, geological structure and the inherent erodibility of the soil type).

The protection of soil and water is therefore best ensured by specific guidelines for different situations; these can only be based on experience and research. Valid national indicators can only be derived from the aggregation of data from indicators at the forest management unit level, or from the fact that adequate national guidelines exist and are properly enforced in conformity with the variation in local conditions.

Indicator 6.1

Extent and percentage of total forest area managed exclusively for the protection of soil and water.

Table 6.1 Forest area managed exclusively for soil and water protection

	Total forest area (PFE and Non-PFE)	Forest area managed exclusively for protection of soil and water	Total Area	Percentage
AREA				

Indicator 6.2

Procedures to assure the protection of downstream catchment values

NOTE:

- Are there procedures to assure protection of downstream catchment values?
- Are they being implemented?
- Is their effectiveness being monitored? At what geographical scale?

Protective functions in production forests

Indicator 6.3

Procedures to protect soil productivity and water retention capacity within production forests

NOTE:

- Are there procedures to protect soil productivity and retain water retention within production forests?
- Are there provisions to prevent contamination of forest soil and water?
- Are they being implemented?
- Is their effectiveness being monitored? At what geographical scale?

Indicator 6.4

Procedures for forest engineering including:

- (a) Drainage requirements;***
- (b) Conservation of buffer strips along streams and rivers;***
- (c) Protection of soils from compaction by harvesting machinery;***
- (d) Protection of soil from erosion during harvesting operations.***

NOTE:

- Are their recommended forests engineering procedures in regard to the protection of soil and water?
- Are they being implemented?
- Is their effectiveness being monitored? At what geographical scale?

Indicator 6.5

Extent and percentage of areas in PFE production which has been defined as environmentally sensitive (e.g. very steep or erodible) and protected

Table 6.5 Area defined as ecologically vulnerable

Area characteristic	Area (ha)	Percentage
Slopes		
Poor drainage		
Buffer strips		
Other characteristics (Pls. Specify)		

Criterion 7: Economic, Social and Cultural Aspects

This criterion deals with the economic, social and cultural aspects of the forest. A well-managed forest is a constantly self-renewing resource and it produces a host of benefits, ranging from high quality timber to satisfying the basic needs of people living in and around the forest. It also contributes to the well-being and enhances the quality of life of the population in providing opportunities for recreation and ecotourism, as well as in generating employment and investment in the processing industries. Hence, if sustainably managed, the forest has the potential to make an important contribution to the overall sustainable development of the country.

Socio-economic aspects

The very existence of forest is often dependent on the forest being able to generate sufficient financial resources to ensure its sustainability, besides providing employment and other social and environmental benefits to society.

Indicator 7.1

Value and percentage contribution of the forestry sector to the Gross Domestic Product (GDP)

Reference year: (specify)	GDP total (US\$)	Forestry Sector Contribution (US\$)

NOTE:

- Indicate/describe to which extent the informal forestry sector contributes to GDP.
- Indicate sources used.

Indicator 7.2

Value of domestically produced wood, non-wood forest products, and environmental services in the:

(a) Domestic market;

(b) Export markets; and

(c) Informal markets including subsistence and illegal activities.

Table 7.2 Estimated market value of forest products and services

Purpose	Type of Forest Products	Unit of Measure	Year 1		Year 2		Year 3		Year 4		Year 5		Total	
			Vol	Val	Vol	Val	Vol	Val	Vol	Val	Vol	Val	Vol	Val
(a) Domestic	Wood													
	Non-wood - - - -													
(b) Export	wood													
	Non-wood - - - -													
(c) Others (specify)	Wood													
	Non-wood - - - -													

Indicator 7.3

Forest products industry structure and efficiency

Table 7.3 Forest production capacities

Year (y= report year)	Volume of Forest products Processed (m ³)	Volume of Products Produced (m ³)	Efficiency of the wood-based industry (%)
(1)	(2)	(3)	(4)
y-5			
y-4			
y-3			
y-2			
y-1			

Indicator 7.4

Existence and implementation of mechanisms for the equitable sharing of forest management's costs and benefits

NOTE:

- List any mechanisms for the distribution of incentives and the fair and equitable sharing of costs and benefits among the parties involved
- Are they being implemented?
- Are there obstacles to their implementation?
- Are there improvements proposed?

Indicator 7.5

Existence and implementation of conflict resolution mechanisms for resolving disputes between forest stakeholders

NOTE:

- List any mechanisms for conflict resolution.
- Are they being implemented?
- Are there obstacles to their implementation?
- Are there improvements proposed?

Indicator 7.6

Number of people depending on forests for their livelihoods

Table 7.6 Forest dependent people

	Total Number	Male	Female	Migrants
Employed in forest operations				
Employed in forest products industry				
Other indirect employment				
Subsistence				

Indicator 7.7

Training, capacity building and manpower development programs for forest workers

NOTE:

- Indicate the number and main focus of universities, technical institutions, etc. with formal program on SFM.
- List short- and medium-term training programs for forest managers over the last year.
- List short- and medium-term training programs for concessionaires over the last year.

Indicator 7.8

Existence and implementation of procedures to ensure the health and safety of forest workers

NOTE:

- What mechanisms are in place to ensure the health and safety of forest workers?
- Are these mechanisms being implemented? Identity any constraints.
- Are mechanisms in conformity with ILO Resolution 169?
- Indicate the number of serious accidents (death, serious injury) in forest management operations over the past 3 years. Specify the causes.

Indicator 7.9

Area of forests upon which people are dependent for subsistence uses and traditional and customary life styles

NOTE:

- Specify types of forests used for subsistence, traditional and/or customary life styles.

Indicator 7.10

Number and extent of forest sites available primarily for:

(a) Research and education; and

(b) Recreation.

Table 7.10 Forest areas for research and recreation

	Research and education	Recreation
Number of sites		
Area (ha)		
Average annual number of users (most recent 3 years)		

Cultural aspects

Forests often contain natural, archaeological or cultural features of outstanding or unique value. In many countries forests also play significant spiritual roles (e.g. sacred forests).

Indicator 7.11

Number of important archaeological, cultural, and spiritual sites identified and protected.

Table 7.11 Forests with cultural and spiritual value

Type	Number/s	Area (ha)	Protection Status
Archaeological			
Cultural			
Sacred forests			
Others (Pls. Specify)			

NOTE:

- Provide an overall assessment of whether the integrity of such areas is protected and how.

Community and indigenous people tenure rights and participation

Community participation is vital at all levels of forestry operations to ensure transparency and accountability in forest management, conservation and development, as well as to ensure that all interests and concerns are taken into account. This requires openness from forest services, forest owners and concessionaires.

Indicator 7.12

Extent to which tenure and user rights of communities and indigenous peoples over publicly-owned forests are recognized and practiced

NOTE:

- Are such tenure and user rights recognized and practiced?
- Is so, how?
- Describe any constraints and proposals for improvements.

Indicator 7.13

Extent to which indigenous knowledge is used in forest management planning and implementation

NOTE:

- Is indigenous knowledge used?
- Is so, how?
- Describe any constraints and proposals for improvements.

Indicator 7.14

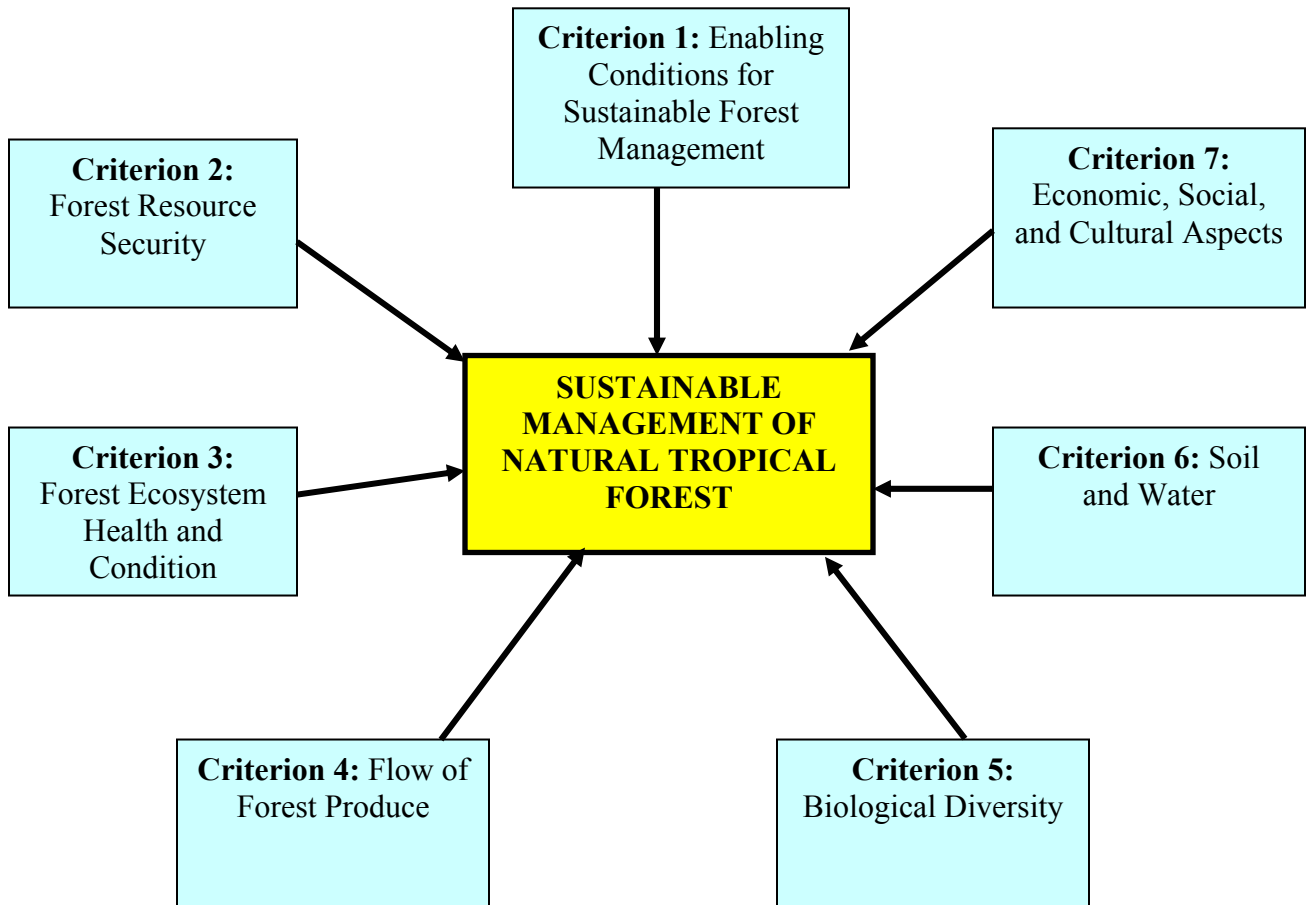
Extent of involvement of indigenous people, local communities and other forest dwellers in forest management capacity building, consultation processes, decision-making and implementation.

NOTE:

- Describe extent of involvement in forest management:
 - Capacity building;
 - Consultation processes;
 - Decision-making; and
 - Implementation (e.g. financial and economic aspects of forest utilization).
- Indicate the legal basis for this involvement.
- Describe shortcomings and proposals for improvement.

APPENDIX 1

SCHEMATIC TABULATION OF CRITERIA



APPENDIX 2

Definitions of the Protected Area Categories of the World Conservation Union (IUCN)

IUCN has defined the following 6 protected area management categories based on management objective:

CATEGORY Ia: Strict Nature Reserve: protected area managed mainly for science Area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring.

CATEGORY Ib: Wilderness Area: protected area managed mainly for wilderness protection Large area of unmodified or slightly modified land, and/or sea, retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition.

Category I sites are typically remote and inaccessible, and are characterized by being “undisturbed” by human activity. They are often seen as benchmark, or reference sites, and access is generally restricted or prohibited altogether. They range in size from vast areas to very small units (typically a “core” of a larger protected area). Selection should be on the basis of quality and significance.

CATEGORY II: National Park: protected area managed mainly for ecosystem protection and recreation Natural area of land and/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.

Category II covers National Parks and equivalent reserves. Category II sites are characterized by the experience of “naturalness”. While managed to protect ecological integrity, Category II sites tend to serve to facilitate appreciation of the features protected, and typically include provisions for human visitors. Selection should be on the basis of representativeness and/or special significance, and sites should be large enough to contain one or more (relatively intact) ecosystems.

CATEGORY III: Natural Monument: protected area managed mainly for conservation of specific natural features Area containing one, or more, specific natural or natural/cultural feature which is of outstanding or unique value because of its inherent rarity, representative or aesthetic qualities or cultural significance.

Category III covers areas that are typically not of the scale of Category II sites, but can be important as protected components within a broader managed landscape for the protection of particular forest communities or species. Selection should be on the basis of the significance of the

features, and should be of a scale that protects the integrity of that feature and its immediately related surroundings.

CATEGORY IV: Habitat/Species Management Area: protected area managed mainly for conservation through management intervention Area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species.

Category IV covers areas managed mainly for conservation through management intervention; habitats and other features may be manipulated to enhance the presence of species or communities of species, through, for example, artificial wetlands or the cultivation of preferred food crops. Category IV sites do not include production units primarily for exploitation, such as forest plantations. Category IV sites should be selected on the basis of importance as habitats to the survival of species of local or national significance, where conservation of the species or habitat may depend upon its manipulation.

CATEGORY V: Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation Area of land, with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area.

Category V areas are characterized by a long-term socio-ecological interaction commensurate with high biodiversity values. Category V areas should be selected on the basis of diversity of habitats of high scenic quality combined with manifestations of unique or traditional land-use patterns and opportunities for public enjoyment through recreation and tourism.

CATEGORY VI: Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems Area containing predominantly unmodified natural systems, managed to ensure long term protection and maintenance of biological diversity, while providing at the same time a sustainable flow of natural products and services to meet community needs.

Category VI areas are characterized by predominantly unmodified “natural systems” that are managed to provide both maintenance of biological diversity and a sustainable flow of natural products and services. The expression “natural system” can be interpreted many different ways. For purposes of the IUCN categories it can be taken to mean ecosystems where since the industrial revolution (1750) human impact (a) has been no greater than that of any other native species, and (b) has not affected the ecosystem’s structure. Climate change is excluded from this definition. For an area to qualify for Category VI designation, not only must the site meet the definition of a protected area, but at least two-thirds of the site should be, and is planned to remain, in a natural condition. Large commercial plantations must not be included, and, as in all categories, a management authority must be in place. Category VI sites should also be large enough to absorb sustainable resource uses without detriment to the sites’ overall long-term natural values.

Because many protected areas, particularly forest areas, are established for multiple objectives, at least three-quarters of a designated area must be managed primarily for one of the above management objectives in order for it to be listed under the corresponding category. The management of the remaining area must not be in conflict with that primary purpose. In cases where parts of a single management unit

are classified by law as having different management objectives, or where one area is used to 'buffer' or surround another, they would be listed separately.

All protected areas must meet a test of management responsibility and ownership. Management authority may be through national government, local authority, informal community group, non-governmental organization, or private ownership, provided that it provides the capacity to achieve the given management objective. In general more strictly protected sites require state power for full protection, but recent experiments in vesting legal power in private entities for nature conservation objectives leave open the possibility of exceptions. Ownership of a unit must also be compatible with achievement of management objectives in order for the site to be listed.

APPENDIX 3

IUCN Endangerment Status Categories

Extinct (Ex)

A species is Extinct when there is no reasonable doubt that the last individual has died.

Extinct in the Wild (EW)

A species is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalised population (or populations) well outside the past range. A species is presumed extinct in the wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the species' life cycle and life form.

Critically Endangered (CR)

A species is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future.

Endangered (EN)

A species is Endangered when it is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future.

Vulnerable (VU)

A species is vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium-term future.

Lower Risk (LR)

A species is Lower Risk when it has been evaluated, but does not satisfy the criteria for any of the categories, Critically Endangered, Endangered or Vulnerable.

Data Deficient (DD)

A species is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A species in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat or Lower Risk. Listing of species in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases, great care should be exercised in choosing between DD and threatened status. If the range of a species is suspected to be relatively circumscribed, if a considerable period of time has elapsed since the last record of the species, threatened status may well be justified.

Not Evaluated (NE)

A species is Not Evaluated when it has not yet been assessed against the criteria.

APPENDIX 4

PHILIPPINE C&I FOR SFM GENERAL FRAMEWORK

CRITERION 1: ENABLING CONDITIONS FOR SUSTAINABLE FOREST MANAGEMENT

Policy, legal and governance framework

INDICATORS		National	FMU
1.1	Existence and implementation of policies, laws and regulations to govern forest management.	+	-
1.2	Forest tenure and ownership.	+	+

Economic framework

INDICATORS		National	FMU
1.3	Amount of funding in forest management, administration, research, and human resource development.	+	+
1.4	Existence and implementation of economic instruments and other incentives to encourage sustainable forest management.	+	+

Institutional framework

INDICATORS		National	FMU
1.5	The structure and staffing of institutions responsible for sustainable forest management.	+	-
1.6	Number of professional and technical personnel at all levels to perform and support forest management.	+	+
1.7	Existence of communication strategies and feedback mechanism to increase awareness about SFM.	+	+

Planning framework

INDICATORS		National	FMU
1.8	Existence of, and Ability to apply, appropriate technology to practice Sustainable Forest Management and the efficient utilization and marketing of forest products	+	+
1.9	Capacity and mechanisms for planning sustainable forest management and for periodic monitoring, evaluation and feedback on progress.	+	+
1.10	Public participation in forest management planning, decision making, data collection, monitoring and assessment.	+	+
1.11	Existence of forest management plans.	+	+

CRITERION 2: EXTENT AND CONDITION OF FOREST

Description of resource base

INDICATORS		National	FMU
2.1	Extent (area) and percentage of total land area under comprehensive land-use plans.	+	+
2.2	Extent of forests committed to production and protection.	+	+
2.3	Extent (area) and percentage of total land area under each forest type.	+	+
2.4	Percentage of PFE with boundaries physically demarcated.	+	+
2.5	Changes in forested area.	+	+
2.6	Forest condition.	+	+

CRITERION 3: FOREST ECOSYSTEM HEALTH

INDICATORS		National	FMU
3.1	The extent and nature of forest encroachment, degradation, and disturbance caused by humans and the control procedures applied.	+	+
3.2	The extent and nature of forest degradation, and disturbance due to natural causes and the control procedures applied.	+	+

CRITERION 4: FOREST PRODUCTION

Resource Assessment

INDICATORS		National	FMU
4.1	Extent and percentage of forest for which inventory and survey procedures have been used to define the quantity of the main forest products.	+	+
4.2	Actual and sustainable harvest of wood and non-wood forest products.	+	+
4.3	Composition of harvest.	+	+
4.4	Total amount of carbon stored in forest stands.	+	+

Planning and Control Procedures

INDICATORS		National	FMU
4.5	Existence and implementation of: (a) forest harvesting/operational plans (within forest management plans); and (b) Other harvesting permits (small, medium and large scale permits without forest management plans).	+	+
4.6	Extent of compartments/coupes harvested according to: (a) harvesting/operational plans; and (b) Any other harvesting/cutting permit.	+	+
4.7	Existence of a log tracking system or similar control mechanisms.	+	+
4.8	Long-term projections, strategies and plans for forest production.	+	+
4.9	Availability of historical records on the extent, nature and management of forests.	+	+

Silvicultural and harvesting guidelines

INDICATORS		National	FMU
4.10	Availability and implementation of silvicultural procedures for timber and non-wood forest products.	+	+
4.11	Availability and implementation of harvesting procedures for timber and non-wood forest products.	+	+
4.12	Area over which silvicultural and harvesting procedures are effectively implemented.	+	+

CRITERION 5: BIOLOGICAL DIVERSITY**Ecosystem Diversity**

INDICATORS		National	FMU
5.1	Protected areas containing forests.	+	+
5.2	Protected areas connected by biological corridors or stepping stones.	+	-

Species Diversity

INDICATORS		National	FMU
5.3	Existence and implementation of procedures to identify and protect endangered, rare and threatened species of forest flora and fauna.	+	+
5.4	Number of endangered, rare and threatened forest dependant species.	+	+

Genetic Diversity

INDICATORS		National	FMU
5.5	Existence and implementation of procedures to identify and protect endangered, rare and threatened species of forest flora and fauna.	+	-

Procedures for biodiversity conservation in production forests

INDICATORS		National	FMU
5.6	Existence and implementation of procedures for protection and monitoring of biodiversity in production forests by: (a) retaining undisturbed areas; (b) protecting rare, threatened and endangered species; (c) protecting features of special biological interest (e.g. nesting sites, seed trees, niches, keystone species, etc); and (d) Assessing recent changes in (a) to (c), above through inventories, monitoring/assessment programs, and comparison with control areas.	+	+
5.7	Extent and percentage of production forest which has been set aside for biodiversity conservation.	+	+

CRITERION 6: SOIL AND WATER PROTECTION

Extent of protection

INDICATORS		National	FMU
6.1	Extent and percentage of total forest area managed exclusively for the protection of soil and water.	+	-
6.2	Procedures to assure the protection of downstream catchment values.	+	+

Protective functions in production forests

INDICATORS		National	FMU
6.3	Procedures to protect soil productivity and water retention capacity within production forests.	+	+
6.4	Procedures for forest engineering including: (a) Drainage requirements; (b) Conservation of buffer strips along streams and rivers; (c) Protection of soils from compaction by harvesting machinery; and (d) Protection of soil from erosion during harvesting operations.	+	+
6.5	Extent and percentage of areas in PFE production which has been defined as environmentally sensitive (e.g. very steep or erodible) and protected.	+	+

CRITERION 7: ECONOMIC, SOCIAL, AND CULTURAL ASPECTS

Socio-economic aspects

INDICATORS		National	FMU
7.0	Value and percentage contribution of the forestry sector to the Gross Domestic Product (GDP).	+	-
7.2	Value of domestically produced wood, nonwood forest products, and environmental services in the: (a) domestic market; (b) export markets; and (c) Informal markets including subsistence and illegal activities.	+	+
7.3	Forest products industry structure and efficiency.	+	+
7.4	Existence and implementation of mechanisms for the equitable sharing of forest management's costs and benefits.	+	+
7.5	Existence and implementation of conflict resolution mechanisms for resolving disputes between forest stakeholders.	+	+
7.6	Number of people depending on forests for their livelihoods.	+	+
7.7	Training, capacity building and manpower development programs.	+	+
7.8	Existence and implementation of procedures to ensure the health and safety of forest workers.	+	+
7.9	Area of forests upon which people are dependent for subsistence uses and traditional and customary life styles.	+	+
7.10	Number and extent of forest sites available primarily for: (a) research and education; and (b) Recreation.	+	+

Cultural aspects

INDICATORS		National	FMU
7.11	Number of important archaeological, cultural, and spiritual sites identified and protected.	+	+

Community and indigenous people tenure rights and participation

INDICATORS		National	FMU
7.12	Extent to which tenure and user rights of communities and indigenous peoples over publicly-owned forests are recognized and practiced.	+	+
7.13	Extent to which indigenous knowledge is used in forest management planning and implementation.	+	+
7.14	Extent of involvement of indigenous people, local communities and other forest dwellers in forest management capacity building, consultation processes, decision-making and implementation.	+	+