

# SURINAME'S NATIONAL CONSULTATION WORKSHOP ON CRITERIA AND INDICATORS FOR SUSTAINABILITY OF THE AMAZON FOREST

Paramaribo, February 11-12, 1999

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## AMAZON COOPERATION TREATY

*PRO TEMPORE* SECRETARIAT

APRIL 1999

SURINAME' S NATIONAL  
CONSULTATION  
WORKSHOP ON CRITERIA  
AND INDICATORS  
FOR SUSTAINABILITY OF  
THE AMAZON FOREST

Paramaribo, February 11-12, 1999

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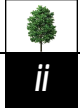
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# Presentation

*We verified that in our societies and in the whole world there is an increasing tendency towards environmental protection, a trend that has a distinct interest on the value that biological diversity has for humankind, and thus, of concern for the threats to that natural reservoir.*

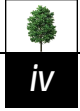
*Therefore, it is important to be prepared to assume as world leaders the conservation, use and sustainable management of the resources of the Amazon hydrographic basin. At the regional level, the design and implementation of instruments that allow to characterize the resource and the ecological and social dynamics will provide the opportunity to consolidate the Amazon Cooperation Treaty (ACT) and to assume firm negotiating positions about the potential of offer of goods and services of the Amazon Forest on a sustainable basis.*

*The important progress in the characterization of sustainable development were focal topics for the debate during the United Nations Environment and Development Conference (UNEDC), held in Rio de Janeiro in 1992. As a result of that forum Agenda 21 was originated, which recognizes the need for reconciling the productive functions of the forests with their ecological role, by means of a new concept of forest management promoted both at the national level and through international cooperation.*

*The sustainable use of forests has been revealed as a priority of the world agenda. In previous years, and after UNEDC, several initiatives were undertaken to formulate criteria, guidelines and indicators for the sustainability of forests, both in the boreal and temperate regions and in the tropical regions.*

*Through the process started in Tarapoto, Peru, the ACT took the Amazon Region to the center of the international debate as regards the sustainability criteria and indicators for the implementation of the sustainable development in forests, with the active participation of the State and of the civil society.*

*This document contains the Final Report of the National Consultation of Validation of the Tarapoto Proposal on Amazon Forest Sustainability Criteria and Indicators. The Consultation-Workshop counted on the financial and technical support of the FAO GCP/RLA/128/NET Project, as well as the technical and logistical support of the Pro Tempore Secretariat of the ACT. The Consultation was organized by the Ministry of Foreign Affairs, through the Permanent National Commission of Suriname to the Treaty and the Ministry of Natural Resources, Forest Service of Suriname, and it was carried out in the city of Paramaribo on February 11-12, 1999.*



*With this new national validation of the Tarapoto Proposal on Amazon Forest Sustainability Criteria and Indicators, Suriname contributes with the other signatory countries of the Treaty in the search for the consent that shall allow –by means of critical, dynamic and consultation processes– to design its own regional models of evaluation and policies for the sustainable development of forests. It also cooperates to the strengthening and consolidation of the Treaty and to the construction of joint positions for the sustainable use and management of the Amazon forest.*

*Paramaribo, February 1999*



# Introduction

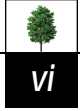
*In February 1995, the Pro Tempore Secretariat of the Amazon Cooperation Treaty organized a Regional Workshop on the Definition of Criteria and Indicators of Sustainability of the Amazon Forests. The Member Countries approved 12 criteria and a total of 77 indicators. Each indicator intends to respond to the particularities of the ecosystems in the region, and to the social and cultural factors. The Tarapoto Proposal is a political commitment and an effective technical tool to measure the progress towards the sustainable forest development.*

*After the Regional workshop, the next task was to promote the national consultations in each of the member countries of the Amazon Cooperation Treaty. The objective is to have a participatory consultation in which each country evaluates the applicability to use each indicator according to the reality of each country.*

*In the 1996-1997 period, the National Consultations of the Tarapoto Proposal were carried out in Bolivia, Colombia, Ecuador, Peru and Venezuela, with the active participation of both the public and private sectors in the analysis and discussion of applicability of the 77 indicators on the basis of the socioeconomic, cultural, ecological and political situation of each consulted country.*

*This report considers the National Consultation Workshop held in Suriname on February 11-12, 1999. The main purpose of the consultation was to determine the applicability of the indicators on the basis of the reality of the country. Chapter I describes the objectives and methodology, while Chapter II presents the results of the Workshop. The meeting was conducted both in English and Dutch.*

*Thus, most of the National Consultations of Amazon Cooperation Treaty Member Countries have been completed so far, which has made it possible to obtain valuable information that in the near future will allow devising a common strategy to improve the Tarapoto Proposal.*







# 1. Objectives and Methodology

## 1. OBJECTIVES

### 1.1 General Objective

To evaluate the appropriateness of the indicators to measure the Amazon Forest's sustainability.

### 1.2 Specific Objectives

The specific objectives of the National Consultation for validating the Tarapoto Proposal are:

- Starting the validation process, giving dynamism to the Amazon Cooperation Treaty.
- Identifying basic consensus in the applicability of the indicators.
- Gathering new proposals of indicators, changes of wording and elimination whenever they are considered not applicable.
- Contributing to analyze the sustainable forest development in each of the Amazon Cooperation Treaty 's member countries.
- Promoting the development of the participating forest concentration process.
- Providing new conceptual elements to the national and regional discussion to design, formulate and adopt criteria and indicators for the sustainable management of forests.

## 2. METHODOLOGY

The Suriname National Consultation (see Program in Annex I), began with the registration of participants and the Opening Ceremony. After it, the participants (see List of Participants in Annex II) were introduced to the objectives of the validation. The basic definitions on criteria and indicators, the Tarapoto proposal background, and the 12 criteria and 77 indicators were briefly presented.

It was deeply explained that the objective of this consultation was not to evaluate the importance of the indicators but to evaluate their applicability, referred to the viability that the indicators have of being used to qualify a criterion in the context of the Suriname reality. It was also emphasized that the applicability should take into account the current or future availability of mechanisms and instruments to measure the indicator.

After some general explanations the participants were divided into four groups. Group 1 worked with Criteria 1 and 2 at the National Level, Group 2 worked with Criteria 3 through 6 at the National Level, Group 3 worked with Criteria 8 through 11 at the Unit Level and Group 4 worked with Criteria 7 (at the National Level) and 12 at the Global Level (see Working Groups in Annex III).

Representatives of the various sectors formed each group: Government, Non-government organizations, Private sector and Universities or Training institutions. Care was taken that each group did not exceed 10 members. The groups were asked to select a coordinator/facilitator and a rapporteur to present the results to the plenary.

Each group received a set of materials:

- Document – Criteria and Indicators for Sustainability of the Amazon Forests, by Enrique Toledo.
- Flipcharts for each criterion containing the description of each indicator and enough space to fill the value of applicability, comments and wording changes. The flipcharts were big enough to facilitate the presentation of results on the plenary.
- Masking tape and markers.

Each group received the following instructions to fill the charts.

- a) Brief discussion about the clarity of the indicator. If it was not clear they should call the technical consultant.
- b) Brief discussion and comments about the existence – present and future – of mechanisms and instruments to measure the indicator.
- c) Each individual was asked to assign a value between 1 to 100 to each indicator.
- d) The individual votes were introduced into a statistical program to calculate the average and the standard deviation for each ballot.
- e) The groups received the calculation and decided whether they wanted to keep that number or vote again.
- f) The groups also took into account the requirement of improving the wording, and submit new proposals. Likewise, some indicators were eliminated or new indicators were proposed.

Each group was assisted to be sure that each participant understood the objective of the consultation and the specific task that they were asked to fulfill.

After the working groups – approximately five hours – all the participants came back into a plenary. Each group submitted to the plenary the results of their work, sustaining the qualifications assigned to each indicator. Therefore, all the participants were able to give take part in the analysis and discussion. The plenary lasted about three hours.

### **3. ACTIVITIES CARRIED OUT**

- **Local Organization of the National Consultation.** It was the responsibility of the Ministry of Foreign Affairs of Suriname, in cooperation with the Forestry Service of the Ministry of Natural Resources of Suriname, with the support of the *Pro Tempore* Secretariat of the Amazon Cooperation Treaty, and the technical and financial assistance of the FAO GCP/RLA/128/NET

Project.

- **Place and Date of the National Consultation:**

Paramaribo (February 11-12, 1999), Ministry of Planning.

- **The National Consultation Workshop:**

**Opening Ceremony.** It counted on the participation of the senior authorities of the Government, international organizations, the *Pro Tempore* Secretariat of the Amazon Cooperation Treaty, the FAO GCP/RLA/128/NET Project, and participants from the public and private sectors (see Speeches in Annex IV).

**Presentation of the Document “Analysis of the Tarapoto Proposal on Amazon Forest Sustainability Criteria and Indicators”.** It was presented by Mr. Enrique Toledo, Consultant of the PTS-ACT (this Document is presented as a common Annex for both, the Suriname National Consultation and the Guyana National Consultation).

The reasons why the Tarapoto Proposal was made starting from a political commitment of the Amazon Cooperation Treaty’s member countries and the need to count on a technical tool to measure the Amazon Forest’s sustainability were explained. The enormous potential of the biological diversity, the need to establish efficient forest and environmental policies with long-term view and to achieve commitments between the public and private sectors starting from an agreement with the groups involved was stressed.

The basic definitions of criteria and indicators were explained, and their importance and usefulness at the national, local, regional and international level was stressed.

It was pointed out that the Tarapoto Proposal contains 7 criteria at the national level, 4 criteria at the management unit level and 1 criterion at the global level. The 77 indicators of the Tarapoto Proposal were presented, noting that an indicator measures a portion of the criterion, and that a criterion is an essential sustainability element. It was pointed out that the periodical evaluation of the indicators allows measuring trends as a function of time.

Analysis of applicability of the indicators, the instruments available to evaluate sustainability and analysis of the instruments were presented. The difference between an indicator’s applicability and importance was explained.

Finally it was mentioned that the Tarapoto Proposal must be reviewed with a critical attitude to measure the actual applicability in the country. Some examples of the indicators that are easy to apply, hard to apply and impossible to apply were provided (see References in Annex V).

**Presentation of the Methodology of the Workshop.** Ms. Rosario Lanao, Consultant of the PTS-ACT, presented it. Ms. Lanao explained that the national consultation consists in identifying the applicability of each indicator in the socioeconomic, cultural, ecological and political context of the country. The difference between applicability and importance was explained, and information about creation of the work groups, qualification systems, statistical analysis and plenary was provided.

**Work Groups.** After some general explanations the participants were divided into four groups.



Group 1 worked with Criteria 1 and 2 at the National Level, Group 2 worked with Criteria 3 through 6 at the National Level, Group 3 worked with Criteria 8 through 11 at the Unit Level and Group 4 worked with Criteria 7 (at the National Level) and 12 at the Global Level.

Each group consisted of representatives of various sectors: Government, Non Governmental Organizations, Private Sector, Universities and Training Institutions. In addition, care was placed in ensuring that each group had a maximum of ten members. Groups were asked to appoint a coordinator/facilitator and a spokesperson to present the outcome.

**Evaluation Card.** Each individual was asked to assign a value between 1 to 100 to each indicator. The work methodology for analysis and discussion of applicability of the indicators was presented using evaluation cards with the following possible evaluation values:

Not applicable	0 - 25
Hardly applicable	26 - 50
Applicable	51 - 75
Highly Applicable	76 - 100

**Statistical Analysis.** The participants of each group qualified individually the applicability of each indicator taking into account the socioeconomic, ecological, technological and political situation of the country, as well as the public and private institutional capacity.

The *Pro Tempore* Secretariat processed the information gathered, and averages and standard deviation for each qualification of applicability were obtained. In the cases in which standard deviation was too high, their revision and possible new voting was proposed to the plenary.

**Plenaries.** The results of each group's evaluation were submitted to the plenary, where such results were analyzed and discussed. Analysis allowed seeking a consensus regarding the qualification of application of indicators. Each group's recommendations in connection with proposals for new wording and/or elimination of indicators, as well as for implementation of instruments of application of the indicators were also presented.

In some cases, when the plenary felt that there was no consensus on the applicability of an indicator, such indicator was qualified again, obtaining a new result that modified the one proposed by the work group.

The plenaries also analyzed and approved the general recommendations made by each work group, as well as the proposals of priority actions that the country will need to take to implement the Tarapoto Proposal as a useful strategic planning instrument and as a technical tool to measure the level of sustainability of the Amazon Forest.

#### 4. GENERAL RESULTS (detailed results are presented in Chapter II)

- The National Consultation of Suriname was characterized by the large political and technical interest of public and private institutions, as well as the high professional level of the people invited to cooperate with the analysis and discussion of the Tarapoto Proposal.
- The Consultation counted on the participation of the most senior authorities responsible for the forest and environmental policies of the country, as well as of other important public and private institutions, including regional governments, universities, research institute, entrepreneur associations, companies, conservation NGOs, foundations, forest development projects and

qualified professionals.

- 51 representatives from 25 public and private institutions participated in the National Consultation of Suriname.
- The National Consultation will help improving the Tarapoto Proposal in a future regional meeting (Tarapoto II), with the main purpose of having a useful instrument for measuring the Amazon Forest's sustainability and to strengthen the political commitment among the Amazon Cooperation Treaty 's member countries.
- A marked integration in the concepts of applicability and importance of indicators, which is difficult to separate, has been observed in the discussions of the work groups.

## 5. RECOMMENDATIONS

- A suitable policy: wood extraction quota, mechanisms for controlling and reporting activities. Institutional strengthening of the participation of the local peoples.
- Official statistics gathered in the local unit of forest products, basing the knowledge.
- Gathering of statistics must be decentralized.
- Income from exports may be measured.
- E.g. competitiveness: equal access to forest resources. There is discussion between availability and importance.
- It is important that land rights of indigenous peoples be recognized, and that their lands must be demarcated.
- Institutionalization of cooperation. It is better to say "existence" rather than appropriate.
- Ratification of international agreements must be done with consciousness"
  - efficiency of the government's organization must improve.
  - creation of knowledge at the political level must be increased.
- The need for an instrument that shall facilitate implementation of a legal structure.
- Differentiate between:
  - Wood
  - Non-wood forest products
- Differentiation according to the conditions of forest use.
- Criteria must be in their place
  - Evaluation of non-wood forest products by consulting several investors.
- Potential to generate research funds for a better evaluation.
- The indicator on the water's global cycle is highly desirable in the near future. Some information is already available. Need for a common data collection and processing methodology.



## 2. Results

The following information is the result of the National Consultation in Suriname. These results were first generated by working groups and then discussed on the plenary.

### 2.1 RESULTS AT THE NATIONAL LEVEL

#### CRITERION 1. SOCIO ECONOMIC BENEFITS

##### Analysis of Indicators on income, production and consumption

INDICATOR	APPLICABILITY				COMMENTS
	0-25	26-50	51-75	76-100	
a) Economic profitability of management and sustainable use of the forests			$\bar{X} = 68$ $s = \pm 16$		An adequate policy: Quota on timber extraction, mechanisms for control and reporting of the activities: Institutional strengthening participation of the local population
b) Sustainable production, consumption and extraction of forest products			$\bar{X} = 52$ $s = \pm 20$		Official statistics collected at the household unit of forest products; awareness building
c) 1. Values of timber products from sustainable sources and from unsustainable sources as percentages of Gross National Product			$\bar{X} = 57$ $s = \pm 16$		Collection of statistics must be decentralized;
2. Values of non-timber products from sustainable sources and from unsustainable sources as percentages of Gross National Product			$\bar{X} = 38$ $s = \pm 17$		now there is one national report
d) Employment and direct and indirect income from sustainable activities in the forest sector and generation of forest-based employment in relation to total national employment			$\bar{X} = 41$ $s = \pm 16$		Difficult to acquire information
e) 1. Average per capita income in different forest sector activities	$\bar{X} = 22$ $s = \pm 13$				
e) 2. Average per capita export income in different forest sector activities			$\bar{X} = 66$ $s = \pm 16$		Export income can be measured
f) Efficiency and competitiveness of forest product production and processing systems	$\bar{X} = 19$ $s = \pm 10$				i.e. competitiveness: equal access to forest resources there is a discussion between availability and importance
g) Impact of the economic use of forests on the availability of forest resources of importance to local populations.	$\bar{X} = 20$ $s = \pm 14$				It is important that the landrights of indigenous people are recognized
h) Relationship between direct and indirect uses of the forests.	$\bar{X} = 26$ $s = \pm 23$				



**Indicators of Income and Economic Growth in the Forest Sector**

INDICATOR	APPLICABILITY				CHANGES	COMMENTS
	0-25	26-50	51-75	76-100		
a) Annual investment in plantations, sustainable forest management and conservation in relation to total forest sector investment			$\bar{X} = 61$ $s = \pm 14$			
b) Aggregate value of sustainable forest sector production.			$\bar{X} = 62$ $s = \pm 16$			
c) Rate of return on investment of the different economic activities in the sustainable forest sector, compared with rates of return in other sectors of the economy, considering all costs and benefits.			$\bar{X} = 61$ $s = \pm 17$			
d) Correct Translation: Aggregate value of sustainable recreation and tourism activities.			$\bar{X} = 64$ $s = \pm 10$			Level of

**Indicators of Cultural, Social and Spiritual Needs and Values**

INDICATOR	APPLICABILITY				CHANGES	COMMENTS
	0-25	26-50	51-75	76-100		
a) Area and percentage of forestlands, in relation to total forestland area, managed to protect cultural, social and spiritual needs and values.			$\bar{X} = 73$ $s = \pm 17$			Recognize the landrights of the indigenous people and that they have to be demarcated
b) Area and percentage of forest lands use for purposes of supporting local populations.						DELETE
c) Level of participation of local populations in the management and in the benefits generated by forest activities.			$\bar{X} = 73$ $s = \pm 16$			
d) Development of productive alternatives to illicit crops and mining.			$\bar{X} = 54$ $s = \pm 21$			

**CRITERION 2. Policies and Legal-Institutional Framework for Sustainable Development of the Forests**

INDICATOR	APPLICABILITY				CHANGES	COMMENTS
	0-25	26-50	51-75	76-100		
a) Appropriate political and legal framework that stimulates sustainable development as a joint effort between the various levels of government and non-governmental groups.			$\bar{X} = 62$ $s = \pm 12$			Institutionalization of the cooperation. It is better to talk about 'existence' in stead of appropriate
b) Policies and legal framework for environmental planning through ecological-economic zoning.			$\bar{X} = 66$ $s = \pm 11$			Spatial plan
c) Capacity to implement international instruments on which the country is part.			$\bar{X} = 63$ $s = \pm 8$			The ratification of international agreements has to occur in a conscious way: <ul style="list-style-type: none"> <li>• efficiency of government organization has to improve</li> <li>• awareness building at a political level has to increase</li> </ul>
d) Harmonization and implementation of existing legislation in the country.			$\bar{X} = 63$ $s = \pm 14$			The need for an instrument to harmonize the implementation of the legal structure



### CRITERION 3. Sustainable Forest Production

INDICATOR	APPLICABILITY				CHANGES	COMMENTS
	0-25	26-50	51-75	76-100		
a) Extension and proportion of forestlands and forests dedicated to sustainable production in relation to the total permanent forest production area.			$\bar{X} = 61$ $s = \pm 21$			Permanent forest production area
b) 1. Quantity and proportion of sustainable timber production in comparison with the national total timber production.			$\bar{X} = 60$ $s = \pm 22$			Timber
2. Quantity and proportion of sustainable non-timber production in comparison with the national total non-timber production.	$\bar{X} = 17$ $s = \pm 5$					Non-timber forest products
c) Quantity and proportion of units of sustainable production, by area class, in comparison with the national total number of units.		$\bar{X} = 30$ $s = \pm 22$				
d) Area and percentage of forestlands managed for recreation and tourism, in relation to total forest area.		$\bar{X} = 48$ $s = \pm 21$				There are statistics for certain areas (such as protected areas) but there are no statistics for the greater part of the forest lands
e) 1. Level of diversification of sustainable timber production.			$\bar{X} = 61$ $s = \pm 22$			Timber
2. Level of diversification of sustainable non-timber production.	$\bar{X} = 11$ $s = \pm 6$					Non-timber forest products

### CRITERION 4. Conservation of Forest Cover and Biological Diversity

INDICATOR	APPLICABILITY				CHANGES	COMMENTS
	0-25	26-50	51-75	76-100		
a) Area by forest type, in categories of protected areas, in relation to total forest area.			$\bar{X} = 70$ $s = \pm 21$			
b) Correct translation: Measures for in situ conservation of endangered species.			$\bar{X} = 71$ $s = \pm 22$			
c) Measures for the conservation of genetic resources.	$\bar{X} = 12$ $s = \pm 9$				New wording: Measures for the ex situ conservation of genetic resources.	
d) 1. Area and percentage of forest affected by processes of biotic agents (insect attack, diseases etc.)	$\bar{X} = 14$ $s = \pm 9$					
2. Area and percentage of forest affected by processes of abiotic agents (fire, flooding, etc.)			$\bar{X} = 70$ $s = \pm 12$			
e) Rate of natural regeneration, species composition and survival			$\bar{X} = 54$ $s = \pm 18$			
f) Rate of conversion of forest cover to other uses.			$\bar{X} = 63$ $s = \pm 15$			APPLICABLE IN THE NEAR FUTURE
g) Area and percentage of forest lands with fundamental ecological changes.		$\bar{X} = 26$ $s = \pm 9$				
h) Impact of activities from other sectors on the conservation of forest ecosystems (mining, ranching, energy, infrastructure, etc.)			$\bar{X} = 52$ $s = \pm 21$			

**CRITERION 5. Conservation and Integrated Management of Water and Soil Resources.**

INDICATOR	APPLICABILITY				CHANGES	COMMENTS
	0-25	26-50	51-75	76-100		
a) Measures for soil conservation.			$\bar{X} = 70$ $s = \pm 15$			
b) Area and percentage of forestlands managed for environmental protection.				$\bar{X} = 85$ $s = \pm 15$		
c) 1. Percentage of forest flooded under different drainage regimes in relation to the historic range of variation			$\bar{X} = 51$ $s = \pm 30$			
2. Maintenance of the relationship between the forest and hydro-biological resources		$\bar{X} = 41$ $s = \pm 15$				
d) Effects of forest conservation on the integrated management of water resources.			$\bar{X} = 51$ $s = \pm 20$			

**CRITERION 6. Science and Technology for the Sustainable Development of Forests**

INDICATOR	APPLICABILITY				CHANGES	COMMENTS
	0-25	26-50	51-75	76-100		
a) Quantity and quality of adequate technology for forest management and sustainable production				$\bar{X} = 76$ $s = \pm 14$		Optimal legal instruments and extension training needed
b) Level of recuperation and degree of use of local technologies			$\bar{X} = 74$ $s = \pm 12$			NGO's and Community Based Organizations (CBO's) active GO's non active
c) Investment in research, education and research programs.				$\bar{X} = 80$ $s = \pm 7$		Depends on GO's, donors, and local policies
d) Quantity and quality of education and research programs.			$\bar{X} = 66$ $s = \pm 11$			Quantitative raw data available Qualitative no objective methodology
e) Mechanisms for payment for traditional knowledge.		$\bar{X} = 50$ $s = \pm 14$				Uncontrolled Payment= Compensation
f) Degree of access to technology and information by different social groups.			$\bar{X} = 51$ $s = \pm 17$			No overview of available technical information

**CRITERION 7. Institutional Capacity to Promote Sustainable Development in the Amazon**

INDICATOR	APPLICABILITY				CHANGES	COMMENTS
	0-25	26-50	51-75	76-100		
a) Quantity and quality of institutions and of their intersectoral and inter-institutional coordination.			$\bar{X} = 60$ $s = \pm 14$			
b) Existence of plans and their degree of execution.			$\bar{X} = 64$ $s = \pm 6$			
c) 1. Quantity and quality of education programs.			$\bar{X} = 65$ $s = \pm 10$			Education
2. Quantity and quality of research programs.			$\bar{X} = 52$ $s = \pm 10$			Research
d) Degree of effective participation by civil society (academic institutions, grassroots groups, NGOs, trade unions and the private sector).			$\bar{X} = 62$ $s = \pm 11$			

## 2.2 RESULTS AT THE MANAGEMENT UNIT LEVEL

### CRITERION 8. Institutional and legal framework

INDICATOR	APPLICABILITY				CHANGES	COMMENTS
	0-25	26-50	51-75	76-100		
a) Forest management plan approved by the competent authorities.				$\bar{X} = 81$ $s = \pm 10$		Differentiate between: <ul style="list-style-type: none"> <li>• Timber</li> <li>• Non-timber forest products (NTFP)</li> </ul> Condition Forest Use Differentiation
b) Periodicity of evaluation of management plan implementation and average percentage of implementation.			$\bar{X} = 74$ $s = \pm 6$			<ul style="list-style-type: none"> <li>• Criteria must be in place</li> <li>• Evaluation of NTFP in consultation with different stake holders</li> </ul>
c) Legal framework that guarantees the stability of long-term financial investments in the forest sector.			$\bar{X} = 74$ $s = \pm 14$		Financial	

### CRITERION 9. Sustainable Forest Production

INDICATOR	APPLICABILITY				CHANGES	COMMENTS
	0-25	26-50	51-75	76-100		
a) 1. Annual extraction of timber forest products, compatible with the sustainability capacity of the resource base 2. Annual extraction of timber and non-timber products compatible with the sustainability capacity of the resource base				$\bar{X} = 78$ $s = \pm 4$		Differentiate between: <ul style="list-style-type: none"> <li>• Timber</li> <li>• Non-timber forest products (NTFP)</li> </ul>
b) Area and percentage of forest soils affected by significant alterations in physical-chemical properties and erosion			$\bar{X} = 55$ $s = \pm 20$			
c) Effectiveness of systems of administration and control			$\bar{X} = 69$ $s = \pm 17$			
d) Degree of diversification of production				$\bar{X} = 69$ $s = \pm 12$		
e) Degree of utilization of environmentally friendly technologies				$\bar{X} = 80$ $s = \pm 13$		
				$\bar{X} = 78$ $s = \pm 7$		

### CRITERION 10. Conservation of Forest Ecosystems

INDICATOR	APPLICABILITY				CHANGES	COMMENTS
	0-25	26-50	51-75	76-100		
a) Correct translation: Proportion of area of environmental protection in areas of permanent production				$\bar{X} = 83$ $s = \pm 11$		
b) <i>Measures to protect, recuperate and sustainable use wild populations of species in danger of extinction.</i>			$\bar{X} = 64$ $s = \pm 10$		New wording: Measures to protect, recover and sustain endangered species	
c) <i>Area and percentage of forest affected by processes or other natural agents (insect attack, disease, fire, etc.) and by human actions</i>				$\bar{X} = 78$ $s = \pm 18$	New wording: Area and percentage of forest affected by human actions	
d) Rates of regeneration and forest ecosystem structure.			$\bar{X} = 52$ $s = \pm 12$			
e) Soil conservation measures			$\bar{X} = 75$ $s = \pm 13$			
f) <i>Nature and quantity of benefits deriving from forest management.</i>				$\bar{X} = 84$ $s = \pm 9$	New wording: Methods of watershed protection as part of management activities	

**CRITERION 11. Local Socio-Economic Benefits**

INDICATOR	APPLICABILITY				CHANGES	COMMENTS
	0-25	26-50	51-75	76-100		
a) Quality of life of local populations				$\bar{X} = 80$ $s = \pm 9$		
b) Profitability and rate of return of forest management.			$\bar{X} = 71$ $s = \pm 9$			
c) 1. Efficiency of systems of production and transformation of timber products			$\bar{X} = 79$ $s = \pm 9$			
2. Efficiency of systems of production and transformation of non-timber products.		$\bar{X} = 49$ $s = \pm 13$				
d) <i>Impact of the economic use of the forest in relation to the availability of forest resources to local populations.</i>		$\bar{X} = 50$ $s = \pm 17$			New wording: Impact of the economic use of the forest in relation to the availability of forest resources to local populations	
e) Number of direct and indirect jobs and level of income.			$\bar{X} = 78$ $s = \pm 7$			
f) Nature and quantity of benefits deriving from forest management.			$\bar{X} = 70$ $s = \pm 7$			
g) 1. Annual quantity of timber products extracted per hectare.				$\bar{X} = 86$ $s = \pm 8$		
2. Annual quantity of non-timber products extracted per hectare.			$\bar{X} = 55$ $s = \pm 10$			
h) Aggregate value of production.				$\bar{X} = 80$ $s = \pm 6$		
i) Mechanisms for consultation and the effective participation of local communities in the management of forest resources depend upon the scale of management.				$\bar{X} = 77$ $s = \pm 8$		

**2.3 RESULTS OF THE SERVICES AT GLOBAL LEVEL**
**CRITERION 12. Economic, Social and Environmental Services Performed by Amazon Forests**

INDICATOR	APPLICABILITY				CHANGES	COMMENTS
	0-25	26-50	51-75	76-100		
a) 1. Contribution to satisfy the global demand for sustainable produced TIMBER forest products.			$\bar{X} = 57$ $s = \pm 18$			Quantifiable ranking
2. Contribution to satisfy the global demand for sustainable produced NON-TIMBER forest products.	$\bar{X} = 25$ $s = \pm 13$					Not quantifiable ranking
3. Contribution to satisfy the global demand for sustainable produced MARKET SERVICES of the forest.		$\bar{X} = 41$ $s = \pm 17$				Partially quantifiable ranking.
b) Contribution to the global carbon balance.			$\bar{X} = 72$ $s = \pm 15$			Potential to generate funds for research for better assessment (IPCC Guidelines)
c) Contribution to the global water cycle.				$\bar{X} = 76$ $s = \pm 16$		Very desirable in the near future. Some data already available. Need for common methodology of data collecting and processing.
d) Contribution to the conservation of biological diversity.				$\bar{X} = 92$ $s = \pm 6$		
e) <i>Contribution to radiation balance and regulation.</i>		$\bar{X} = 26$ $s = \pm 6$			New wording: To impede the global warming and ozone depletion	
f) Contribution to the maintenance of cultural values and diversity, and of indigenous and local populations knowledge.				$\bar{X} = 84$ $s = \pm 6$		Cultural diversity
g) Contribution to the economy, health, culture, science and recreation.			$\bar{X} = 66$ $s = \pm 7$			Summary indicator?



# Annexes

- I. *Program of the workshop*
- II. *List of participants*
- III. *Working groups*
- IV. *Speeches*
- V. *Criteria and Indicators for Sustainability of the Amazon Forest*

# Annex 1

## Program of the Workshop

SURINAME NATIONAL CONSULTATION WORKSHOP ON CRITERIA AND  
INDICATORS FOR SUSTAINABILITY OF THE AMAZON FOREST  
*Paramaribo, February 11-12, 1999*

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<b>Vorbereiding en Organisatie:</b>	Ministerie van Natuurlijke Hulpbronnen Dienst Bosbeheer Ministerie van Buitenlandse Zaken <i>Pro Tempore</i> Secretariaat van het Verdrag voor Amazonische Samenwerking
<b>Sponsoring:</b>	Food and Agriculture Organization of the United Nations (FAO)

### Het Kader

Het Verdrag Amazonische Samenwerking (ACT) werd in 1978 ondertekend door de landen Suriname, Brazilië, Bolivia, Ecuador, Guyana, Peru, Venezuela en Columbia.

Middels dit verdrag comitteerden de genoemde landen zich tot het ondernemen van gezamenlijke acties ter bevordering van de harmonieuze ontwikkeling van de gebieden die deel uitmaken van het Amazone bekken, ter wederzijdse voordeel en wel op zodanige wijze dat de natuur behouden blijft en het rationeel gebruik van de natuurlijke hulpbronnen wordt bevorderd.

Het Amazone Verdrag is dus een voorloper van het concept duurzame ontwikkeling (Agenda 21 Action Plan) welke wereldwijd aangenomen werd op de United Nations Conference for Environment and Development (UNCED) te Rio de Janeiro in 1992. Daarbij werd ten aanzien van de bosbouw eveneens overeenstemming bereikt over de duurzame ontwikkeling van alle bostypen uitgaande van ecologische, sociaal- culturele, economische, institutionele en politieke criteria.

Het Amazone Verdrag heeft een sterk politieke achtergrond en moet derhalve gezien worden als een politiek instrument in handen van de lidlanden om externe bemoeienissen in het Amazone gebied buiten de deur te houden.

### Wat is duurzame ontwikkeling?

Duurzame ontwikkeling is de ontwikkeling met bevrediging van de behoeften van de huidige generatie zonder dat daarbij de mogelijkheden van de toekomstige generaties, om in hun eigen behoeften te voorzien aangetast wordt (Brundtland, 1987, United Nations on Human Resources).

Het is een compromis tussen minstens drie intergerelateerde en essentiële doelstellingen, nl

- Sociaal welzijn
- Economische groei
- Conservering van het milieu.

Uiteindelijk komt het neer op een "trade off" die de gemeenschap nastreeft en die beleidsmakers en de overige belanghebbenden moeten identificeren via gerichte discussies (Sizer and Miller (1995)).

### **Wat is duurzaam bosgebruik**

Duurzaam bosgebruik houdt in de conservering van de betreffende natuurlijke hulpbron binnen de markt economie, middels een efficiënt beleid, adequaat bosbeheer en technologie en actieve participatie van de producenten.

Hoofddoelstellingen voor duurzame ontwikkeling van het Amazone bos zijn:

- Verbetering van het welzijn van de mensen
- Conservering van de Amazone biodiversiteit
- Duurzame bos productie.

### **Wat zijn de tools?**

Een belangrijk instrument voor het monitoren van duurzaam bosgebruik op zowel regionaal als nationaal niveau zijn criteria en indicatoren.

Criteria en indicatoren dienen voor het meten van tendensen en veranderingen welke zich voltrekken in de bosbouw sector binnen het sociaal economisch en politiek kader waarin deze zijn geplaatst.

**Criteria** zijn aspecten ter overweging en/of beleidsdoelen zoals o.a.: - conservering van de biodiversiteit.

- bescherming van bodem en water- diverse voordelen voor de gemeenschap
- bijdrage van de bosbouwsector aan de nationale economie

**Indicatoren** zijn de metingen ter bepaling van de mate waarin de in overweging genomen aspecten of beleidsdoelen worden gerealiseerd. Indicatoren kunnen kwalitatief of kwantitatief worden bepaald. Enkele voorbeelden van indicatoren ter bepaling van de criteria "de bijdrage van de bosbouwsector aan de nationale economie" zijn:

- werkgelegenheid in de bosbouwsector
- waarde van hout en bosbijproducten
- investeringen in de bosbouwsector.

### **De Tarapoto Proposal**

In de Amazonelanden zijn de eerste stappen ondernomen voor het duurzaam gebruik van het bos. Gedurende een regionale workshop te Tarapoto, Peru in 1995, definieerden deskundigen van de Amazone lidlanden, waaronder Suriname, de criteria en indicatoren, ten behoeve van de duurzame

bnutting van het Amazone bos. Deze criteria en indicatoren zijn dus aangepast aan de karakteristieken van de Amazone bossen.

De regionale workshop resulteerde in het document "Proposal of Criteria and Indicators for Sustainability of the Amazon Forest", oftewel "The Tarapoto Proposal" welke in een later stadium door de vergadering van de Ministers van Buitenlandse zaken is gesanctioneerd.

Er zijn 12 criteria geïdentificeerd met 77 bijbehorende indicatoren ten behoeve van de duurzame ontwikkeling van het Amazone bos.

De criteria zijn gegroepeerd in 3 categoriën nl.:

- op nationaal niveau
- per regio
- en op het niveau van bosbeheergebieden.

## DE WORKSHOP

Het doel van de workshop is om de criteria en indicatoren zoals vastgelegd in "The Tarapoto Proposal" te evalueren op nationaal niveau.

De consultaties door de overige lidlanden van het Amazone Verdrag hebben reeds plaatsgevonden. Het is van groot belang dat Suriname als lidland ook actief participeert in dit proces.

Immers de criteria en indicatoren voor duurzame bosbouw zijn een belangrijke richtlijn voor de beleidsmakers op zowel nationaal, internationaal als lokaal niveau voor o.a.:

- Het bevorderen van de handel en het verkrijgen van handelsvoordelen in bosproducten op in het bijzonder de internationale markten;
- Het verbeteren van de beschikbaarheid van data verzameld en verwerkt door nationale instituten mede ten behoeve van de internationale rapportage;
- Het verkrijgen van referentiepunten ter formulering van het nationaal beleid.
- Het verkrijgen van basis informatie voor internationale samenwerking en financiering
- De verbetering van de nationale accounting voor de monitoring van de economische groei
- Het natrekken van investeringen en de effecten daarvan in de bosbouwsector

Het is verder belangrijk de nadruk te leggen op de verbetering van de sociale organisatie van de binnenlandbewoners. Hierbij dienen de lokale culturele, spirituele en traditionele aspecten onderkent te worden.

Voor Suriname is deze workshop dus een uitstekende gelegenheid om als volwaardig lidland van het Amazone Verdrag de gemeenschappelijke benadering overeengekomen ten aanzien van de duurzame ontwikkeling van de Amazonebossen op nationaal niveau te implementeren.



## PROGRAMMA

### *Donderdag 11 Februari, 1999*

08:00	Registratie
08:30	Opening Directeur Grondbeheer, Min NH
08:40	Inleiding Nationale coordinator PNC, Min BUZA08:50 Inleiding regionale coordinator CEMAA0
9:00	Inleiding vertegenwoordiger FAO (Project GCP/RLA/128/NET)
09:10	Presentie Enrique Toledo, Consultant
10:30	Koffie
10:50	Presentatie methodologie, Ms. Rosario Lanao, Consultant
11:30	Break-Samenstelling werkgroepen
11:45	werkgroepdiscussies
14:00	Sluiting

### *Vrijdag 12 Februari, 1999*

08:30	Samenvatting voorlopige resultaten werkgroepen
09:00	Vervolg discussies in werkgroepen
10:00	Koffie
10:30	Vervolg werkgroepdiscussies
12:00	Presentaties en Plenaire
14:00	Sluiting door de Minister van Natuurlijke Hulpbronnen.

# Annex II

## List of participants

SURINAME NATIONAL CONSULTATION WORKSHOP ON CRITERIA AND  
INDICATORS FOR SUSTAINABILITY OF THE AMAZON FOREST  
*Paramaribo, February 11-12, 1999*

NAME	POSITION	INSTITUTION	ADDRESS	TEL./ FAX NUMBER	E-MAIL ADDRESS
Mevr. C. Strijdhartig	Dir Grondbeheer	Ministerie van Natuurlijke, Hulpbronnen Hoofdkantoor	Mr. Dr. J.C. de Mirandastraat no. 10	473428	
Dhr. Sanchit	Dienst Bodemkartering	Ministerie van Natuurlijke, Hulpbronnen Hoofdkantoor	Titaniumstraat 2	491440	
Dhr. I. Krolis	Beleidsmedewerker	Stichting Bosbeheer en Bostoezicht	Mr. Dr. J.C. de Mirandastraat no. 10	410121	
Dhr. R.Somopawiro	Beheersplanning	Stichting Bosbeheer en Bostoezicht	Mr. Dr. J.C. de Mirandastraat no. 10	410121	
Dhr. D. Lemen	Boscontrole	Stichting Bosbeheer en Bostoezicht	Mr. Dr. J.C. de Mirandastraat no. 10	410121	
Dhr. C. Julen	Hoofd	Dienst Bosbeheer	Corn. Jongbawstr. 10-12	474346 / fax:410256	
Dhr. F. Baal	Natuurbeheer	Dienst Bosbeheer	Corn. Jongbawstr. 12	479431 / fax:422555	LBBNB@sr.net
Dhr. K.Mohadin		Dienst Bosbeheer	Corn. Jongbawstr. 12	479431 / fax:422555	
Mevr. M.Playfair	Planning	Dienst Bosbeheer	Corn. Jongbawstr. 27	472852/ 471980	planningbosbeheer@cq-link.sr
Dhr. M.Asraf		Dienst Bosbeheer	Corn. Jongbawstr. 27	472852/ 471980	
Mevr. Atmopawiro		Dienst Bosbeheer	Corn. Jongbawstr. 27	472852/ 471980	planningbosbeheer@cq-link.sr
Dhr. F. Horsten	Project Coordinator	FAO	Corn. Jongbawstr. 27	420545/ fax:422960	FAO@cq-link.sr
Dhr. J.Consen	Beleidsmedewerker	Ministerie Planning en Ontwikkelingssamenwerking	Dr. S.Redmonstraat 118-122	473146	

NAME	POSITION	INSTITUTION	ADDRESS	TEL./ FAX NUMBER	E-MAIL ADDRESS
Dhr. W. Wirth		Ministerie Planning en Ontwikkelingssamenwerking	Dr. S.Redmonstraat 118-122	473146	
Dhr. Lont	Dir. Ruimtelijke Planning	Stichting Planbureau	Dr. S.Redmonstraat 118-122	473146	
Mevr. S.Carrilho	Ruimtelijke Planning	Stichting Planbureau	Dr. S.Redmondstraat	473146	
Dhr. I.San a jong	Macro-economische Planning	Stichting Planbureau	Dr. S.Redmondstraat 118-122	473146	
Mevr. Joyce Karijodimedjo	Sociale Planning	Stichting Planbureau	Dr. S.Redmondstraat 118-122	475646	melati@cq-link.sr
Dhr. K.Pasiran	Bedrijvenstatistieken	Algemeen Bureau voor de Statistiek	Kromme Elleboogstr 10	473650	
Mej.Lantveld	Bedrijvenstatistieken Nationale rekeningen	Algemeen Bureau voor de Statistiek	Kromme Elleboogstr 10	474861 toestel 27	
Dhr. K. Tjon	NARENA		Leysweg	490128	
Dhr. B. de Dijn	Zoologische Collectie		POBox 9212	494756	NZCS@cq-link.sr
Mevr. L. Zuylen	Milieu Onderzoek	Universiteit van Suriname	Leysweg	465558	
Mevr. E.Naarendorp	Nationale Milieu Raad		Brokopondolaan 97	493211	
Dhr. R.Landveld	NGO-Forum	NGO's	Gravenstraat 126 Bv	422610/ fax:477696	Ngoforum@sr.net
Dhr. Fraser	Algemene SurinaamseHout Unie	Houtindustrie	Comm.Weytingweg 100	493924/ 434875/ 491352	twcnv@sr.net
R. Werners	Studiedienst	Centrale Bank van Suriname	Waterkant	473741	
H. Vreedzaam	VIDS/Sanomaro Esa	Inheemse organisaties	Indirastraat 7	490678	
Dhr. Huur	Marrons	Inheemse organisaties	Dr. S.Redmondstraat 118 - 122	473146	
Dhr. G. Alvares	Afdeling Amerika	Ministerie van Buitenlandse Zaken	Mr. Lim A Postraat 25	425575	
Mevr. M.Mac Intosh		Ministerie van Buitenlandse Zaken	Mr. Lim A Po straat 25	472497/ 410851	
Mevr. T. Feurich		Ministerie van Buitenlandse Zaken	Ramalaan 17	497533	tref@sr.net
Mr. Dankerlui J.	Industrie	Ministerie van Handel en Industrie			
Dhr. G. Zondervan	International NGO	WWF	Gravenstraat 68	422357	



NAME	POSITION	INSTITUTION	ADDRESS	TEL./ FAX NUMBER	E-MAIL ADDRESS
Mevr. S.Adhin			Wanicastraat 164	422156	
Mr. Moredjo A.	Milieu	Universiteit van Suriname	Leysweg	465558	
Mr. M. Fontaine	International NGO	WWF	Gravenstraat 68	422357	
Mr. Tjin A Lim O.		Stinasu	Corn. Jongbawstraat 12	471856	
Mr. Wilfredo Delgado		De Charge d'Affaire van de Republiek Venezuela	Gravenstraat 23-25	475401	
Mevr. Carla Tuinfort		Dagblad de West	Mirandastraat 4 - 6	473317	
Mr. Bryan Pinas		Universiteit v. Suriname	Leysweg	465558	
Ms. Nancy del Prado	NIMOS	Universiteit v. Suriname	Plutostraat 17	550568	
Mr. Peneux P.		NIMOS	Flustra 35	499987	
Mr. Hilgerink R.	Bostoezicht	Dienst Bosbeheer	Wicherstraat 40 B	475552	harem@sr.net
Mr. Heinen A.		JSOC - LBB	Albergastraat 20	498815/ 498559	IPCbosker@cq-link.sr
Mw. G. Kumamajare	Sanomaro Esa	Inheemse Org.	Manjastraat	450878	
Mrs. Lissett Hernández	Regional Coordinator - CEMAA	<i>Pro Tempore</i> Secretariat Amazon Coopetation Treaty	Bolsa a Mercaderes, Edificio La Perla, Piso 4, Casilla 6984, Caracas 1010, Venezuela	00 (582)481-7752/ 481-8880 / 481-4324 / 481-2067 Fax:00(582)481-5696	cemaatca@cantv.net
Mrs. Sophie Grouwels	Associate Profesional Officer – FAO	Project GCP/RLA/128/NET Support to the <i>Pro Tempore</i> Secretariat. Amazon Cooperation Treaty	Bolsa a Mercaderes, Edificio La Perla, Piso 4, Casilla 6984, Caracas 1010, Venezuela	00(582) 481-0770 Fax:00(582)481-5696	grouwels@cantv.net
Ms. Rosario Lanao	Facilitator of the Workshop		Arnaldo Márquez 1874 Jesús María, Lima 11, Perú		lanmad@yahoo.com atinchik@amauta.rcp.net.pe
Mr. Enrique Toledo	Consultant, <i>Pro Tempore</i> Secretariat. Amazon Cooperation Treaty		Av. Central N° 455 San Isidro, Lima 27, Perú	00 (511)264-3483/ 264-4250 Telefax: 00(511)422-0749	forestales@amauta.rcp.net.pe
Mr. Victor Palma	Chief Technical Adviser– FAO	Project FAO GCP/RLA/128/NET Support to the <i>Pro Tempore</i> Secretariat. Amazon Cooperation Treaty	Bolsa a Mercaderes, Edificio La Perla, Piso 4, Casilla 6984, Caracas 1010, Venezuela	00(582)481-0770 Fax:00(582)481-5696	vpalma@cantv.net



# Annex III

## Working Groups

SURINAME NATIONAL CONSULTATION WORKSHOP ON CRITERIA AND  
INDICATORS FOR SUSTAINABILITY OF THE AMAZON FOREST  
Paramaribo, February 11-12, 1999

NATIONAL LEVEL		UNIT LEVEL	GLOBAL LEVEL
GROUP I	GROUP II	GROUP III	GROUP IV
Criteria 1 - 2	Criteria 3 - 6	Criteria 8 - 11	Criteria 7 and 12
Ms. Georgette Kumanajare Ms. Joyce Karijodimedjo Mr. Y. Landveld Mr. R. Werners Mr. K. Pasiran Ms. Virginia Atmopawiro Mr. I. San A Jong Ms. Miriam Mac Intosh Mr. Hugo Huur	Mr. Bart de Dijn Ms. Shanti Adhin Mr. Bryan Pinas Mr. Ferdinand Baal Ms. Carla Tuinfort Mr. Armand Moredjo Ms. Trevie Feurich Mr. Iwan Krolis	Mr. Aart Heinen Mr. Orlando Tjin A Lim Mr. H. Fraser Ms. H. Vreedzaam Mr. Roy Hilgerink Mr. Dennis Lemen Mr. Mohamed Asraf Mr. Rene Somopawiro	Mr. Carlo Julen Ms. Sonja Carilho Mr. Winston Wirth Mr. Kenneth Tjon Mr. Gerold Zondervan Mr. Jessy Dankerlui Ms. Maureen Playfair

# Annex IV

## Speeches

SURINAME NATIONAL CONSULTATION WORKSHOP ON CRITERIA AND  
INDICATORS FOR SUSTAINABILITY OF THE AMAZON FOREST  
*Paramaribo, February 11-12, 1999*

**REMARKS OF THE DIRECTOR OF LAND MANAGEMENT, MRS. C. STRIJDHAFITIG**

*Dear Representatives of the Pro Tempore Secretariat of the Amazon Cooperation Treaty,  
Representatives of the FAO,  
Representative of the Venezuelan Embassy,  
Ladies and Gentlemen,*

*It is an honor for me to give this opening speech of this Workshop that is so important to Suriname, the National Consultation on Amazon Forest Sustainability Criteria and Indicators. With this event we are also complying with one of our commitments made in the very important International Conference of Rio in 1992: the Conference on Sustainable Development and Environment. We have committed ourselves solemnly, as a Nation, to accept and execute the action plan for the twenty-first century.*

*Sustainable development with conservation of the environment is now the international aspiration and it is also the policy of the Wijdenbosch Government. This aspiration is aimed at beginning and sustaining a development process that shall bring material and spiritual welfare to the whole population and that shall guarantee the national welfare of this and the future generations.*

*We chose purposefully as a Nation to realize the national development goals by cooperating with the countries in the region, whereby the cooperation with the Amazon Cooperation Treaty has a special significance. This also because of the unique characteristics of the population and the environment we share with the other member countries. In this context, Suriname participated in the preparation of the regional proposal of the Amazon Countries on Criteria and Indicators for sustainable forestry.*

*The accelerated development of land and people, which is the purpose of this Government, has to be realized through the use of our potentialities. Therefore, the 'forest' natural resource will play a very important role, also because it is so omnipresent. Our forest, with its multitude of economic, social and ecological functions, is capable of being a sustainable source of products and services for the Surinamese People, and it can also be an important source of foreign currency. Moreover, forestry in Suriname can not be seen separately from international developments in the forestry sector. In this context we can mention that the Amazon Region is seen as the largest continuous surface with almost intact tropical rainforest.*

*It is also important to note that the Wijdenbosch Government provided a special sign to the international community through the establishment of the Central Suriname Nature Reserve. Thanks to this an important part of our rainforest enjoys a permanent protection. The responsibility of taking measures for the conservation and the sustainable use of the remaining part of our forest is ours.*

*The establishment of the Foundation for Forestry and Forest control by the Ministry of Natural Resources is an import step towards the intensification of forest use control. We also have to mention the project for rehabilitation of the Jan Starke Training Center, which trains forestry technical low- and middle cadre who have to put sustainable management into practice.*

*Of special importance is the support that the Ministry has been receiving for over one year from FAO in the form of technical assistance and management advice for the most urgent issues associated with sustainable forestry.*

*With the intensification of forest management, also due to a larger international interest in Suriname's Forest, it is very important to count on acceptable international and regional criteria and indicators at the national level and at the forest level.*

*This workshop provides an excellent opportunity for these experts of different disciplines to cooperate in defining which criteria are the most relevant in our national context to indicate where we are located on the path to sustainable forest use and which indicators we can use to measure it. The outcome of this workshop shall make it possible for our Government to monitor the process of sustainable forestry and forest use on a continuous basis. Therefore, this workshop could not have been carried out in a better moment.*

*This regional cooperation and solidarity among the countries of the Amazon Cooperation Treaty is providing again a contribution to our national progress and also to the improvement of the quality of life of the people living in this region. Let me therefore express my gratitude to the Pro Tempore Secretariat of the Amazon Cooperation Treaty and to the Government of the Republic of Venezuela and its experts for their active cooperation in the implementation of these processes in the Amazon Member Countries. Furthermore, I would like to express my gratefulness to the FAO for making this national consultation possible.*

*Ladies and Gentlemen, the Ministry of Natural Resources counts on the fact that you will actively participate in this important Workshop and will await the results with interest. I wish you two fruitful days and I declare this workshop opened.*

*Thank you.*



**REMARKS OF THE NATIONAL COORDINATOR OF THE PERMANENT NATIONAL COMMITTEE OF  
THE AMAZON COOPERATION TREATY, MR. GLEN ALVARES**

*Director of Management of Territories,  
Members of the Diplomatic Corps,  
Representatives of the FAO,  
Participants,  
Representatives of the Press  
Ladies and Gentlemen,*

*I am honored to address you in the opening of this workshop, where we will evaluate at the national level the Amazon Forest Sustainability Criteria and Indicators.*

*As you know, twenty years ago the Amazon Cooperation Treaty was signed by Suriname, Bolivia, Brazil, Ecuador, Guyana, Peru, Venezuela and Colombia. The goal of the Member Countries was to attain the harmonious development of the Amazon Region by joint action, whereby the most important guideline is the rational use of the existing natural resources.*

*The virgin tropical Amazon Forest, of which Suriname and the rest of the Amazon Cooperation Treaty Countries are part, is also a factor that demands a joint action for protecting and conserving this vital area. I need not say that this area represents an invaluable ecological, cultural and economical value. However, we have to keep in mind that the optimal use of our national resources has to take place within the principle of 'sustainable development'.*

*As mentioned by the speaker before me, Suriname took a leading role in the framework of sustainable development and thus established the Central Surinamese Reserve, which covers over 1,6 Million Hectares. We hope that with this we have given an example of responsible use and conservation of our forests, also for the future generations.*

*The Member Countries of the Amazon Cooperation Treaty have already taken action in connection with the sustainable use of the Amazon territory. During a technical meeting held in 1995 in Tarapoto, Peru, criteria and indicators for the sustainable use of this region were formulated, which are suitable to the specific characteristics of the Amazon forest. These proposals were confirmed on a ministerial meeting and are known as the "Tarapoto Proposal". In that opportunity it was agreed that every Member Country had to validate these criteria and indicators separately.*

*The time has come to discuss these criteria and indicators at the national level. It is very important that Suriname, as a Member Country of the Amazon Cooperation Treaty, implements the agreed common vision concerning sustainable use of the Amazon rainforest at the national level. I would like to express my gratitude to the Pro Tempore Secretariat of the Amazon Cooperation Treaty for its financial and technical support to this process.*

*I hope that the discussions will be fruitful and that the outcome of the workshop will contribute to the sustainable development of the region. As a Member Country of the Amazon Cooperation Treaty, Suriname must and can give an important contribution to increase the welfare and well being of all the populations involved. I would like to finish by wishing you a fruitful discussion.*

*Thank you very much.*

**SPEECH ON BEHALF OF THE PRO TEMPORE SECRETARIAT OF  
THE AMAZON COOPERATION TREATY, MRS. LISSETT HERNÁNDEZ**

*The Amazon Cooperation Treaty is an instrument that allows the Member States to structure programs and projects jointly for the benefit and promotion of the defense, conservation and environmental improvement of the Amazon Basin, undertaking since its subscription the pioneering commitment of working for the concretization of the concept of sustainable development, which seeks the suitable balance between protection of the environment and fostering of development.*

*Taking as reference international experiences associated with the sustainable use of forests, including the process of the ITTO, Helsinki and Montreal, and in the framework of the consensus and commitments undertaken as a consequence of the Environment and Development Conference, held in Rio de Janeiro in 1992, Program 21 and the formulation of criteria and guidelines for the sustainable development of all kinds of forests, the Amazon Cooperation Treaty started a regional-level process to identify a series of sustainability criteria and indicators for the Amazon ecosystems.*

*In this context, in February 1995 the Regional Workshop on Amazon Forest Sustainability Criteria and Indicators took place in the Peruvian city of Tarapoto, which was developed in the framework of the activities corresponding to Program 5 "Defense and Exploitation of Natural Resources" of the Special Commission of the Amazon Region on the Environment (CEMAA). The outcome of this process was a total of 12 criteria and 77 indicators to be submitted to the consideration of the Member Countries as a guide of their policies and actions towards the sustainable development of forests and the conservation of the biological diversity, being at the same time a valuable contribution to the joint design of regional strategies.*

*It is important to note that this initiative was discussed in the V Meeting of Ministers of Foreign Affairs of the Signatory Countries, held in Lima, Peru, on December 5, 1995, which ordered its follow-up through national consultations, with the purpose of promoting the adoption of a regional document on the Amazon Forest Sustainability Criteria and Indicators, through technical meetings that shall give continuity to the process started in Tarapoto.*

*With this regard, on behalf of the Pro Tempore Secretariat of the Amazon Cooperation Treaty, I would like to express my acknowledgment for the effort that the Government of the Republic of Suriname is making for the realization of this important National Consultation Workshop for validating the Tarapoto Proposal on Amazon Forest sustainability criteria and indicators, which allows it, as a country belonging to the Amazon Basin, to become a part of a process of great significance both at the regional and at the world level, especially in these days in which the trend to globalization of the economies generates pressures that force us to incorporate to processes that combine the need to conciliate the production functions of the forests and their ecological role.*

*Likewise, I would like to express my acknowledgment and gratefulness to the FAO Project, who have supported this important task from the technical and financial point of view.*

*Based on all of the above, I would like to stress the importance of working at the regional level on the design and implementation of instruments that shall allow to characterize the resource and its ecological, economic and social dynamics, to strengthen the Amazon Cooperation Treaty, and jointly, for the common interests, as says the text of the Treaty, establish firm negotiation positions on the potential of offer of goods and services of the Amazon Forest in the various international forums on forests.*

*Finally, I would like to stress that this consultation behavior represents an important step towards*

*the concretion of the criteria and indicators for the whole Amazon Region, which is within the spirit of what was agreed by the Ministers of Foreign Affairs of the Amazon Cooperation Treaty in 1995. The Tarapoto proposal was conceived as a project of all the Treaty's members. Thus, the Pro Tempore Secretariat, exercised by Venezuela, aspires that the second regional meeting for validating such criteria and indicators may take place in the near future, once the process of national consultations in the eight Amazon countries has been completed.*

*Thank you.*

**REMARKS OF THE CHIEF TECHNICAL ADVISOR OF FAO PROJECT GCP/RLA/128/NET,  
SUPPORT TO THE PRO TEMPORE SECRETARIAT (PTS) OF THE AMAZON  
COOPERATION TREATY (ACT), MR. VÍCTOR PALMA**

*Ladies and gentlemen:*

*The sustainable development of the Amazon forest must be strongly backed by political, economic and social commitments, in each of the Amazon Cooperation Treaty member countries. For this it is necessary to have a common strategic vision in each country, which shall enable the efficient exploitation and the conservation of the biological diversity, through the application of technologies that shall reduce the environmental impact, in the framework of a market economy.*

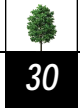
*The Tarapoto Proposal on criteria and indicators for sustainability of the Amazon forests constitutes a political commitment of the member countries. For them, this proposal represents a comprehensive and multidisciplinary sustainable development-planning tool. The proposal is being analyzed and improved through a process of national consultations, with the active participation of the public and private sectors of the Amazon countries, with the main purpose of having a useful tool for the formulation of policies and a political commitment for promoting the sustainable forest development of the region.*

*The main objective of these national consultations is to analyze the applicability of the indicators, within the economic, ecological, political, social and institutional context of each country, by identifying its implementation capabilities.*

*Four years after the inception of the Tarapoto Proposal, a process of national consultations is being carried out. This process allows for the assessment of the applicability of the 12 criteria and 77 indicators contained in it. Five national consultations were carried out in the period between December 1996 and July 1997, in Colombia, Ecuador, Peru, Bolivia and Venezuela. This process, as well as the initial Tarapoto meeting, counted on a donation by the Government of Finland.*

*In the VI Ordinary Meeting of the Special Commission on Environment of the Amazon (CEMAA), held last year in Georgetown, the representatives of Suriname and Guyana requested to the PTS the institutional support to carry out their national consultations. The PTS, in turn, requested to the FAO Project to study the possibility of supporting both, technically and financially, the request of Suriname and Guyana.*

*The FAO Project is pleased to inform that in a very short term it was able to obtain the necessary resources to meet the request of the two countries. Likewise, the Project has provided all the technical support required for these meetings' success, by preparing the terms of reference, identifying the most suitable and competent consultants, and providing the translation into English of the document that will be the basis for the meetings. For supporting the methodology of this workshop, the Project*



*designed a statistical mechanism for the analysis of the scores that each participant will assign to each of the indicators. To this end, the Project prepared a Letter of Understanding, which was signed between the PTS and FAO, so that all outlays may be done through the latter Organization.*

*It is expected that during the period of the PTS in Venezuela the process of national consultations on the Tarapoto Proposal will be completed. After that, Tarapoto II will be convened with the purpose of starting a process of permanent verification of the amazon forest's sustainability. In connection with this, the FAO Project is also pleased to report here that it has developed a methodology, which will test, at the field level, the indicators that were simultaneously considered a priority by the eight countries. We thank all the national institutions that were responsible for organizing this meeting, and we wish that it develops with great enthusiasm, friendship, and in a very participative way. We wish you the most outstanding success.*

*Thank you very much.*

**CLOSING-ACT SPEECH OF THE MINISTER OF NATURAL RESOURCES,  
MR. LIAKAT ALI ERROL ALIBUX**

*Representatives of the Pro Tempore Secretariat of the Amazon Cooperation Treaty,  
Representatives of FAO,  
Ladies and Gentlemen,*

*The accelerated development of our country and people, which is the aim of our Government, has to be realized through the use of the natural resources, in which the forestry division has to play an important role because of the possibility to use the forest in a sustainable way. Our forest, with its multiplicity of economic, social and ecological functions, is able to bring to the Surinamese people the so needed welfare and well being.*

*It's known that the Amazon Region, of which our country is a part, with the largest tropical rainforest area, has a very important place in this planet. Therefore, forestry in Suriname has to be tuned in on the sustainable management of this natural resource. That's why this Ministry is so pleased to have cooperated in the organization of this Workshop. With the organization of the Workshop we also comply with our obligation to materialize one of the commitments we made in the conference on sustainable development and environment in Rio de Janeiro in 1992.*

*Ladies and Gentlemen,*

*For the forestry sector it is important to count on acceptable criteria and indicators as an instrument for monitoring the sustainable use of forests. Sustainable development of the natural resources –that is, with conservation of the environment– is more than ever before an international aspiration. The policy of the government is based on this principle. With its policy the government wants to initiate and sustain a process of development that will lead to the material and spiritual welfare for the total population and that will guarantee the national welfare for this and the future generations.*

*With the intensification of forest management, also due to the higher international interest in Suriname's Forest, the establishment of these criteria and indicators is of outmost importance.*

*Your contribution to formulate and validate these criteria and indicators will be of great value, since they will be the instruments for guaranteeing a sustainable use of forests.*

*I would like to thank the Pro Tempore Secretariat of the Amazon Cooperation Treaty, the Government of the Republic of Venezuela and its experts for their active cooperation in helping to start up this process in Suriname.*

*Many thanks also to FAO, the Planning Office and the Forestry Division for making this national consultation Workshop possible, and to all the participants who concentrated themselves during two days on the topic "Criteria and Indicators for Sustainable forestry". On behalf of the Government of Suriname I would like to thank you all for your constructive cooperation and I hereby declare this two-day workshop closed.*

*Thank you.*

# Annex V

## References

SURINAME NATIONAL CONSULTATION WORKSHOP ON CRITERIA AND  
INDICATORS FOR SUSTAINABILITY OF THE AMAZON FOREST  
*Paramaribo, February 11-12, 1999*

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# Annex VI

## Criteria and Indicators for Sustainability of the Amazon Forest

### 1. INTRODUCTION

The principles of sustainable development should generate actions which will lead towards conservation of ecosystems and improvement in the quality of life of the population. Development of the Amazon region has to ensure preservation of its natural cycles, of its renewable natural resources and its biological diversity within an integral conception based on proper ecological, social, cultural, economic, institutional and political sustainability principles.

The need to carry out real efforts for sustainable development of the Amazon acquires high international priority and constitutes a challenge based on the sustainable development proposals defined by the *Pro Tempore* Secretariat of the Amazon Cooperation Treaty.

Biological diversity in the Amazon is very important and constitutes a permanent source of resources that should be managed following the sustainable development proposals according to the region's characteristics. By means of careful application of proper technologies, sustainable production of the forest can be ensured thus establishing one of the main opportunities for biodiversity conservation and economic and social development.

Criteria and indicators are very helpful tools, designed to support improvement of forest management quality as a comprehensive part of sustainable development in the nations where this happens. These fulfill this purpose by providing a measurement of the state of the forests and their management, and can be thus used to evaluate progress towards sustainable forest management.

Potential benefits of use of criteria and indicators are evident: at the international level, by widening the basis of information and knowledge of quantity and quality of the forests of the world; at national level, as a guide for development or review of the policies and legislation in the formulation and tuning of national programs, and at the level of forest management units, by evaluating results of forest management and by providing a basis for its continuous improvement.

The importance of defining criteria and indicators of sustainability of the Amazon forest stems from the need to have qualitative, quantitative qualification and descriptive parameters and which permit to measure progress of sustainability. The process of identification and analysis of the criteria and indicators of sustainability of the Amazon forest represents a political compromise and a technical tool for the promotion of sustainable development in the Amazon region.

The Regional Workshop on the Definition of Criteria and Indicators of Sustainability of the Amazon Forests was held in Tarapoto, Peru in February 1995. The event was organized by the *Pro Tempore* Secretariat of the Amazon Cooperation Treaty, upon request of the Government of Brazil.

The workshop was attended by representatives from the Member Countries of the ACT: Bolivia, Brazil, Colombia, Peru, Suriname and Venezuela and representatives of FAO, the European Union and the World Resources Institute (WRI) which sponsored the meeting, as well as by representatives of the United Nations Development Program (UNDP) and national institutions and entities as observers.

The workshop arrived at the Proposal of Criteria and Indicators for Sustainability of the Amazon Forest that highlights the nature and particular conditions of the region. The twelve (12) criteria adopted and their associated indicators (77) are grouped in three categories: national level, management unit level and services at the global level. With the Tarapoto Proposal, the Amazon countries aimed at identifying and defining the criteria and indicators which respond to the particularities of the ecosystems in the region, and to the social and cultural factors. The purpose of the Proposal is to make environmental sustainability factors compatible with efficient economic use of the Amazon forests.

The main purpose of this report is to contribute to the analysis of applicability of the Tarapoto Proposal on Criteria and Indicators of Sustainability of the Amazon Forest, serving as a basic document for the national consultations and as one of the documents to be presented at a regional workshop.

This document also presents a conceptual framework of sustainable development of the Amazon forest, definitions, importance of the criteria and indicators, and a comparison between the Tarapoto proposal and other international processes, as well as recommendations for the future.

## **2. CONCEPTUAL FRAMEWORK OF SUSTAINABLE DEVELOPMENT OF THE AMAZON FOREST AND APPLICATION OF CRITERIA AND INDICATORS**

### **What is sustainability?**

In the "Brundtland" Report (1987) of the United Nations Conference on Human Environment, supported by the General Assembly of the United Nations, sustainable development is defined as "development which satisfies the needs of the current generation without endangering future generations' possibilities of satisfying their own requirements". This definition comprises two essential subjects: the priority in solving human needs and the possibility that environmental systems provide to supply whatever is necessary to satisfy human needs.

The main and most recent impulse towards sustainable development was the Rio de Janeiro Conference on Environment and Development, in 1992, which approved the Agenda 21 Action Plan. Agenda 21 has provided important thrusts and political guidelines for the start up and design of processes following the Rio Conference, related to implementation of sustainable development.

Amazon development considers the application of human development (UNDP, 1990), that is, to take into account human needs in order to make development more democratic and participative. Amazon population must have the opportunity to decide on development of its capabilities, health, education and learning, to participate in all aspects of life and of expressing themselves free and creatively.

Sizer and Miller (1995) believe that "sustainability is a trade-off that society seeks and which decision makers and their constituents must identify through measured debate. The more informed the decision, in terms of what is at stake, the better the costs and benefits can be weighted so that planning can address the needs expressed". The concept of sustainable development implies the adoption of a different perspective. The development process should be viewed from three essential aspects: economic, socio-cultural and environmental (World Bank, 1995). At the same time, we should integrate these factors in such a way that existing interactions and inter-relationships can be identified and



analyzed. Within this context, it is necessary to design a general conceptual framework that permits the identification of factors and variables established to measure the development process and transition towards achievement of sustainability.

### **Guidelines for Sustainable Development of Amazon Forest**

Sustainable forestry development implies the conservation of natural resources within a market economy, by means of application of efficient policies, adequate forestry and industrial technologies and active participation of producers.

Main objectives of sustainable development of Amazon forest are:

- Improvement of quality of life of the population
- Conservation of Amazon biodiversity
- Sustainable forestry production

Undoubtedly, the best option at the medium and long term is sustainable development of forests, which means development based on timber and non-timber forestry products and services which forests can render, for example, ecotourism.

Forest management requires clear and stable policies and regulations in the long term and development of participative options for civil society based on development models that consider adequate technologies for products of high added value which are efficient and competitive in a globalized economy.

The challenge of institutional and participative development will be to create efficient systems in technology transfer and in market opportunities.

In the Amazon countries, initial steps have been taken towards sustainable forestry development. In the short term it is necessary to promote proposals which will achieve:

- 1 A definition of policies and forestry regulations with stable rules in order to stimulate investment in forestry development.
- 2 Improvement of the institutional capacity in the public and private sector as well as human resources necessary for forestry products to meet international competitiveness, while originated in managed forests.
- 3 Current tendencies in international markets permit the generation of financial resources from sustainable forest management; therefore, member countries of the ACT should identify comparative advantages of their natural resources in a market economy in order to become efficient and competitive in timber and non-timber forestry products and in forest services.
- 4 In areas considered part of a national conservation system, proposals that allow generation of goods and services compatible with maintenance of quality of life and natural resources while reducing levels of water pollution and preserving biodiversity and abiotic resources should be implemented.

It is important to stress the need to improve social organization of local populations by means of proposals for participation in community organization, in production, in fair prices for economic and social goods and in recognition of local cultural, spiritual and traditional aspects.

Chart No. 1 presents Amazon tropical forests for each country and in total, which constitutes one of the largest forestry areas in the world.

COUNTRY	CLOSED	OPEN	TOTAL	VIRGIN	MANAGED
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 Chart  
No.1

**AMAZON TROPICAL FORESTS (km<sup>2</sup>)**

BOLIVIA	385.000	173.000	558.000	436.000	122.000
BRAZIL	3.562.800	1.582.000	5.144.800	4.722.800	422.000
COLOMBIA	478.000	53.000	531.000	508.000	23.000
ECUADOR	119.000	5.000	124.000	110.000	14.000
GUYANA	162.797	2.200	164.997	112.507	52.490
PERU	760.700	13.300	774.000	698.000	76.000
SURINAME	148.300	1.700	150.000	145.800	4.200
VENEZUELA	437.300	36.000	473.307	359.000	114.300 (*)
<b>TOTAL</b>	<b>6.053.897</b>	<b>1.866.200</b>	<b>7.920.097</b>	<b>7.092.107</b>	<b>827.990</b>

(\*) Total referred to humid tropical forests of Venezuela. South of the parallel, this area of managed forests reaches 1.721 km<sup>2</sup>, distributed among the states of Bolivar and Amazonas (Venezuela, 1992).

Source: "Propuesta de Políticas y Estrategias Regionales para el Aprovechamiento Sustentable de los Recursos Forestales de la Amazonia". (Document SPT-TCA-ECU-17).

## Competitiveness and Globalization of the Economy

World tendency towards a globalized economy will generate, in the next century, more pressures that will give way to important changes in management and conservation of forestry resources of the Amazon. Thus, the importance of developing processes which permit a more sound environmental and economic valuation of forestry resources and to design common strategies in order to improve negotiation capacity of global environmental services. In a market economy, technology and added value should be the most important tools for transformation processes of forestry products, based on environmental and resources conservation. Michael Porter explains that within the current context, developing countries should seek progress on the basis of production specialization and comparative advantages in each country.

Due to new technological processes, globalization in economy has made that less inputs are needed for each product unit, and has also created a high substitution level for other products. Improvement in efficiency of economic appraisal is needed as well as improvement in institutional capacity and adequate availability of information.

Information is essential for achieving development and obtaining high growth rates, since it allows learning about customer needs and, in general, the needs of the enterprises. The new pattern is that of competitiveness in which six basic "musts" exist:

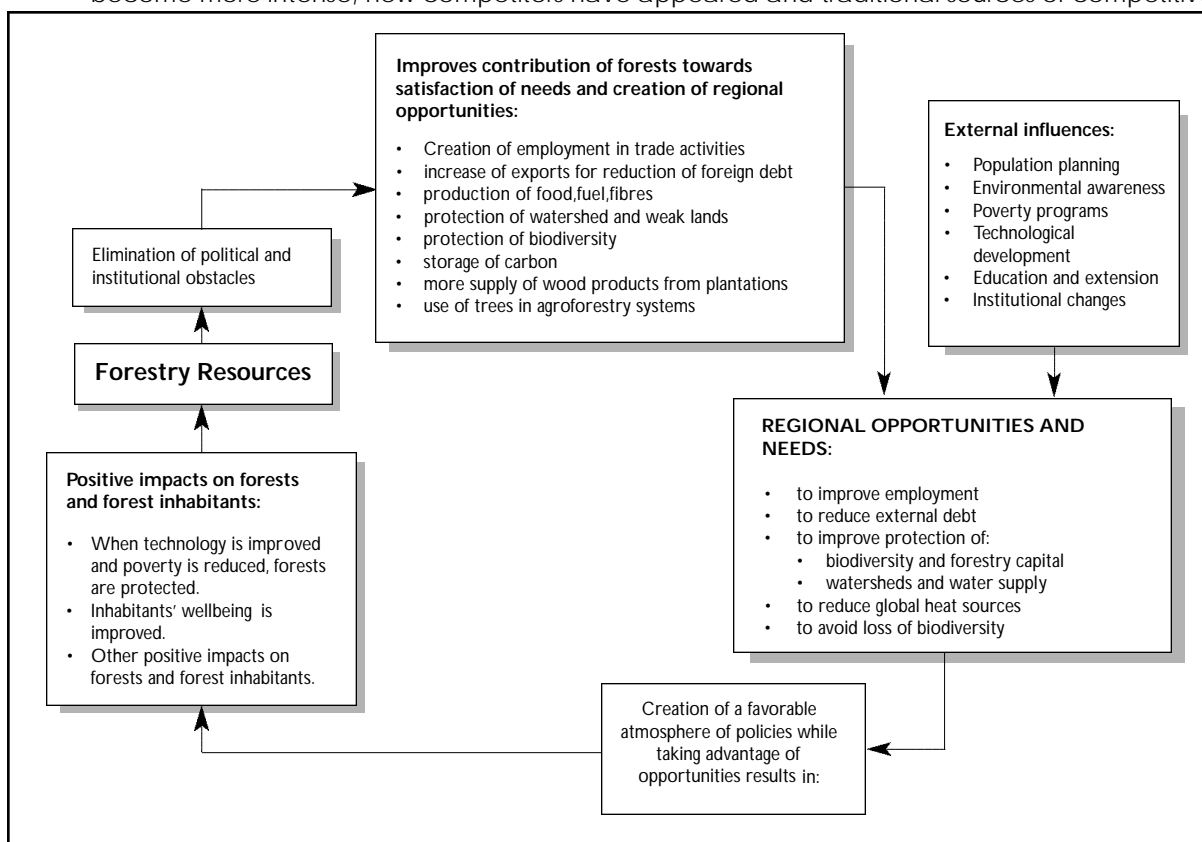
- Develop a competitive mentality
- Reinforce industrial structure
- Improve operational effectivity
- Chose a different competitive position
- Reorient investment
- Compete at regional and global level

We are in the era of total competition. Limits for competition have disappeared, rivalry has

Graphic  
No. 1

## FORESTRY RESOURCES AND SUSTAINABLE DEVELOPMENT IN LATIN AMERICA AND THE CARIBBEAN

become more intense, new competitors have appeared and traditional sources of competitive



Sources: World Forestry and Sustainable Development Commission, 1996.

advantages are less valuable.

### Global Services of the Amazon

Forces that operate at world level, such as global heating, loss in biodiversity, desertification and poverty increase have a strong impact on forestry resources. On the other hand, forestry resources also have an important influence on global conditions. For example, forests contribute to carbon storage and conservation of biodiversity. All these impacts and effects have local, national and global dimensions. Interaction between forestry resources and factors and regional and global opportunities to improve conservation and management of forestry resources are shown in Graphic No. 1. This graphic demonstrates that the creation of favorable environmental policies can effectively contribute to improve impact on forestry resources on important aspects for the region, such as reduction in employment, foreign debt and food security. At the same time, as these policies become implemented, there is likely to be a feedback on poverty reduction and increase in technological levels with a positive impact on management and conservation of forestry resources (World Commission on Forests and Sustainable Development, 1996).

At world level, the carbon cycle is been mainly affected by gas emission in developed countries. The northern countries' industrial development causes negative effects to environment, such as acid rain and the tendency to overheating of the Earth as a consequence of said emanation.

In the Amazon, it is important to develop policies and programs to reduce disorderly expansion of agricultural frontiers, by stimulating sustainable forestry management programs and projects on the

basis of adequate forest revaluation and sustainable agriculture.

### **Sovereignty of Forestry Resources**

Member countries of the ACT have full sovereignty on their Amazon territories and design their own forestry policy and legislation on the basis of the laws and strategies of each country.

The Tarapoto Proposal on Criteria and Indicators of Sustainability of the Amazon Forest, by means of national and regional consultations, have facilitated the establishment of a consensus for the identification of criteria and indicators which promote efficient use of forestry resources in each country, in order to define roles and compromises of the State and civil society towards sustainable development of the forests.

### **Amazon Biodiversity and its Status**

The Amazon houses more than 50% of the Earth's biological diversity, 20% of water in the planet and 56% of the existing tropical forests. Different ecosystems, variety in birds and mammals and plant species with great genetic resources allow great possibilities for their use and also for development of environmental tourism.

In general, conservation of biological diversity requires improvement of efforts of the member countries of the ACT in order to implement programs and projects in natural protected areas and in production forests for conservation of biological diversity. It is important to stress that more basic and applied investigation is required to improve current scientific knowledge on the enormous potential of said diversity in Amazon region, and in order to discover of new medicines, food, fibers and chemical products.

Use of biological diversity of Amazon ecosystems, specially in order to obtain new medicines and products, is awakening great interest at international level, combined with forestry management in permanent production forests, certain types of protected areas, indigenous territories and extractive reserves.

Biological diversity represents a great possibility for generation of income for Amazon populations from investment programs for sustainable use of forests where adequate technologies are developed to guarantee sustainability of resources, based on knowledge transfer on the use of this enormous potential. Amazon populations will participate in biological diversity conservation programs when these represent direct benefits for their economies.

### **Participation of the Forestry Sector in Gross National Product of the Region**

Undoubtedly, forestry activity constitutes one of the main productive activities in the Amazon region, being timber the main product in economic forestry and industrial valuation. Furthermore, non-timber forestry products and services such as ecotourism constitute important economic activities.

In general, the forestry sector in the Amazon countries constitutes an important sector in production and, due to international tendency in increase of timber and non-timber products' prices, the forestry sector could gradually improve its contribution to regional economy based on sustainable forest development, by integrating the forestry productive capacities into a globalized economy.

### **Non-Timber Forest Products**

The enormous biological diversity of Amazon forests represents a great development potential for the member countries of the ACT. Investment in research of science and technology of non-timber products is vital for improving economic valuation of the forests based on medicinal products, fibers, fruits, oils, and chemicals in general.

### **Analysis of Natural, Financial and Technological Resources**

In general, use of timber forest resources in the Amazon has an enormous potential for growth and development. When forest use is increased and one reaches 25m<sup>3</sup>/ha, unit costs of production decrease due to improvement in efficiency and productivity. Therefore, it is important to understand that strategic planning should stem from improving integration of forest resources with a diversified line of forestry products. In other words, instead of an enterprise extracting only 10m<sup>3</sup>/ha, models for forest use should be developed so that that three enterprises with different production lines become integrated in order to reach 25m<sup>3</sup>/ha, thus reducing unit production costs.

Forests should be revalued by means of an agreement among the forestry private sector and forestry policy and legislation, in order to create sustainable forests with permanent production and real compromises for the future. The states should assume the role of designing and implementing the legal and institutional framework that will guarantee new investments in the long term, thus creating mechanisms to stimulate application of forestry management models.

Priorities in human resources for evaluation and use of forestry resources, as well as for development and implementation of adequate technologies for industry and marketing processes should be established for the sustainable forestry development strategy of the Amazon forests.

### **Employment generated by Amazon Forestry Economy**

The main economic activity of the Amazon populations is the production of timber that undoubtedly generates most of the permanent jobs. Extraction, collection, transportation, industrialization and primary, secondary and tertiary manufacture as well as complementary services represent an important source of income for the region's economy. Due to the potential represented by the sustainable management of forests, development of technologies for timber industry with high added value and development of non-timber forestry products are important opportunities for new permanent jobs, in harmony with conservation of natural resources and economic and social development.

### **Indicators for Economic and Environmental Policies**

In Chapter 40 (Information for Decision-Making) of Agenda 21, a call is made for development of indicators for sustainable development. In particular, at national level the countries, and at international level, the agencies and non-governmental organizations are requested to develop the concept of indicators of sustainable development and adequate indicators are identified in order to further the development process.

Winograd (1995) considers that adoption of a common conceptual framework for development and use of indicators should have as essential objectives:

1. Link data, environmental statistics and information related to political, management and administration policies at local, national and regional levels.
2. Integrate sets of information on a geographic basis in order to support the decision making process according to different levels (country, ecosystem, ecoregion) and scales (local,

- national, regional and global).
3. Identify vacuums or duplication in the information and data collection tasks at national, regional and global levels.
  4. Improve and facilitate exchange and quality of information used in the processes of decision making and planning.
  5. Communicate to different types of users, regional, national and local information useful for decision making.

### **Use of Criteria and Indicators for Sustainable Forestry Management**

There is a well-recognized need for more trials and implementation of indicators at national level and more dialogue between participating countries and within them. Periodical exchange of experiences on the successful implementation, difficulties in the application of possible ambiguities in interpretation of concepts and methodologies are essential to accomplish gradual improvement in the forestry management practices and to maintain interest and compromise of cooperating countries.

Flexibility will be needed in the establishment of strategies developed for the implementation of criteria and indicators for sustainable forestry management, so that changes based on experience and new discoveries in research and in reply to social, economic, environmental and institutional needs can be successfully incorporated. In order to be successful in the long term, implementation of criteria and indicators must be regarded as a continuous and dynamic process and adequate funds should be assigned as well as compromise in time should be granted (FAO, Criteria and Indicators for Sustainable Forest Management, 1996).

In the process of developing criteria and indicators, it has been agreed that sustainable forest management will not be reached simply by understanding the structure and functions of the forests, but it also implies the formulation and implementation of appropriate forestry policies as well as follow up of such policies, in practice. Forestry policies and strategies are intended to achieve and promote sustainable forestry management and are a part of the strategies and policies of national sustainable development. Forestry policy is thus affected by other sectorial policies such as environmental, agricultural and marketing policy.

National policies for sustainable forestry management create a framework for adaptation, at national scale, of the criteria and indicators agreed upon regionally and internationally. Implementation of criteria and indicators is related to the role and functions of the forests, and in the general framework of the forestry policy in the relevant country. It is particularly important that proper administration and planing systems exist.

The framework of forestry policy comprises social conditions and processes which support forestry management, in general. The tools in each particular country change according to its particular condition and specific needs (ISCI Intergovernmental Seminar on Criteria and Indicators for Sustainable Forestry Management, 1996).

### **Needs for Information, Institutional Capacity and Resources**

Availability of trustworthy information, which is regularly updated and comparable to specific indicators groups, is essential for a proper debate and a precondition for monitoring impact of forest management interventions and for evaluation of national and international tendencies. Additional efforts will be necessary in the future, in order to ensure that such information is continuously generated and updated regularly, and that it is scientifically sound, technically valid, cost-effective and responds to specific questions and requirements.

It is clear that normal institutional capacity to implement criteria and indicators is noticeably inadequate, not only in developing countries. In many countries, even basic information related to the area and type of forests is quite scarce. A concentrated effort is required at national and international level in order to achieve adequate capacity to face future information needs and to channel efforts towards meeting specified objectives (FAO, 1996).

Since criteria and indicators cover multiple benefits of the forests and forestry, activities in the future will demand ever growing levels of coordination between the forestry sector and other information systems and related fields of activity, such as economy and employment, marketing, and conservation of biological diversity.

Progress in defining indicators of sustainability in forestry, has been pioneer in many aspects and can potentially provide useful information based on experience for criteria and indicators that are being developed for other forms of use of land. However, current efforts in forestry are not widely known outside the sector.

The subject of indicators for sustainable development is multi-sectorial. Indicators are set to capture essential matters that are relevant for sustainable development. They are used for evaluation of the environmental status and progress towards sustainability. They can be used in decision-making when policies and measures to promote sustainable development and to inform the audience and interested groups on progress towards sustainability are implemented.

Publication and application of a set of indicators for decision making will depend on development of an exchange process among producers and users of these tools. This implies a practical dialogue and continuous communication among information producers, experts on indicators and users, in order to establish new needs and to foster discussion and analysis for each step of the decision-making process for which indicators have been established.

This process also requires a fluent exchange of information and a process of harmonization and balance between scientific validity, political acceptability and economic and technical feasibility for development and use of these tools (Winograd, 1996).

### **Homogeneity of Criteria of Data Collection**

Orderly and systematic information relevant to criteria and indicators requires a harmonization effort of methodologies for collection, analysis, interpretation of qualitative and quantitative data with the purpose of obtaining relevant information which permits improvement of forestry political and legal proposals for sustainable development of forests.

There is a general coincidence in the fact that criteria and indicators established at national level could stimulate and assist in the identification of criteria and indicators at the forest management unit. Evaluation related to internationally agreed definitions on sustainable forest management and carried out at the forest management unit can contribute to improve forestry management policies.

In Chart No. 2, achievements and advantages of development of criteria and indicators for sustainable forestry management are presented.

ACHIEVEMENTS AND ADVANTAGES OF DEVELOPMENT OF CRITERIA AND INDICATORS FOR SUSTAINABLE FORESTRY MANAGEMENT

INTERNATIONAL ACHIEVEMENTS AND ADVANTAGES :

- Discussion at international level
- Increasing number of countries currently involved in common discussions
- Encouragement to collaboration
- A large number of interested groups has been involved
- Tends towards the origination of consensus
- Provides a measure (within an area of the national effort) of the progress towards development of sustainable forest management
- Improvement of the information quality and preparation of reports
- Potential contribution for some other similar exercises (e.g. indicators for sustainable development)
- Strengthening of mutual confidence

NATIONAL ACHIEVEMENTS AND ADVANTAGES:

- Contributes to better comprehension regarding the significance of sustainability in the forestry management
- Provides an encouragement (and mutual stimulation) towards sustainable forestry management
- Provides a means for encouraging the progress
- Establishes a basis for debate on the sustainable forestry management among interested groups
- Encourages the reallocation in order to achieve better (a) policies of use of forestry; (b) forestry policies; (c) forestry legislation; (d) forestry management
- Allows the identification of deficiencies in (a) information; (b) research; (c) policies; (d) legislation; (e) capacity; (f) encouragement
- Allows the evaluation of the required resources for achievement of sustainable development.
- Allows the evaluation of priorities among the objectives
- Provides a guideline regarding the efficiency of past investments and possible priorities for future investments

**Source:** International Seminar on Criteria and Indicators for Sustainable Forest Management, 19-22 August, 1966, Helsinki, Finland.

In Chart, 3 examples of possible uses of criteria and indicators are shown.

EXAMPLES OF POSSIBLE USES OF CRITERIA AND INDICATORS

AT INTERNATIONAL LEVEL

- To guide the collection and dissemination of available information on the status of forests all over the world and on the forestry management (e.g. the FAO Evaluation on the Global Forestry Resources);
- To report the international organizations, as CSD, OIMT, among others, on progress achieved.
- Support to the development and follow-up actions for international guidelines and/or legal regulations.
- As an international reference point for people who adopt policies for the formulation of national policies
- For the clarification of items related to international trade of products from forests managed in a sustainable way, including the timber certification.
- To provide information as basis for the international cooperation and financing for the sustainable forestry management; and
- To increase the mutual confidence



#### AT NATIONAL LEVEL

- To provide a tool when preparing reports; the framework for the elaboration of reports regarding changes and tendencies that may occur in the status and conditions of forests and of the forestry management itself.
- To help in the discussions and provide guidelines on national forestry policy;
- To help during the forestry monitoring by alerting on emerging threats and fragility (early alert);
- To form a basis for the inventory and evaluation of important information, related to forests and their management;
- To assist in the decision making process (orientation of policies) towards the sustainable forestry management through:
  1. Identification and improvement of forestry policies goals,
  2. Identification of instruments of policies and improvement of the existing instruments, in order to evaluate them in the achievement of the sustainable forestry management.,
  3. Identification and specification of practices of forestry management that could promote sustainable forestry management.
  4. Focusing on the relevance, effectiveness and efficiency of the implementation and action and,
  5. Highlighting the potential of political consensus and association between the interested groups when providing trustworthy information on the status of the forests and forestry management.
- It is used as a reference point (provides a solid confirmation of the existing tendencies) in the national positions during the negotiation process;
- Serves as an international reference point for people who establish policies in the national politics
- Helps in the communication with the different interested groups and with the general public regarding items of sustainable forestry management;
- Serves as an additional element in the implementation of development plans and forestry programs and in the evaluation of their impacts;
- Assists in the strategic planning of the forestry public organizations (orientation of activities)
- Helps to evaluate the applicability and the effect of new regulatory instruments (laws/ instructions/recommendations) when prepared and implemented;
- Guides research activities (gives priority to the research needs)

#### AT THE MANAGEMENT UNIT LEVEL

- Helps the development of programs, plans, and projects and the evaluation of their impacts;
- Helps to control the forestry concessions;

**Source:** International Seminar on Criteria and Indicators for Sustainable Forest Management, 19-22 August, 1966, Helsinki, Finland.

### 3. ANALYSIS OF THE TARAPOTO PROPOSAL

#### 3.1 NATIONAL LEVEL

##### CRITERION 1. Socio Economic Benefits

Establishes that one of the main objectives of sustainability of the Amazon forest is the generation of socio-economic benefits thus contributing directly towards improvement of the quality of life of the Amazon population. Economic activities in forestry production should generate enough financial resources to support production costs, profits and taxes. In other words, productive capacity of the forests in goods and services should generate enough economic surplus to cover sustainable forest management costs. On the other hand, the objective of sustainability of socio economic benefits is essential to achieve adequate economic and social valuation of the forests; rural populations, (settlers, timber industries, natives, etc.) will be able to carry out goods and services activities without destroying the ecosystem once they understand that forests are a permanent source of generation of goods and services and of an important income for its inhabitants.

### Analysis of Indicators on income, production and consumption

INDICATOR	APPLICABILITY	AVAILABLE INSTRUMENTS TO EVALUATE SUSTAINABILITY	ANALYSIS OF INSTRUMENTS
a) Economic profitability of management and sustainable use of the forests	Yes, because economic sustainability is based on profitability of forest management. It is an accurate indicator.	Balance sheet and state of profits and loss of the forestry enterprises.	Forest management companies prepare an audited Balance Sheet and a state of Profits and Loss  It can be applied at national level, taking into account forest management companies within formal economy.
b) Sustainable production, consumption and extraction of forest products	Yes, because at national level it is an indicator of sustainable forestry production.	Official statistics at national level, which are collected at the management unit, based on annual production and consumption reports.	Each management unit must submit an annual report on production and consumption of timber and non-timber products. At national level, it can only be applied taking into account forest management companies within formal economy.
c) Values of forest products from sustainable sources and from unsustainable sources as percentages of Gross National Product	Yes, because sustainability must be measured also in relation to a country's GNP. However, a comparison between economic value of what is sustainable and non sustainable over the total of products and services rendered by forest, is recommended, based on a systematization of economic information in production in areas under forest management plans and at national level.	- National reports on Gross National Product by production sectors at national level. - Statistics on the value of national forestry production and at management unit level. - Annual reports on production and sales of forest management companies.	- National Ministries of Economy and Finance in each country publish GNP data and reports by sectors. - Efforts must be made to implement total valuation statistics of forestry products by management units.
d) Employment and direct and indirect income from sustainable activities in the forest sector and generation of forest-based employment in relation to total national employment	Yes, but it cannot be applied in the short term due to lack of statistics on employment and direct income from sustainable forestry activities. Design, collection and processing of statistics data at national level on employment and direct income from forestry activities are recommended.	- Statistics by sectors on employment at national level are available.	In some Andean-Amazon countries, employment statistics are reported according to macro-economic sectors and do not discriminate the forestry component in each one (Agriculture, Industry and Services, for example).
e) Average per capita income in different forest sector activities	Yes, of immediate applicability.	It is the value of the GNP of a country divided by the persons involved in this activity.	Data collection on income from production line: extraction, transportation, processing, collection and marketing of products.
f) Efficiency and competitiveness of forest product production and processing systems	No, because it is not necessary. It must be reformulated. I recommend that efficiency parameters be used: - Yield in utilization of forest products. - Forestry and industrial productivity. - Number of timber and non-timber species which are exploited. - Number of forest final products.	New instruments to qualify the indicator must be created such as: - Forest management statistics used by companies. - Production and industrial productivity used by companies.	A methodology for systematizing the efficiency and competitiveness parameters of national production must be designed and implemented.
g) Impact of the economic use of forests on the availability of forest resources of importance to local populations.	No, because it is not accurate. It is better to consider it at management unit level. As a part of the management plan, a list of forestry resources interesting to local population such as fruits, fibers, wildlife, fish can be prepared and a methodology for evaluation of impact on such resources must be developed.	It is recommended to design a methodology to systematize information on impact of forest exploitation on availability of forest products important to local populations.	Cause-effect relation is very difficult to measure because Amazon forest ecosystems are very complex.
h) Relationship between direct and indirect uses of the forests.	No, because it is very general, it is not accurate and can have many interpretations. Cause-effect relations in the Amazon forest are very varied and complex, as there are no general rules, which explain this relationship, and making comparisons between different forest ecosystems is very difficult. As a part of the management plan, it is recommended that in specific cases the relationship between direct and indirect uses of forests be studied.	-----	-----



### Indicators of Investment and Economic Growth in the Forest Sector

INDICATOR	APPLICABILITY	AVAILABLE INSTRUMENTS TO EVALUATE SUSTAINABILITY	ANALYSIS OF INSTRUMENTS
a) Annual investment in plantations, sustainable forest management and conservation in relation to total forest sector investment	Yes, it is an indicator that can be measured when one knows the extension, costs of plantations as well as sustainable management and conservation investments.	<ul style="list-style-type: none"> <li>- Forest plantation costs.</li> <li>- Sustainable forest management costs.</li> <li>- Annual forest plantation areas.</li> <li>- Forest management areas.</li> </ul>	Information on costs of forest plantations and management exists and is available. However, it is necessary to systematize information at national level to obtain desired ratios.
b) Aggregate value of sustainable forest sector production.	Yes, it is a very important indicator because it permits to know the value of forestry products. It can be used in the short term.	Statistics on production, consumption and volume exports, unit prices by product and total production value.	Statistics exist and are available. A methodology to measure added value of production and compare them in time must be designed.
c) Rate of return on investment of the different economic activities in the sustainable forest sector, compared with rates of return in other sectors of the economy, considering all costs and benefits.	Yes, it is an indicator which can be measured on the basis of forestry companies profitability (relationship between cost/benefit, IRR, etc.	Balance sheet and state of profits and loss of forestry enterprises, which have, forest management plans.	Information on company profitability permits assessment of the indicator. Information at national level must be systematized to obtain desired ratios.
d) Rate of growth of sustainable recreation and tourism activities.	Yes, easy to apply on the basis of new investment projects in recreation and tourism projects.	Statistics in: <ul style="list-style-type: none"> <li>- Number of projects under way in recreation and tourism.</li> <li>- Annual investment in recreation and tourism.</li> </ul>	Statistics are available and are easily applicable to measure the indicator.

### Indicators of Cultural, Social and Spiritual Needs and Values

INDICATOR	APPLICABILITY	AVAILABLE INSTRUMENTS TO EVALUATE SUSTAINABILITY	ANALYSIS OF INSTRUMENTS
a) Area and percentage of forestlands, in relation to total forestland area, managed to protect cultural, social and spiritual needs and values.	Yes, easily applicable because natural protected areas and communal private property lands are known.	Statistics at national level on natural protected areas with property titles of indigenous communities and from of the total forestry lands.	Statistics are available and are easy to evaluate. The inclusion of the factor population/managed forestlands is recommended.
b) Area and percentage of forest lands use for purposes of supplying local populations needs.	No, because local populations are settled in extensive territories and in many cases, very difficult to reach.	There are no statistics available on forestry lands assigned for local population's supply and forestry products collection.	Statistics, which consider population, supply areas in relation to the total of natural protected areas, production forests, indigenous reserves, etc. Should be designed and systematized.
c) Level of participation of local populations in the management and in the benefits generated by forest activities.	Yes, but it is difficult to apply at national level. An application methodology that considers <ul style="list-style-type: none"> <li>- Management capacity</li> <li>- Income distribution</li> <li>- Social organization</li> </ul>	Statistics on: <ul style="list-style-type: none"> <li>- Number of communities and producer associations and number of their members who participate in forestry activities.</li> <li>- Total population in forestlands.</li> </ul>	Adequate statistics must be designed. There are no statistics on benefits produced by forestry activities at national level.
d) Development of productive alternatives to illicit crops and mining.	Yes, it is a qualitative indicator, which is applicable.	<ul style="list-style-type: none"> <li>- List of timber, non-timber and competitive agroforestry products.</li> <li>- Illicit crops' substitution areas by alternative products</li> </ul>	Detailed information is available on alternative and crop-substitution products. A methodology to apply the indicator must be designed.

## CRITERION 2. Policies and Legal-Institutional Framework for Sustainable Development of the Forests

Sustainability of the Amazon forest at national level requires a legal and institutional framework that promotes forestry resources conservation based on land classification, management plans and application of efficient and adequate technologies. Policies and legal framework must be set by deciding upon roles and compromises between the State and civil society with the purpose of establishing sound and stable rules that promote long term investments in sustainable forest management. Member States of the ACT have signed international agreements to make efforts towards sustainability of the Amazon forest, based on the UNCED agreements. Each country is sovereign on its forestry policy decisions.

INDICATOR	APPLICABILITY	AVAILABLE INSTRUMENTS TO EVALUATE SUSTAINABILITY	ANALYSIS OF INSTRUMENTS
a) Appropriate political and legal framework that stimulates sustainable development as a joint effort between the various levels of government and non-governmental groups.	Yes, it can be applied immediately.	<ul style="list-style-type: none"> <li>- Forestry legislation and its regulations.</li> <li>- Existence of an agreement process between the State and civil society.</li> </ul>	Forest law and regulations encourages sustainable development. The concertation process must be determined and qualified on the basis of roles and actual commitments.
b) Policies and legal framework for environmental planning through ecological-economic zoning.	Yes, it can be applied immediately.	<ul style="list-style-type: none"> <li>- Existence of a national territorial classification in the Amazon.</li> <li>- Existence of economic-ecological zoning at departmental, provincial or district level, or according to basins.</li> </ul>	Instruments are adequate to measure the indicator.
c) Capacity to implement international instruments on which the country is part.	It can be applied immediately. A methodology that allows collection and systematization of trustworthy information on the international compromises and their implementation level.	<ul style="list-style-type: none"> <li>- International biodiversity agreements, on climate changes and others.</li> <li>- Law and Amazon forestry policy.</li> <li>- Supreme decrees, Minister and Director resolutions.</li> </ul>	Contains relevant information to measure the indicator. Needs detailed and systematic analysis.
d) Harmonization and implementation of existing legislation in the country.	Yes, it can be applied immediately	<ul style="list-style-type: none"> <li>- Forestry laws and regulations.</li> <li>- Environmental code and its regulations. Environmental code and regulations.</li> <li>- Supreme decrees, Minister, Director and Chief resolutions.</li> </ul>	Instruments are adequate to measure the indicator, the need exhaustive analysis to determine harmonization level and implementation of current law.

### CRITERION 3: Sustainable Forest Production

Refers to the capacity of goods and services production of forests without committing quantity and quality yielding in the future. It also considers application of forest and industrial technologies that provide more diversification and improve forest exploitation.

INDICATOR	APPLICABILITY	AVAILABLE INSTRUMENTS TO EVALUATE SUSTAINABILITY	ANALYSIS OF INSTRUMENTS
a) Extension and proportion of forest lands and forests dedicated to sustainable production in relation to the total permanent production area.	Yes, immediately based on the analysis of forest production areas under management plans, compared to the total production areas.	<ul style="list-style-type: none"> <li>- Statistics of forestry concession contracts with forestry management plans.</li> <li>- Statistics of forestry plantations.</li> <li>- Total extension total of permanent production areas.</li> </ul>	Forest statistics at national level have required information.
b) Quantity and proportion of sustainable forest production in comparison with the national total forest production.	Yes, immediately based on forest production under management plans and the national total.	<ul style="list-style-type: none"> <li>- Statistics of production of forest management units.</li> <li>- Statistics of total national production.</li> </ul>	In some cases it is necessary to systematize information at management unit levels in order to process it at national level.
c) Quantity and proportion of units of sustainable production, by area class, in comparison with the national total number of units.	Yes, immediately on the basis of the sustainable productive unit areas and the national total.	<ul style="list-style-type: none"> <li>- Areas under forest management plans approved by competent authorities.</li> <li>- Areas of forestry plantations.</li> <li>- Total extension of production areas.</li> </ul>	Information at production units level, forest plantation areas and areas under forest management must be systematized.
d) Area and percentage of forest lands managed for recreation and tourism, in relation to total forest area.	Yes, immediately based on the contracts and private property areas and the national total.	<ul style="list-style-type: none"> <li>- Statistics of concession contracts and private property lands for recreation and tourism.</li> <li>- Total forestry extension.</li> </ul>	Necessary information at national level is available.
e) Level of diversification of sustainable forest production.	Yes, it is an important indicator because it allows knowing if forest resources are being used in an integral way, including timber and non-timber products and services. Information is needed on the number of exploited species, forest products and services.	<ul style="list-style-type: none"> <li>- Statistics on forest exploitation under management plans.</li> <li>- Management plans approved by competent authority.</li> <li>- Reports on production and sales.</li> </ul>	Collection of information at management unit and then projecting it at national level must be systematized. A list of timber and non-timber products in areas under forest management and determination of the production and value in the market is required.

#### CRITERION 4: Conservation of Forest Cover and Biological Diversity

Sustainability of the Amazon forest has as essential condition conservation of forest cover and biological diversity. Conservation of forest cover considers natural protected areas, permanent production forests and indigenous reserves, Changes in use of forest areas and forests affected by different processes reduce sustainability of forest resource. Conservation of biological diversity refers to variety of species of flora and wildlife, genetic variety of these species and variety of ecosystems they inhabit.

INDICATOR	APPLICABILITY	AVAILABLE INSTRUMENTS TO EVALUATE SUSTAINABILITY	ANALYSIS OF INSTRUMENTS
a) Area by forest type, in categories of areas under conservation, in relation to total forest area.	Yes, immediately based on technical-legal analysis of different conservation units, compared to the total forests.	Statistics in the system of natural protected areas by conservation categories. Legal regulations to accurately establish conservation areas and their classification category.	Information is available and easily applied. Generally there exists a technical-legal descriptive memory of each conservation unit.
b) Measures for in situ conservation of endangered species.	Yes, based on the analysis of the situation of endangered. A better institutional capacity is needed to measure this indicator.	- Statistics on germoplasm banks, genetic reserves, natural protected areas and germoplasm and seedlings - Lists of CITES at national level in different categories: I :In danger of extinction II :Endangered species III :Controlled species	Collection and processing of information on conservation measures for species in danger of extinction must be systematized at national level.
c) Measures for the conservation of genetic resources.	Yes, immediately.	Statistics on germoplasm banks, number of forestry genetic banks, and production of plants based on genetic improvement and selection of ...and seedling trees by species.	Collection and processing of information at national level must be systematized.
d) Area and percentage of forest affected by processes or other agents (insect attack, disease, fire, flooding, etc.)	Yes, but the institutional capacity needs to be improved to measure this indicator.	• Studies of forests affected by plagues, fires, and floods in specific cases • Technical reports on application on forest management plans.	Collection and processing of information at national level must be systematized
e) Rate of natural regeneration, species composition and survival	Not in the short term. Although valuable forestry experiences and research on forest dynamics are available, a methodology to provide comparable figures should be designed and implemented.	Specific studies on natural forest regeneration in primary intervened forests and in secondary forests. Forestry association studies and of survival in adverse conditions.	Case studies which do not reflect the actual situation at national level. Growth and natural regeneration parcels must be established for different ecosystems and a model to measure this indicator must be designed.
f) Rate of conversion of forest cover to other uses.	Yes, immediately. With available technology on satellite images and remote sensors, forestry conversion areas for other purposes can be measured.	Environmental monitoring studies in deforestation at national level.	Studies are permanent and provide information on annual data that can be compared among them.
g) Area and percentage of forest lands with fundamental ecological changes.	Cannot be applied because it is not accurate and can be understood in different ways. A methodology to determine to which ecological changes it refers to as well as the measurement and analysis system.	Studies are available on biological diversity, erosion, genetic resources, water supply, and climate changes, among others.	Possible ecological changes are many and require accuracy to collect and systematize information at national level.
h) Impact of activities from other sectors on the conservation of forest ecosystems (mining, ranching, energy, infrastructure, etc.)	Yes, immediately based on national impact of other sectors.	Cases of pollution by mining sweepings, deforestation, floods due to damming, and impact due to road and railroad construction, among others:  • Environmental code and regulations. • Environmental Impact Studies. • Studies on Environment Adaption Programs (PAMAs).	Impacts are many require accuracy to collect and systematize information at national level.  Environmental authorities have relevant information to qualify this indicator.

### CRITERION 5: Conservation and Integrated Management of Water and Soil Resources

It is a very important criterion for Andean-Amazon countries because the loss of soils by erosion caused by water occurs in the high jungle area, as a consequence of deforestation processes, which occur in frail ecosystems. It also considers water equilibrium and risks of floods.

INDICATOR	APPLICABILITY	AVAILABLE INSTRUMENTS TO EVALUATE SUSTAINABILITY	ANALYSIS OF INSTRUMENTS
a) Measures for soil conservation.	a) Measures for soil conservation.	List of measures that can be applied for soil conservation. Construction of infiltration ditches Reforestation with leguminosae Slopes protection	A methodology for accurate collection and systematization of information is needed
b) Area and percentage of forestlands managed for environmental protection.	b) Area and percentage of forestlands managed for environmental protection.	Technical report on territorial classification in determination of forestry protection lands.	The technical report generally covers the national level. In some countries a technical proposal is not implemented.
c) Percentage of "masses of water" in forest areas, according to the historic range of variability and maintenance of the relationship between the forest and hydrobiological resources.	c) Percentage of "masses of water" in forest areas, according to the historic range of variability and maintenance of the relationship between the forest and hydrobiological resources.	Instruments for this indicator are not developed. Methodologies to measure water masses and their historic range at national level do not exist. Representative units at national level and design of an evaluation methodology with defined parameters are suggested.	-----
d) Effects of forest conservation on the integrated management of water resources.	d) Effects of forest conservation on the integrated management of water resources.	At the management unit the following can be determined:  - Loss of water due to - Improvement of hydric balance - Construction of infiltration ditches	Not enough information is available to measure the indicator at national level.

### CRITERION 6: Science and Technology for the Sustainable Development of Forests

It is an important indicator of sustainability of forests by means of the application of adequate technologies on a scientific basis. The challenge for forest management is transfer of knowledge from research institutes universities and demonstrative projects to producers and incorporate the latter as main actors of sustainable development based on long term commitments. It also considers available technologies, their efficiency, and capacity of scientific and technical institutions, information systems and knowledge transfer as well as recovery of local technologies.

INDICATOR	APPLICABILITY	AVAILABLE INSTRUMENTS TO EVALUATE SUSTAINABILITY	ANALYSIS OF INSTRUMENTS
a) Quantity and quality of adequate technology for forest management and sustainable production	Yes, immediately by preparing a list of technologies and designing qualification parameters.	List of management technologies for natural regeneration, nurseries, plantations and exploitation, for example.	A model of evaluation of the indicator based on systematizing available technological information and their efficiency must be designed.
b) Level of recuperation and degree of use of autoctonous technologies	Yes, immediately by knowing local technologies and their use.	List of rescued local technologies and their application.	A methodology for application of recovered local technologies must be established. The ACT has systematized important technological information on medicinal plants.
c) Investment in research, education and technology transfer programs.	Yes, immediately on the basis of evaluation of budgets of research centers, universities and sustainable forest development projects.	Annual budgets for research centers universities and projects.	A national list of research centers universities and projects must be defined and research on investigation, education and technology transfer should be annually quantified.



INDICATOR	APPLICABILITY	AVAILABLE INSTRUMENTS TO EVALUATE SUSTAINABILITY	ANALYSIS OF INSTRUMENTS
d) Quantity and quality of in process research and sustainable development projects.	Yes, immediately by collecting information on research and development projects in private and public sectors. Quality of services can be measures in: Improving use of natural resources Conserving biological diversity Improving income	<ul style="list-style-type: none"> <li>List of research and sustainable development projects.</li> <li>Technical-administrative reports on evaluation of projects.</li> </ul>	The list of projects should include in the technical report: <ul style="list-style-type: none"> <li>Objectives</li> <li>Expected results</li> <li>Activities, budget and execution schedule</li> </ul>
e) Mechanisms for compensation for traditional knowledge.	Is very general and difficult to apply. For example, it is necessary to determine: <ul style="list-style-type: none"> <li>Number of intellectual property patents based on traditional knowledge.</li> <li>Negotiation capacity of local population to economically value traditional knowledge.</li> </ul>	<ul style="list-style-type: none"> <li>Registry of intellectual property patents.</li> <li>Contracts and/or agreements for intellectual and commercial association.</li> </ul>	Easy to determine in national patent public registries.
f) Degree of access to technology and information by different social groups.	Yes, immediately based on knowledge of information in Internet and Forestry Services Information.	Internet Forestry Information Networks Sustainable Development Projects Number of users of information services.	An evaluation methodology at national level must be developed.

### CRITERION 7: Institutional Capacity to Promote Sustainable Development in the Amazon

Public and private institutions for sustainable development in the Amazon must be efficient, transparent, willing to render services and capacity to interact institutionally.

Agreement between institutional efforts must be sought, based on a common strategic outlook for sustainable development in the Amazon and take up roles and compromises in the long term.

INDICATOR	APPLICABILITY	AVAILABLE INSTRUMENTS TO EVALUATE SUSTAINABILITY	ANALYSIS OF INSTRUMENTS
a) Quantity and quality of institutions and of their intersectoral and inter-institutional coordination.	Yes, immediately. It must be applied to public and private institutions. Quality can be assessed on the basis of: Institutional leadership  Fulfilling of institutional targets Innovation and accommodation to changes capacity Existence of a long term sustainable development outlook	<ul style="list-style-type: none"> <li>List of institutions and of interinstitutional agreements as well as intersectoral groups.</li> <li>Annual memories of public and private institutions.</li> </ul>	An institutional evaluation methodology must be developed.
b) Existence of plans and their degree of execution.	Yes, immediately. It must be applied to public and private institutions.	Annual memories of public and private institutions Reports of institutional consultation groups	These reports must be made known. Some public institutions do not publish reports on their plans and execution degree.
c) Quantity and quality of education and research programs.	Yes, immediately. A methodology for data collection and analysis of this indicator must be developed.	Annual institutional evaluation reports of development projects. Technical and university curricula Research programs Institutional evaluation reports	Apart from the curricula, research programs and evaluation reports must be published.
d) Degree of effective participation by civil society (academic institutions, grassroots groups, NGOs, trade unions and the private sector).	Yes, immediately. Sustainable development is based on agreements on roles and commitments between public and private sectors.	Institutional Agreements Existence or not of an agreement process. List of projects executed by the private sector and NGOs.	Instrument makes qualification of indicator possible.

### 3.2 MANAGEMENT UNIT LEVEL

#### CRITERION 8: Institutional and legal framework

Forest management is a long-term activity that requires an efficient and stable legal framework, capable of promoting private investment in biological diversity and in goods and services production on a sustainable basis. Public sector must have institutional capacity to identify areas of permanent forest production, promote investment in management and conservation and monitor implementation of forest management plans.

INDICATOR	APPLICABILITY	AVAILABLE INSTRUMENTS TO EVALUATE SUSTAINABILITY	ANALYSIS OF INSTRUMENTS
a) Forest management plan approved by the competent authorities.	Yes, immediately based on evaluation of forest concession contracts, rights of use of forestry resources and approved management plans.	Existence of management plans approved by competent authority.	Easily applicable and evaluated.
b) Periodicity of evaluation of management plan implementation and average percentage of implementation.	Yes, immediately. In the forestry management contracts periodicity of forest management evaluation is established.	Forest Management contracts Technical-economic reports on management unit. Reports on evaluation of management plans.	A methodology for evaluation of management plans that permit determination of implementation percentage and possible corrective.
c) Legal framework that guarantees the stability of long-term investments in the forest sector.	Yes, immediately. Forest management has a cost and long term profitability, therefore, investors need a stable legal framework and to assume real commitments with the State.	Forestry law and regulations. Environmental Code Supreme Decrees, Minister and Director resolutions. Forest Management Contracts approved by competent authority.	Based on analysis, it is possible to determine if the legal framework guarantees long term investments.

#### CRITERION 9: Sustainable Forest Production

Sustainable forest production considers capacity of goods and services production of a forest, without compromising future yielding in quantity and quality, at management unit level. The Forest Management Plan must achieve better forestry yielding in the future while respecting protection areas as they are frail ecosystems (riversides with high slopes, for example). At the same time, they should manage and efficiently control the forests to guarantee forest replacement, avoid illegal extraction and agriculture migration damage in permanent forestry production areas, among other important objectives. Application of efficient and environmentally sound technologies is important in order to reduce negative impact in exploitation of forests and to improve forestry diversification while increasing economic value of forests.

INDICATOR	APPLICABILITY	AVAILABLE INSTRUMENTS TO EVALUATE SUSTAINABILITY	ANALYSIS OF INSTRUMENTS
a) Annual extraction of timber and non-timber forests products compatible with the sustainability capacity of the resource base.	Yes, immediately. It is easily applied. In management plans, annual production targets are set for timber and non-timber products.	Forestry management plan approved by competent authority. Annual production report for management unit. Evaluation of management plan implementation.	Have necessary information to measure timber products. Non-timber products need a methodology that collects and systematizes information to efficiently measure the indicator.
b) Area and percentage of forest soils affected by significant alterations in physical-chemical properties and erosion.	Yes, by permanent monitoring research with satellite images and remote sensors, intervened areas can be measured.	Technical report on secondary forests and lands. Technical report on lands lost by erosion. Technical report forms the Geographic Information Service.	Have necessary information to measure indicator.
c) Effectiveness of systems of administration and control.	Yes, but a methodology to evaluate the indicator must be designed.	Report on evaluation of private forest administration, which includes: • Administration and budget management • Forestry Control • Meeting of objectives • Evaluation of results	Clear evaluation elements and easily measurable must be considered and for example: • Forest replacement • Cost-benefit relationship • Illegal extraction impact • Migratory Agriculture damage





INDICATOR	APPLICABILITY	AVAILABLE INSTRUMENTS TO EVALUATE SUSTAINABILITY	ANALYSIS OF INSTRUMENTS
d) Degree of diversification of production.	Yes, on the basis of knowing the utilized forest products and services. Services can be quantified among others, on the basis of: Tourism and recreation areas Water quality Conservation of biological diversity.	Forest Management Plan approved by competent authority. Annual timber and non-timber production and of services	Se requiere diseñar una metodología de calificación del indicador.
e) Degree of utilization of environmentally friendly technologies.	Yes, based on determination of technologies considered environmentally sound such as: Conducted systems for cutting trees Reduction in harm to natural regeneration Seed trees It must be applied gradually because application of these technologies has a high cost and would render forest management unprofitable.	Forest Management Plan approved by competent authority.  Annual Forest Management Report  Evaluation of forestry management	A methodology for qualification of the indicator must be designed.

### CRITERION 10: Conservation of Forest Ecosystems

Conservation of forestry ecosystems considers equilibrium between permanent production areas and environmental protection areas. Different types of forests have different structures and dynamics, each one with specific site quality characteristics that determine regeneration rates and forestry management for each ecosystem, at the management unit level. Reduction of negative impact due to forestry production based on soil conservation, protection, and conservation of species in danger of extinction and water protection are considered.

INDICATOR	APPLICABILITY	AVAILABLE INSTRUMENTS TO EVALUATE SUSTAINABILITY	ANALYSIS OF INSTRUMENTS
a) Proportion of areas under environmental protection in comparison to areas of permanent production.	Yes, immediately. In every forest management plan environmental protection areas and permanent production areas are established.	Forest management plan approved by competent authority Base map for the forestlands use.	They have necessary information to qualify the indicator.
b) Measures to protect, recover and sustainable use of populations of endangered wild species.	Yes, immediately. The forest management plan should take into account measures towards protection, recovery and utilization of endangered species.	Forest management plan approved by competent authority. List of CITES species in danger of extinction.	They have necessary information to qualify the indicator
c) Area and percentage of forest affected by processes or other natural agents (insect attack, disease, fire, etc.) and by human actions.	Yes, immediately. However, it is important to mention that many forests in forest management areas do not have adequate access and therefore it is difficult to evaluate harm.	Annual reports on forest management plans implementation. Reports on evaluation of forest management plans. Annual deforestation in areas considered as conversion forests	A methodology for qualification of the indicator must be designed
d) Rates of regeneration and forest ecosystem structure.	Yes, immediately based on the type of primary and secondary forests and proposals for forest management.	Forest management plan approved by competent authority. Base map on types of forests. Technical report on silviculture.	They have necessary information to qualify the indicator
e) Soil conservation measures	Yes, immediately. Normally it is a part of the forest management plan and classification of protection areas due to steep slopes and in recovery of degraded lands, for example.	Management plan approved by competent authority. Annual report on use of forestry lands. Annual report on use of forestry lands in the management unit. - Evaluation of forest management plan.	They have necessary information to qualify the indicator
f) Measures for protection of water courses from forest activities.	Yes, immediately. Normally they are a part of the forest management plan and in classification of riverside protection areas, for example.	- Approved forestry management plan approved by competent authority. - Annual report on use of forest lands in the management unit. - Evaluation of the forest management plan.	They have necessary information to qualify the indicator

### CRITERION 11: Local Socio-Economic Benefits

Socio-economic benefits permit to improve quality of life of local population by applying environmentally sound technologies that generate employment and better income levels based on adequate participation of local population, at management unit level. Quality of life is a concept that covers many areas of human development such as, education, health, information, security, infrastructure, economic income, recreation, management and negotiation capacity, availability of technologies, access to markets, social organization and access to markets, social organization and adaptation to environment, among others. It is important to highlight that one of the direct causes for deforestation is scarce economic value that the forest resource has for the Amazon poor farmers and that strategies and forest management programs must be designed to reduce negative environmental impact and improve living conditions of local inhabitants.

INDICATOR	APPLICABILITY	AVAILABLE INSTRUMENTS TO EVALUATE SUSTAINABILITY	ANALYSIS OF INSTRUMENTS
a) Quality of life of local populations			
b) Profitability and rate of return of forest management.	Yes, immediately. Management of forests is an economic activity with investment and profitability results.	Balance Sheet and State of Profit and Loss on the forestry unit.	They have necessary information to qualify the indicator
c) Efficiency of systems of production and transformation of forest products.	Yes, immediately based on knowledge of forestry use, productivity, number of used species and integration of forest-industry-markets.	Forest management plan Annual timber and non-timber forest production. Annual evaluation of management unit and transformation of products. Report on marketing of forest products.	A methodology for qualification of the indicator must be designed. It is recommended to consider, among others, the following: Yielding in forestry exploitation. Forest and industrial processes productivity Production quality Added value of production Forestry production and marketing.
d) Impact of the economic use of the forest on the availability of forest resources of importance to local populations. Amount of direct and indirect employment and income level.	Yes, but it will be difficult to compare this indicator between different units of management because ecosystems are very varied and because forest resources are important to local populations.	Forest management plan Annual timber and non-timber production List of important products for local population.	A methodology for qualification of the indicator must be designed
e) Number of direct and indirect jobs and level of income.	Yes, immediately. Direct and indirect employment and the income level can be quantified in the management unit.	Forest management plan approved by competent authority. Annual socio-economic forest management report.	They have necessary information to assess the indicator.
f) Nature and quantity of benefits deriving from forest management.	Yes immediately. It is a descriptive indicator that includes ecological, social, cultural and institutional benefits.	Forest management plan approved by competent authority. Annual socio-economic report on forest management	A methodology for qualification of the indicator must be designed
g) Annual quantity of products harvested per hectare.	Yes, immediately. It includes timber and non-timber forest products. Incluye los productos forestales madereros y no madereros.	Forestry management plan approved by competent authority. Annual forest production report.	They have necessary information to qualify the indicator
h) Aggregate value of production.	Yes, immediately. Aggregate value is very important because it contributes to employment generation and economic value of forests.	- Annual forest production report. - Annual socio-economic report on forest management	They have necessary information to qualify the indicator
i) Mechanisms for consultation and the effective participation of local communities in the administration of forest resources, depending upon the scale of management.	Yes, immediately. It is an important indicator that permits to learn about local roles and commitments and the level of compromise between the State and the management unit.	- Annual socio-economic reports on forest management. Informe anual socio-económico del manejo forestal - Forestry management plan approved by competent authority - Annual evaluation reports on management plan.	A methodology for qualification of the indicator must be designed

### 3.3 SERVICES AT GLOBAL LEVEL

#### CRITERION 12: Economic, Social and Environmental Services Performed by Amazonian Forests

Amazon forest resources produce important global services such as carbon storage and byproducts of biological diversity, among others. Due to the fact that these services produce benefits to the world, it is important to analyze and discuss the possibility of having global markets for environmental services of the Amazon forests. Most of the carbon emissions are produced in the developed countries and most of the world's forest resources are concentrated in the Amazon, with a high potential for carbon fixing. Therefore, international negotiation capacity to arrive at agreements that contribute to improvement of management and conservation of the forestry resources in the region should be sought. There are examples of economic valuation of global environmental services, such as joint venture projects whereby an industry in a developed country demonstrates its commitment to reduce global carbon emission by supporting forestry conservation programs in other countries (Secretariat of the World Forest and Sustainable Development Commission, Geneva, Switzerland, November 1996). In the case of global services of biodiversity, other systems of payment for environmental services have been proposed on the basis of research agreements for pharmaceutically-potential products in exchange for a percentage of profits that would be derived. Biological diversity in the Amazon is enormous and constitutes a very large potential for sustainable development.

INDICATOR	APPLICABILITY	AVAILABLE INSTRUMENTS TO EVALUATE SUSTAINABILITY	ANALYSIS OF INSTRUMENTS
a) Contribution to satisfying the global demand for sustainable produced timber and non-timber forest products.	Yes, immediately. It is an important indicator to measure contribution of the Amazon sustainably-based production within a globalized economy.	Statistics on production and exports of forestry products on a sustainable basis, at global level.	The methodology for data collection and statistical information processing must be standardized in Amazon countries.
b) Contribution to the global carbon balance.	Yes, by knowing the emission and collection of CO <sub>2</sub> in the Amazon for which it will be necessary to further scientific research on the matter.	Analysis of statistical projection at Amazon level.	They are valuable and must serve as a basis for better scientific studies.
c) Contribution to the global water cycle.	It is difficult to apply indicator for the time being. It requires more scientific research.	Studies on hydra balance in the Amazon.	A methodology for qualification of the indicator must be designed
d) Contribution to the conservation of biological diversity.	Yes, immediately. It is important based on new scientific findings, which allows systematization and identification of uses for biological diversity in different economical areas.	Technical and scientific reports on biological diversity. Studies on application of adequate technologies for Amazon products. Studies on natural protected areas. Market studies of Amazon products.	They have necessary information to qualify the indicator
e) Contribution to radiation balance and regulation.	More scientific research is required to have an application methodology.	-----	-----
f) Contribution to the maintenance of the values and cultural diversity, and of the knowledge of indigenous and local populations.	Yes, immediately. Based on systematization of rescue experiences and maintenance of cultural diversity and knowledge of local indigenous populations.	Technical and scientific reports on recovery of traditional knowledge. Reports on diversity values and cultural diversity of local indigenous populations. Statistics on natural protected areas, indigenous reserves, etc.	A methodology for systematizing data analysis and to qualify the indicator must be designed.
g) Contribution to the economy, health, culture, science and recreation.	Yes, the Amazon contributes enormously to the world in these aspects.	Economic, technical, scientific, social and cultural reports.	A methodology for systematizing information must be designed. However, in view of the cultural economic, social, resources and biological diversity differences it is necessary to develop a descriptive proposal that considers the most relevant aspects.

#### **4. RECOMMENDATIONS**

Apart from specific recommendations stipulated in the Instruments Analysis used for the various indicators, in the last section, general recommendations are given below:

1. The revision of criteria and indicators of sustainability for the Amazon forest must take into account the institutional capacities of the Countries Party to the Amazon Cooperation Treaty, in order to implement the evaluation mechanisms.
2. The experiences achieved in forest management in the Amazon Region, must be rescued, in order to systematize the collection of relevant information on activities and the categorization of indicators. We must learn from success obtained and errors made in forest management.
3. The definition of the concepts and main terminology applied to criteria and indicators must be homogenized.
4. Strengthening of national and local statistics related to the Amazon forest, making a standardization of the methodology to allow an adequate comparison among the countries.
5. Some criteria must be reformulated in order to be more precise. By doing so, generalities than tend to various interpretations will be avoided.
6. The process of applicability of criteria and indicators shall be more dynamic and permanent, with periodical revisions in order to improve the qualification methods which are based on the experiences achieved. It is recommended to hold annual meetings that shall permit the evaluation of the progress achieved in the application of indicators. It will also be helpful in revising the validation of them and the gathering and analysis methodologies.
7. The revision of criteria and indicators shall contribute to the process of design and implementation of forestry policies that promote the sustainable development of forests. It is recommended to hold periodical technical revisions of the forestry policies. These meetings will be useful to evaluate the application of criteria and indicators at different levels.
8. National capacities must be strengthened not only for improvement of the sustainable forestry management but for collecting and compiling reliable information for monitoring sustainability of the forestry management at national level and for ensuring that the information generated from this process be important, scientifically solid and technically valid.
9. It is essential to raise the knowledge level and to incorporate the local communities in the decision making process. It is also important to include them in the planning and implementation of tasks related to criteria and indicators for sustainable management of forests. Furthermore, there is the need of creating mechanisms that will help said communities to obtain direct benefits from their participation.
10. Indicators can turn into an important tool to communicate and make accessible scientific and technical information for different groups of users. These tools can play a more important role in order to transform information into action at local, national and global level.
11. Criteria and indicators may be used to clarify the issues related to certification of forestry products. More attention shall be paid to the relationship that exists between activities executed at national level and the ones executed at the forestry management unit.
12. The formulation of criteria and indicators shall not restrict the trade activities of forestry products in a sustainable development framework.

# A N N E X 1

## DEFINITIONS

### Criteria

*Is a category of conditions or procedures through which it is possible to evaluate sustainable forestry management.*

A criteria is characterized by a number of related indicators. These indicators are monitored periodically in order to determine any changes that may occur.

### Indicator

*A measure (measurement) of one criterion's characteristic.*

A qualitative or quantitative variable that can be measured or described and when periodically observed presents certain tendencies.

### Biological Diversity

It is related with variety or diversity of life itself. Biological Diversity means the variety of species, animals, plants and micro-organisms that exists in a given area. It is also the genetic divergence of said species and the variety of the ecosystems in which they live.

### Ecosystem

*It is a dynamic number of plants, animals and micro-organisms communities and their relation to the inert environment which they interact with.*

### Monitoring

*Is the periodical and systematical measurement and evaluation of changes of an indicator.*

Sources:

- Amazon Cooperation Treaty.
- Montréal Process, Criterion and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests (1995).

## ANNEX 2

### JUSTIFICATION OF CRITERIA AND INDICATORS

The criteria and indicators of sustainable management of forest are developed in order to estimate the tendencies related with the status of forests and forestry management. They are considered as a policy tool to evaluate whether or not progress towards sustainable management of forests has been achieved. The criteria and indicators have the potential to assist in the process of orientation of forestry or research policies as well as to guide the forestry practices towards sustainable management of forests, in accordance with the society's expectations.

The main objective of criteria and indicators is to define the patterns through which sustainability of the Amazon forest can be evaluated at an adequate level. A criterion corresponds to an element of sustainability in which the sustainable management can be valued. One or more indicators can characterize each criterion. Said indicators can be qualitative, quantitative or descriptive. The systematic and/or periodical evaluation or the measurement of indicators, provides the basic lines for observing any changes or tendencies that may occur in the levels of said indicators, and finally, the progress registered in the sustainability of different functions of forests, considered in the "forestry principles".

Up to date, several criteria and indicators for sustainable development of forests have been developed at national level within the context of four regional and international initiatives, currently in implementation process: The International Tropical Timber Organization (ITTO), the Helsinki and Montreal Processes and the Tarapoto Proposal.

The issue of indicators for the sustainability development is a multisectorial process. The indicators are elaborated for gathering the essential subjects that are relevant for the sustainable development. They are utilized for the evaluation of the status of environment and progress achieved towards sustainability. They also can be used in the decision making process when they are planned and implement policies and measurements for the promotion of sustainable development and for reporting the general public and groups of interest on progress achieved towards sustainability.

#### **Criteria and indicators as a guiding strength in the efforts towards sustainable development of forests**

The criteria and indicators for sustainable management is not definitely the unique subject in the agenda of global forestry dialogue. However, they are, undoubtedly, the issues in which the main progress has been achieved in a relatively short period of time. The four initiatives currently implemented reflect at their present activities the implementation of the Agenda 21 and the "Forestry Principles" adopted at the United Nations Conference for the Environment and Development (UNCED) in 1992. The participatory development of the frames and indicators and criteria has promoted the tasks of the Sustainable Development Council (SDC) and the implementation of the decisions adopted by CNUMAD and has been and valuable informative channel. Through the aforementioned initiatives, which are focused on sustainable development and sustainable management of forests, have increased significantly and more important, real progress has been achieved. There has been a common interest among some countries and international organizations (some non-governmental) for collaborating with the tasks to be implemented. The development of criteria and indicators has also stimulated the implementation of research studies and has increased the cooperation within this field (Intergovernmental Seminar of Criteria and Indicators for the Sustainable Management of Forests. Helsinki, 1996).

## Characteristics of Criteria and Indicators

In general terms, a criterion means an aspect which is considered important and through which the success and failure can be assessed. The role of the criteria consists in characterizing or defining the essential elements or the conditions or procedures through which sustainable management can be assessed. On the other hand, "Indicator" means a quantitative, qualitative or descriptive measure. When an indicator is measured periodically and is also monitored, it reveals the direction of the change that may occur.

The quantitative indicators, and in some cases the qualitative indicators, provide information mainly regarding the conditions of forests and their functions as well as the values and benefits that are associated with the goods and services produced in forests. The descriptive indicators provide information about the existence of instruments of forestry policy and conditions as well as regarding the magnitude in which said instruments of forestry support and highlight the achievements registered in the field of sustainable management of forests. Together with the qualitative indicators, said information is necessary to understand whether there has been progress towards sustainable management of forests and how it has been achieved.

### What are criteria and indicators for forestry sustainability?

Sizer and Miller (1995) state that criteria and indicators for forestry sustainability provide a conceptual and practical meaning for people who elaborate the policies addressed to assess the changes that occur in the values of the resources in the forestry ecosystem. They include economical, social and environmental values.

Governments concerned in achieving sustainable development can use the valuations that criteria and indicators can provide in order to address the changes that may be implemented by the national policies. The criteria can be understood as "desirable goals", such as:

Social-economical Benefits

Forestry Sustainable Production

Conservation of the forestry coverage and biological diversity

Conservation and integral management of water and soil resources

### Importance of criteria and indicators among the Amazon countries

1. Promotion of trade activities and the possibility to obtain profits from trade for forestry products, especially in international markets.
2. Improve and accurate the national accounts in order to evaluate the real economical growth.
3. Investment in monitoring and its effects on the forestry sector.
4. Improve the information available at national level, which is compiled by national institutions in order to introduce it within international forum, reducing the lack of confidence that exists regarding the information compiled by national organizations and presented to international forum, and therefore, bringing more clarity to the international politics debates.

5. Work on the definition of policies, legislation and institutions that can give support to the sustainable development. Said policies legislation and institutions may be consistent with national and international commitments.

Implementation of strategies in the forestry sector, which are oriented by criteria and indicators internationally defined, implies that the countries reconfirm the importance that represent the criteria defined for the national situation, and their approval. It also implies approval by all the involved parties. It also means that the countries, individually, revise and test the practical possibilities of measure and monitoring specific indicators in the field, and value their importance in order to prevail environmental, economical, social and institutional realities. Finally, criteria and indicators adopted, will help to guide the national policy, and can orientates the adjustments that may be necessary to implement by national legislation in order to regulate the practices of forestry management in each country.

### **Proposal of Criteria and Indicators**

"Criteria and indicators" (for sustainable management of forests purposes) are not a goal by themselves. They may be considered as tools for achieving sustainable management of forests. The criteria and indicators are designated for been used as instruments for assessing tendencies and changes that may occur in the condition of forests within the economical, social or political framework within this forests are managed.

The criteria and indicators serve as a system of "early alert". They help in the identification of vacant and menaces, and also can stimulate the search of new opportunities that forests and their management currently face.

The indicators –carefully selected- diminish the number of measures and parameters, adding information in wide scope. This, at the same time, simplifies the process of communication among all the interested groups.

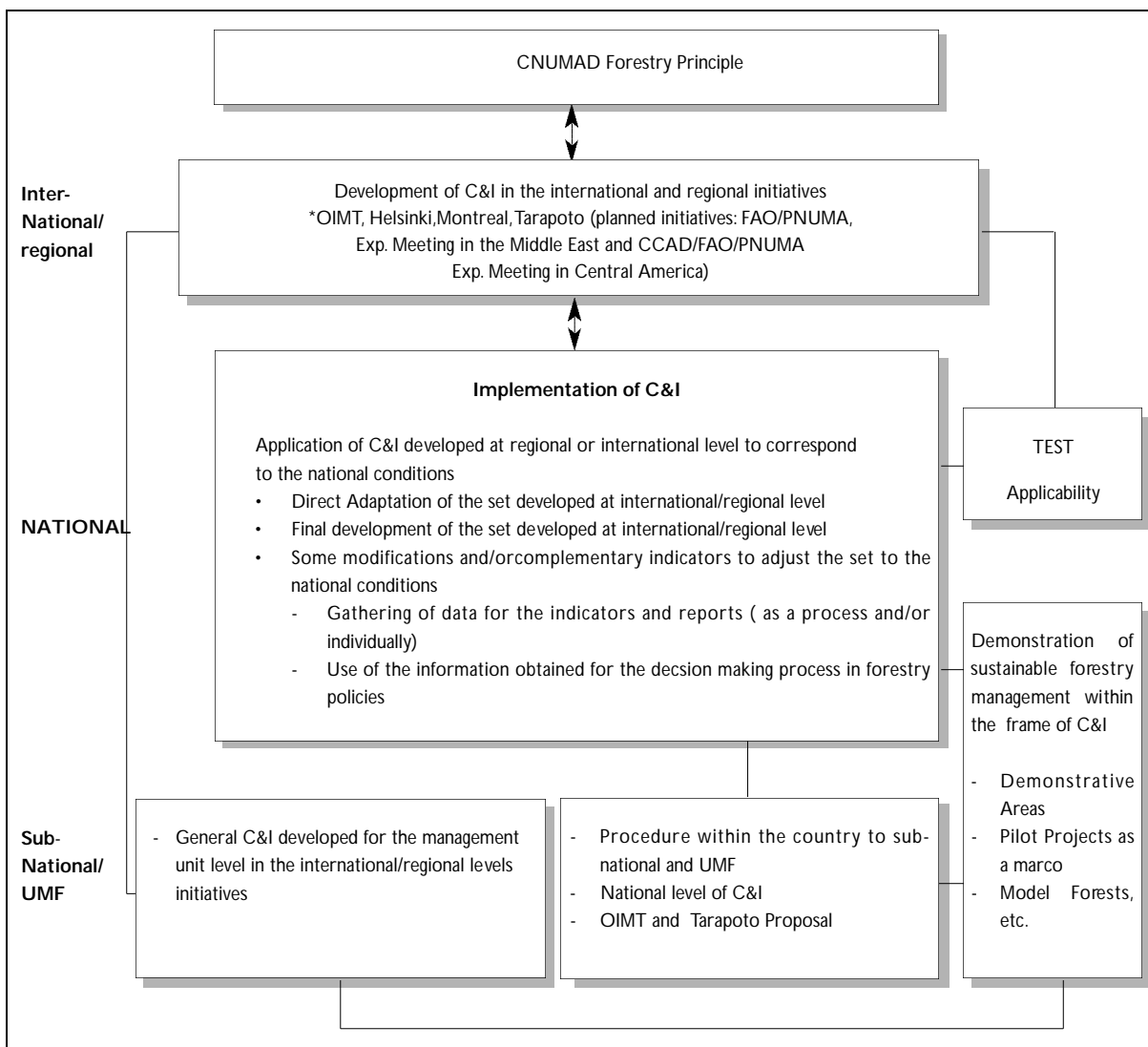
The criteria and indicators for sustainable forest management provide a common understanding and an implicit definition of what constitutes sustainable management of forests. There is an instrument of development based on the consensus that exists among the interested groups. They can help in the orientation of forestry and environmental policies (regulations, financing and institutional and informative means). They can also assist in research studies and can guide the forestry practices towards the sustainable management of forests.

In Graphic 2.1. development and implementation of diverse initiatives of criteria and indicators for the sustainable management of forests are shown.



Graphic No.2.1

DEVELOPMENT AND IMPLEMENTATION OF CRITERIA AND INDICATORS (C&I) FOR THE SUSTAINABLE FORESTRY MANAGEMENT -levels and focuss-



Source: Intergovernmental Seminar of Criteria and Indicators for the Sustainable Management of Forests.Helsinki,1996.

## COMPARISON BETWEEN THE TARAPOTO PROPOSAL AND THE HELSINKI, ITTO AND MONTREAL PROCESSES

The main objective of all initiatives regarding criteria and indicators is to define and monitor progress achieved regarding sustainable management of forests. In all initiatives, indicators have been developed for measuring the status of forests and the situation of the forestry management and evaluating the level of improvement of the forestry management policy instruments in each country.

The biggest structural difference relates to the levels. The Tarapoto Proposal considers 3 levels: national level, management unit and global services. The Helsinki and Montreal Processes only consider one: at national level. The ITTO considers criteria and indicators at national level and the management unit. The Tarapoto Proposal is the unique initiative that considers criteria and indicators at global level.

The international initiatives currently present and emergent have been focused by geographical regions, as the Helsinki Process and the initiative proposed by FAO/UNEP of the mid-east; in general, ecological regions, as the Montreal Process (temperate and septentrional zones), the initiative UNEP/FAO in dry-zone in Africa and the work carried out by ITTO (Humid tropics); or on a combination of geographical and ecological regions or sub-regional, carried out often under the scheme of regional or sub-regional groups, as it is the case of the Tarapoto Proposals (the countries party to the Amazon Cooperation Treaty).

When the results of the initiatives currently in implementation are revised, it can be noted that there is an accurate correspondence between the criteria of sustainability.

Table 3.1 shows the 4 international and regional initiatives regarding criteria and indicators: OIMT, Helsinki, Montreal and Tarapoto. The processes of negotiation and implementation are also detailed.

Table 3.2. Shows the criteria identified in the international initiatives currently in implementation. Levels and thematic categories present the criteria

Table 3.1

BRIEF OF THE REGIONAL AND INTERNATIONAL INITIATIVES REGARDING CRITERIA AND INDICATORS FOR THE SUSTAINABLE MANGEMENT OF FORESTS				
INITIATIVE	COUNTRIES	INSTITUTIONAL CONCEPT <sup>1</sup>	COBERTURA/TIPO FORESTAL	NIVEL (ES)
OIMT	AFRICA: Cameroon, Congo, Coast Ivory, Gabon, Ghana, Liberia, Togo, and Zaire ASIA-PACIFICO: India, Indonesia, Malaysia, Myanmar, New Guinea, Papua, Philippines, Republic of Fiji, Thailand, LATIN AMERICA: Bolivia, Brazil, Colombia, Ecuador, Guyana, Honduras, Panama, Peru, Trinidad and Tobago, Venezuela	Council of the OIMT (COIMT)	Countries producers of OIMT Tropical forests in all the tropical regions	National Forestry Management Unit (FU)
HELSINKI	Signatory countries of Resolutions H1 and H2 of Helsinki: Germany, Austria, Belgium, Bielo-Russia, Bosnia-Herzegovina, Bulgaria, Croatia, Denmark, Eslovenia, Spain, Estonia, Russian Federation, Finland, France, Greece, Netherlands, Hungary, Ireland, Italy, Letonia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Monaco, Norway, Poland, Portugal, United Kingdom, Republic of Slovakia, Romania, Sweden, Switzerland, Turkish, Ukraine, Vatican and the European Union.	Countries politically committed because they subscribed resolutions H1 and H2 of the Conference of Ministers in Helsinki	Geographical region of Europe Bosques de tipo boreal, templado y mediterráneo	Nacional
MONTREAL	Australia, Canada, Chile, China, USA, Mexico, New Zealand, Republics of Korea, Russia, Argentina and Uruguay entered on November, 1995	No political commitment	Países similares fuera de Europa, zonas de bosques templados y boreales	Nacional
TARAPOTO	Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname y Venezuela	La Amazon Cooperation Treaty represents a political commitment. The proposals of Criteria and Indicators must be revised and adopted by its country party.	Cuencadel Amazona tropical, de mareas ribereñas Bosques húmedos	Nac, FMU, Servicio Globales

<sup>1</sup> The criteria and indicators for the sustainable management of forest are not legally obligatory in no initiative

<sup>2</sup> Also, Albany has informed regarding its activities related to referidas the sustainable management of forest, even though alabny has not signed the correspondant resolutions las resoluciones correspondientes



Source: Criteria and Indicators for sustainable management of forests. FAO. 1996

Table  
No.3.2

CRITERIA IDENTIFIED IN INTERNATIONAL INITIATIVES IN IMPLEMENTATION				
CRITERIA <sup>1</sup>	HELSINKI <sup>2</sup>	MONTREAL	OIMT	TARAPOTO
<b>LEVELS</b>				
• Forestry Management Unit Level	No	No	yes	yes
• National Level	Yes	yes	yes	yes
• Global Level	No	no	no	yes
<b>THEMATIC CATEGORIES</b>				
<b>Forestry Resources:</b>				
• Extension of forestry resources	Yes	3	yes	5
• Global carbon cycle	Yes	yes	no	no
• Health and vitality of the Forestry Ecosystem	Yes	yes	no	-
• Biological diversity in the forestry ecosystems	Yes	yes	4	yes
<b>Forestry Functions:</b>				
• Productive Functions of forests	Yes	yes	yes	yes
• Protective and Environmental Functions in forests	Yes	yes	yes	yes
<b>Development and Social Needs</b>				
• Socio-Economical Functions and Conditions	Yes	yes	yes	yes
<b>Institutional Framework</b>				
Policy and Legal Structure, Sustainable Management of Forests	yes <sup>6</sup>	yes	yes	yes
Implementation Capacity		yes	yes	yes

3 While the global meaning of the concepts is maintained, the terminology not necessary follows the exact text of the individual initiatives.

4 The following abbreviations are used in the tables: HELS for the European Process, MONT for the Montreal Process, TARA for the Tarapoto Proposal. Denomination "yes" means that the criteria is completely and explicit mentioned in the initiative; a hyphen (-) means that the criteria is not mentioned completely but could have been considered implicit; and denomination "no" means that no reference –explicit nor implicit- have been made to the said criteria.

5 Within the Montreal Process, the forestry resource is not considered as a criteria in a particular way, but as an indicator for other two criteria: (i) conservation of biological diversity; y (ii) maintenance of the productive capacity of the forestry ecosystems.

6 The OIMT has developed a number of supplementary "Guidelines" addressing the aspects of the biological diversity rather than including them as a criteria in its guidelines for forestry management.

7 In the Tarapoto Process, the criteria of "Length of the Forestry Resources" and criteria of "Biological Diversity" are fusioned in a sole criteria "Conservation of the Forestry Coverage and of Biological Diversity"

8 In the Helsinki process, the criteria of institutional framework is integrated through the descriptive indicators, which are enclosed to each one of the other six criteria.

Table 3.3 shows the summary of the 4 international and regional initiatives regarding criteria

Table  
No.3.3

INTERNATIONAL AND REGIONAL INITIATIVES REGARDING C&I				
OIMT	HELSINKI	MONTREAL	TARAPOTO	
• Objective Year 2000 (5/90)	1st. Conference of Ministers on Protection of Forests in Europe, Strasbourg, 12/90		Amazon Cooperatio Treaty (1978)	
• Guidelines for the sustainable management of natural tropical forests (8th. COIMT 5/900)	* 6 Resolutions			
• Definition of the management of tropical forests		CNUMAD, Rio de Janeiro, 6/92 "Forestry Principles"		
• Criteria and indicators (12 COIMT 5/92)	2nd. Conference of Ministers on Protection of Forests in Europe, Helsinki, 6/93	Seminar of Experts on Sustainable Development of Temperate Boreal Forests and Temperate/CSCE, Mont. 10/93		
- National level: 5 criteria	• General Declaration	Agreement for the implementation of Working Group of 10 countries, Kuala Lumpur 4/94		
- UMP Level, 8 criteria	• Tables and resolutions (H1-H4)			
- 23 indicators	Resolutions H1 y H2			
<b>IMPLEMENTATION</b>	• 6 Criteria, 27 indicators (quant.) Meeting of Follow-up at Expert Level, Geneva 6/94	Working Group on C&I for the Conservation and Sustainable Management of Temperate Boreal Forests "Montreal Process" (five meetings between 6/94 - 11/94)	Tarapoto Proposal: 12 criteria, 7 indicators	
• Several projects in the producer countries to apply the guidelines of OIMT	• Antalya Declaration	Santiago Statement	- 7 criteria for national level	
• Field-tests	• Descriptive Indicators (101) (2nd. Meeting of Follow-up at Expert Level, Antalya, 1/95)	• 6 + 1 Criteria, 67 indicators (6th Meeting of the Working Group, Santiago, Chile 2/95)	- 4 forel UMF level	
* Revision of progress towards the objective of OIMT Year 2000 (19 COIMT, Yokohama 11/95)	<b>IMPLEMENTATION</b> • Report Pan -Europe, gathering of data indicators and test of its applicability. Countries are still elaborating and implementing the C&I (Meeting of roundtable 11/95)	<b>IMPLEMENTATION</b> • Implementation Experience • Data Availability (7th meeting 10/95) • Indicators Applicability • Assessment of data for the reports C&I (8th Meeting, Canberra 6/96)	- 1 Service at global level (Regional Workshop to Define C&I of sustainability of the Amazon Forest, Peru 2/95)	
Revision continued 20 COIMT (Manila 5/96)	Report on the national implementation of the Meeting Pan-European at expert level, Geneva 5/96	• Indicators applicability • Assessment of data for the reports C&I (8th Meeting, Canberra 6/96)	- It is urgent to get the adoption by countries (5th Meeting of Ministers of Foreign Affairs of the ACT 12/95)	
Fourth Session of the IPF, February 1997, New York				
Fifth Session of the CDS, April 1997, New York				
	3rd. Conference of Ministers on Protection of Forests in Europe, Lisbon 1996			

Source: Intergovernmental Seminar of Criteria and Indicators for the Sustainable Management of Forests. Helsinki, 1996

and indicators, considering the countries, the institutional focus category of forests, and level of application.

### The Helsinki Process

The development of criteria and indicators for the sustainable management of pan-European forests has a political background because its basic lines come from Resolutions H1 (General Guidelines for the Sustainable management of Forests in Europe) and H2 (General Guidelines for the conservation of the Biological Diversity of the European Forests). Said Resolutions were subscribed during the Second Conference of Ministers on the Protection of Forests in Europe, held in Helsinki on June 1993. Said Conference guaranteed the commitment of the ministers of forestry of Europe in order to continue cooperation initiated during the First Conference of Ministers on the Protection of Forests in Europe, held in Strasbourg in 1990. The Helsinki Conference focused in the "Forestry Principles" of CNUMAD, with the aim of implementing them at regional and national level. The Conference agreed to follow-up them, and elaborated the pan-European criteria and indicators for the sustainable management of forests. This follow-up action has been denominated then, the Helsinki Process.

The General Guidelines signed during the Helsinki Conference of Ministers and the Criteria and Indicators for the sustainable management of forests developed within said process, represent altogether a political commitment made by the signatory countries in order to promote the sustainable management of forests.

The pan-European criteria (6) and the quantitative indicators (27) for the sustainable management of forests were adopted during the First Follow-up Meeting of Experts of the Conference of Ministers in Helsinki. Said Conference was held in Geneva, on July 1994. They were elaborated, in this process phase, for the evaluation of progress achieved in the several efforts for implementing Resolutions H1 and H2. Both Resolutions are results from the "Forestry Principles" of CNUMAD. Within the Helsinki Process, Resolution H1 provides a definition for sustainable management of forests and the criteria and indicators adopted for the sustainable management of forests make the concept already defined operative.

Table 3.4. Show the criteria of the Helsinki Process for sustainable management of forests

<p>Table No.3.4</p>	<p>1. Maintenance and appropriate highlighting of the forestry resources and its contribution to the global carbon</p>
<p>PAN-EUROPEAN CRITERIA THE SUSTAINABLE MANAGEMENT OF FORESTS, JUNE 1994</p>	
<p>cycle;</p> <ol style="list-style-type: none"> <li>2. Maintenance of health and vitality of forestry eco-systems;</li> <li>3. Maintenance and rewards of the productive functions of the forest (timber and non-timber);</li> <li>4. Maintenance, conservation and appropriate highlighting biological diversity in the forestry ecosystems;</li> <li>5. Maintenance and appropriate highlighting of the protective functions in the forestry management (mainly in relation with soil and water);</li> <li>6. Maintenance of other functions and socio-economical conditions.</li> </ol>	

These criteria aspects can only be assessed through the existence and effective implementation of a framework of correspondent policies. These policies are included as descriptive indicators in the universe of pan-European criteria and indicators. Provisional descriptive indicators were accepted for the evaluation of the existence and implementation of instruments of policy or its possible use during the Second Follow-up Meeting of Experts, held in Antalya, Turkey, on January 1995. These indicator examples were divided into 4 sub-headers: legal framework/regulation, institutional framework, financing instrument framework/economical policy and media.

The follow-up of the Helsinki Conference of Ministers is a political procedure conducted by European Countries. The countries that exercise the co-presidency of the Helsinki Conference of Ministers have coordinated the process. The countries are Finland, Portugal, Austria and Poland. The Committee collaborated with the FAO, Section of Timber Products in the Trade Division of the United Nations Economical Commission for Europe (UNECE) and the European Commission/DGVI (Agriculture). The Connection Unit, which eases the linking activities of the follow-up tasks, has been transferred from Helsinki to Lisbon, during the first months of 1996.

### The Montreal Process

The Working Group on Criteria and Indicators for the Conservation and Sustainable Management of the Temperate and Boreal Forests, the Montreal Process, was conceived by some countries with similar goals. Said countries reunited in Kuala Lumpur in April 1994, attending the Second Conference of Ministers on Protection of Forests in Europe (Helsinki, June 1993) and the Seminar of Experts on Sustainable Development of Temperate and Boreal Forests, organized with the support of the Conference of Security and Cooperation in Europe (CSCE, Montreal, September 1993). The group held its first meeting in Geneva, on June 1994. It was agreed that it would be an informal group that would operate over *ad hoc* basis.

The sixth meeting of the Montreal Process was organized in Santiago, Chile, in February 1995. The final document of this meeting was the Santiago Declaration. In this Declaration, the countries decided to back up criteria (6+1) and indicator (67) as guidelines at national level, which will be used by their respective policy makers. The criteria and indicators of the Montreal Process reflect the focus of the management of forests considered as eco-systems.

Table 3.5 shows the criteria of the Montreal Process for the conservation and sustainable management of the boreal temperate forests.

Table No.3.5	1. Conservation of the Biological Diversity;
	2. Maintenance of the productive capacity of the forestry ecosystems;
	<b>CRITERIA FOR THE CONSERVATION AND SUSTAINABLE MANAGEMENT OF THE BOREAL AND TEMPERATE FORESTS, FEBRUARY 1995</b>
	3. Maintenance of health and vitality of the forestry ecosystems;
	4. Conservation and maintenance of soil and water resources;
	5. Maintenance of the contribution of the forests to the global carbon cycles
	6. Maintenance and highlighting of the multiple benefits at long term to satisfy social needs;
	7. Legal, institutional and economical framework for the conservation of forests and the sustainable development

The Santiago Statement claims for the need for further development of the technical and scientific aspects of the criteria and indicators and encourages its back up by other states that do not own forests, and Temperate forests.

The Montreal Process is currently concerned about the elaboration of criteria and indicators at national level in the implementation of these criteria and indicators through the legislation, policies and regulations that rule forestry management. The participating countries are also evaluating the current availability and reliability of data and focuses for adopting the systematic monitoring and the production of reports. Even though the application and monitoring of criteria and indicators may vary from country to country, the Santiago Statement suggests that efforts should be made in order to harmonize indicators measuring and reports methodologies among the countries.

The membership of the Montreal Process or the support given to the Santiago Statement, including the Criteria and Indicators for the Conservation and Sustainable Forestry Management of Temperate and Boreal Forests do not implies legal nor political obligations.

## ITTO

The ITTO Criteria for Measuring Sustainable Tropical Forestry Management were developed before CNUMAD, within the Objective for Year 2000 of ITTO. This objective specifies that in year 2000, sustainable managed forests shall produce all timber products that will be exported.

In 1989, an Expert International Panel took place with the participation of timber products trade producers and consumer countries, FAO, WWF, and advisers. The main objective of said panel was to develop the ITTO Guidelines for sustainable Management of Natural Tropical Forests. The ITTO Council backed up said guidelines in 1990. The document contains 41 principles (or guidelines) in several areas as: 1) Policy and Legislation; 2) Forestry Management; 3) Financial and Socio-Economical Aspects. In 1991, ITTO Guidelines for the Establishment and Sustainable Management of Planted Forests were adopted.

Another Expert Panel was held later on by OIMT in order to formulate an operative definition of sustainable forestry management. The 11<sup>th</sup> ITTO Meeting, held in 1992, adopted the definition, criteria and example of indicators for the sustainable management of tropical forests as a basis to prove and demonstrate the sustainable management. Within the frame of said meeting 5 criteria and 27 indicators were approved to be applied at national level, and six criteria and 23 indicators to be applied at forestry management unit level. It is not necessary to measure all the examples and indicators to demonstrate the sustainable forestry management or to determine the level of development achieved. This concept contrasts to other initiatives (e.g. Helsinki and Montreal Process). Said initiatives state that criteria and indicators constitute a totally integrate assemblage.

Table 3.6 shows the ITTO Criteria for Measuring Sustainable Management of Tropical Forests

### AT NATIONAL LEVEL

### AT FORESTRY MANAGEMENT UNIT LEVEL

Table  
No.3.6

#### ITTO CRITERIA FOR MEASURING SUSTAINABLE MANAGEMENT OF TROPICAL FOREST, 1992

1. Forestry Resources Base	1. Resource Security;
2. Flow continuing	2. Continuation of timber products production;
3. Environmental Control Level	3. Conservation of Flora and Wildlife;
4. Social-economical Benefits;	4. Acceptable Level of environmental impact;
5. Institutional Frameworks	5. Social-economical Benefits;
	6. Planning and adjustment of experiences

The ITTO Criteria are oriented to the field, having as objective to focus on the current weakness that may occur in the forestry management, and, in this way, to help identifying improvements achieved in management practices. They can also provide a basis for the standardization of the reports system, in order to make easier comparison and discussions for cooperation and assistance. When developing the ITTO Criteria (and also the examples of indicators), it was recognized that its considerations and additions within the national forestry policies made by individual countries would constitute an essential step towards its implementation. It was expected that the progressive introduction testing and generating guidelines and criteria at national level within the producer countries would guide its final development.

## FAO/UNEP Regional Activities

The FAO/OIMT Expert Meeting on Harmonization of Criteria and Indicators for the Sustainable Forestry Management, held in Rome on February 1995, pointed out that, among other aspects, the dry zones and semi-arctic zones in Africa and in the Middle-East have been forgotten by international initiatives related to the identification of criteria and indicators and the environmental conditions and social-economical needs which rule the forestry management in said zones. Forestry activities in said zones play an important role in subsistence of local human populations, which probably require special-complementary or additional- considerations, not considered by the aforementioned initiatives.

As a recommendation of the FAO/OIMT Expert Meeting and 12 Session of Forestry Activities Committee (COFO), held in Rome on March 1995, FAO and UNEP organized an Expert Meeting to discuss the criteria and indicators at national level for the Sub-Sahara, the Dry Zone of African Countries. This meeting was held in Nairobi, Kenya, on November 1995. Said Meeting is considered as the first step taken in the formulation and application and indicators for the sustainable forestry management at national level among countries in the Dry Zone in Africa, in the Sub-Sahara.

In accordance with the recommendations made by said meeting, FAO reported, later and officially, to the Secretaries of CILSS and AISD and the Technical Coordination Unit of the Forestry Sector of CSAD on the results achieved by the meeting in order to highlight the appropriate level at national level under the general coordination, sub-regional. FAO and UNEP were asked to report the IPF on the conclusions of the meeting and to help to assure the global compatibility of the adopted action.

The report of the UNEP/FAO Expert Meeting was submitted to the Tenth Session of the Forestry Commission of Flora and Wildlife for Africa (CAFVS), held in South Africa on November and December 1995. The CAFVS backed up the information contained in the report and estimated the set of 7 criteria and 47 indicators developed in this meeting as a valuable tool for the evaluation, monitoring and improved management of the forestry resources at national level. The elaboration of criteria and indicators was rated a useful and necessary activity that helped to define and implement the sustainable forestry management as well as to measure the progress achieved to get said criteria. The commission recognized the need to continue the development, improve and adapt the set of criteria and indicators identified by the UNEP/FAO Expert Meeting. It was also identified the need of a pilot test and the implementation of said set. The Commission recommended that the final report of the Meeting be sent to the countries for its discussion and revision. The Commission also reiterated its claim for a sub-regional and regional consultation.

The UNEP/FAO Expert Meeting recommended that the proposed criteria and indicators be adapted to sub-regional and national scales. Doing it so, the criteria remains the same but indicators can be added under each criterion to reflect the specific conditions of said sub-region and countries involved.

## Comparison of the structure and contents between the set of criteria and indicators

The ability of comparing criteria and indicators has been stated, among other aspects, by the FAO Expert Consult for the Harmonization of Criteria and Indicators for the Sustainable Forestry

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\* CILSS: Comité Interestatal de Lucha contra la Sequia en el Sahel (Burkina Faso, Cabo Verde, Guinea Bissau, Gambia, Mali, Mauritania, Niger, Senegal, Chad).

AISD: Autoridad Intergubernamental para la Sequia y el Desarrollo (Djibouti, Eritrea, Etiopia, Kenya, Somalia, Sudán, Uganda).

CSAD: Comunidad Sud Africana de Desarrollo (Angola, Botswana, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Sud Africa, Swazilandia, Tanzania, Zambia, Zimbabwe).

Management (Rome, February 1995) and by the Work Plan of IPF. This report evaluates the criteria and indicators of the international and regional initiatives currently in implementation to know if it is possible to make a comparison between the criteria and indicators for the sustainable forestry management of said initiatives and the similarities that can be found.

A set of studies has been made in order to make a comparison between the different initiatives on criteria and indicators. This study use the following article:

1. Report of the Secretary General during the Second Session on February 20, 1996. Element of Programme III.2 Criteria and Indicators for the Sustainable Forestry CDS/AdHoc Intergovernmental Panel of Forests (E/CN.17/IPF/1996/10). Paragraph 24 of the report, which makes a comparison of criteria and indicators of the different initiatives, is a revised version of the "General Revision of the International Initiatives on the Formulation of Criteria and Indicators for the Sustainable Forestry Management at National Level" of the FAO/ITTO Report Expert Consultation on the Harmonization of Criteria and Indicators for the Sustainable Forestry Management (Rome, February, 1995).
2. Honerla, S. and Schneider, T.W. 1995. Synoptic Portrait of Similarities of the Contents of Existing Criteria and Indicators Catalogues for Sustainable Forest Management. Bundesforschungsanstalt fur Forst-und Holzwichaft. Institut fur Weltforstwirtschaft.

These comparison combines the two mentioned concepts and has been completed, when considered appropriate, with current data regarding the initiatives on criteria and indicators for sustainable forestry management.

### **Structure of the set of criteria and indicators**

The set of criteria and indicators of the Helsinki and Montreal Processes are mainly identical, except in the issues related to politics, legal, institutional and economical elements, which are required by the sustainable management, which are presented under a separate criteria in Montreal (the seventh one.) In the set of Helsinki, these elements are indirectly covered by the descriptive one, because the indicators of policy instruments are non-measurable under the concept area of each criterion.

The ITTO and Tarapoto Proposals differ structurally when compared with the other three initiatives. Said initiatives have also developed criteria and indicators at management unit level. In the ITTO initiative, many of the issues are covered by other initiatives with criteria and indicators at national level. This are included as indicators at management unit level. In the Tarapoto Proposal, the categorization of the indicators is different when compared to the other processes. However, yet very fragmented, many of the same issues can be found among the indicators. Also, the Tarapoto Proposal includes the criteria "Service at global level", under which it is presented a list of the economical, social and environmental elements, which are used by the amazon forests that contribute to the global forestry phenomena.

The facts already listed make that direct comparisons among all the initiatives be even harder, o make drawing of direct conclusions impossible.

An evaluation of the criteria and indicators at national level are listed below: According to the FAO Revision on initiatives currently implemented, the criteria in all initiatives include the following six elements:



1. Extension of the forestry resources
2. Biological Diversity
3. Health and vitality
4. Productive functions
5. Environmental and protective functions
6. Development and social needs
7. "Legal, political and institutional Framework". This element also appears in all initiatives, even though they differ in the shape. The ITTO, Montreal and Tarapoto Processes include the issues of policy as separate criteria or under some other criteria. In the Helsinki Process descriptive indicators in the conceptual areas of each criterion cover the elements.

The most important difference is related to the **forestry resources** criteria.

- **Montreal:** "the forestry resources" are presented as indicators under two separate criteria "Conservation of the Biological Diversity" and "Maintenance of the productive capacity of the forestry ecosystem" (not formulated as explicit criteria).
- **Helsinki:** the carbon cycle is linked to the criteria "forestry resources". The Montreal process uses separate criteria.
- **Tarapoto:** the "extension of forestry resources" and "biological diversity" are united in a sole criteria: "Conservation of the forestry coverage and of the biological diversity"

The element of **health and vitality** is defined by several initiatives through different indicators.

- **ITTO:** These elements are covered by criteria "Conservation of flora and wildlife" at the management unit level. The OIMT has developed "Guidelines", handling the issue of biological diversity but not including it as criteria.
- **Tarapoto:** the issue is presented under criteria "Conservation of the forestry coverage and the biological diversity"
- The terminology of criteria "Production/productivity Functions" is different in each initiative, and this issue is handled by different kind of indicators under each initiative.
- **Helsinki:** "Maintenance and encouragement of the productive functions in the forests (timber and non-timber products)"
- **Montreal:** "Maintenance of the productive capacity of the forestry ecosystems"
- **Tarapoto:** "Sustainable forestry production"
- **ITTO:** these elements can be found in several criteria but cannot be classified in a different way.
- Although the indicators cannot be necessarily categorized under the same kind of criteria; there are similarities in the understanding of the sustainable forestry management at national level (quantitative indicators only). The ITTO initiative is out of this report because its concept of "incomings" describes whether some conditions of sustainable forestry management have been achieved by ITTO.

#### **Similarities between the indicators:**

- Forestry coverage area
- In the Montreal and Tarapoto Processes, under two separate criteria that deals with "biological

- diversity” and “productivity/production functions”
- Damaged area by biotic or nonbiological agents
- Timber production: Balance between growth and exploitation
- In the Montreal Process, “exploitation” and in the Tarapoto Process “production” is compared with a determined level that shall be sustainable
- (Amount of) non-timber products
- In Tarapoto, it is stated as a “level of diversification of the sustainable forestry production”
- Extension of protected areas
- Number of forestry species dependent/threatened
- Management for soil protection
- Management of basins
- Generation/conditions of employment
- Economical significance of forestry products
- As a participatory element in the forestry sector in the PNB (Helsinki) or as a value of forestry products (Montreal y Tarapoto)
- Activities of Recreation
- This indicator has been specified in different ways in diverse initiatives.

The indicators of the political framework are presented, like descriptive indicators in which similarities exist among different initiatives. Conceptually, the existence of all the different instruments of policy are included in all initiatives, and the extension in which they give support the achievements in the sustainable forestry management. These political frameworks, include the legal, institutional, economical background, research and development aspects, mass media (including the social and local aspects) and technological aspects.

- **Helsinki:** the descriptive indicators under each criterion cover the politics issues. These instruments are categorized as a regulatory/legal framework, institutional background, financial/economical policy instruments and mass media.
- **Montreal** (Criteria 7): “Legal, Institutional and Economical Framework for the forestry conservation and sustainable management”. This criterion brings details regarding the instruments, which are necessary for the sustainable forestry management. The existing indicators under these criteria describe the existence and extension to which the legal frameworks (laws, regulations and rules) give support to the conservation and sustainable forestry management.
- **Tarapoto:** the instruments of policy are described under several criteria “Policies and legal-institutional framework for the sustainable management of forests” (Criteria 2) “Institutional capacity for the promotion of the sustainable development of the Amazon” (Criteria 7) and Science and Technology for the sustainable management of forests” (Criteria 6).
- The ITTO evaluation was the establishment of criteria and indicators within the context of the steps that were necessary to take in order to achieve the sustainable management of tropical forests. The “incomings” of the analysis can be considered as compatible with the politic indicators of other initiatives.

Likewise, there are some other common elements among the existing indicators. However, they are not clearly declared. There are also several cases in which the same criteria are quantitatively evaluated in some initiatives and descriptively in other initiatives.

## A N N E X 4

### METHODOLOGY OF THE NATIONAL CONSULTATION

The methodology process to be followed by the National Workshop to attain the objectives set in the validation of the Tarapoto Proposal should include the following aspects:

**Contextualization:** Presentation on the object of the validation, the basic definitions on criteria and indicators, the Tarapoto Proposal's background, the general and regional importance of the criteria and indicators, the methodology, the validation instrument and the presentation of each of the criteria with its indicators.

**Work Groups:** After the contextualization, the Workshop should form three or four groups with one coordinator each, in order to analyze and classify both qualitatively and quantitatively the criteria with their respective indicators. Each group should be of multidisciplinary nature, formed by representatives of the various sectors invited. The time assigned to each group should be of four hours, at the end of which the groups should elect a rapporteur to present the results to the plenary.

The applicability referred to the viability that the indicators have of being used to qualify a criterion in the context of the Country reality. The analysis to evaluate the applicability should take into account the current or future availability of mechanisms and instruments to measure the indicator.

The groups also should take into account the requirement of improving the wording of various indicators, and submit wording proposals. Likewise, the indicators that eventually receive a low score could be eliminated or new indicators could be proposed.

CONCEPT	SCALE VALUE
Not applicable (NA)	0 - 25
Hardly applicable (PA)	26 - 50
Applicable (A)	51 - 75
Highly Applicable (MA)	76 - 100

**Analysis and consensus of the plenary:** Each group will submit to the plenary the results of its work, sustaining the qualification assigned to each indicator, thus giving the opportunity to the other participants to take part in the analysis and discussion. The critical analysis will allow the identification of the restrictions and needs for the implementation of the Amazon Forest sustainability criteria and indicators.

**Plenary on necessary conditions:** The plenary, with the direction of a facilitator, will achieve an agreement on the conditions necessary in the Country process for the criteria and indicators to start being implemented.

**Evaluation:** The participants will be provided with a card (Annex 5) to evaluate the reaction to the event. This will allow them to express their favorable or unfavorable opinion.

## ANNEX 5

### EVALUATION OF THE NATIONAL CONSULTATION

1. How was the event?  
Bad\_\_\_\_Regular\_\_\_\_Good\_\_\_\_Very Good\_\_\_\_Excellent\_\_\_\_
  
2. Were there opportunities during the event when you wished to say things that you did not say?  
Never\_\_\_\_Sometimes\_\_\_\_Several times\_\_\_\_Very frequently.
  
3. Were there reasons not to participate?  
Yes\_\_\_\_No\_\_\_\_ If yes, please say why.

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4. Was the outcome different from what you had expected?  
Yes\_\_\_\_No\_\_\_\_Why

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Thank you for your answers. Writing your name is not required.

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