



Title: UNEP/FAO Expert Meeting on Criteria and Indicators for Sustainable Forest ...

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## ANNEX 3. FAO/UNEP Secretariat Note on Criteria and Indicators for Sustainable Forest Management in dry-zone Africa<sup>1/</sup>

<sup>1/</sup> Organized in collaboration with IUFRO

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### **PART I**

#### **GENERAL REVIEW OF THE INTERNATIONAL INITIATIVES ON THE FORMULATION OF CRITERIA AND INDICATORS FOR SUSTAINABLE FOREST MANAGEMENT AT NATIONAL LEVEL**

#### **BACKGROUND**

1. The development of criteria and indicators is by far the most significant outcome in the field of forest management from the United Nations Conference on the Environment and Development (UNCED, Rio de Janeiro - 1992). The important contribution of forestry and specifically of forest management for sustainable development was formalized at this Conference through the "Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests". Known as the "Forest Principles", they apply to all types of forests, and reconcile the productive functions of forests with the protective, environmental and social roles which forests fulfil. The framework for action in follow-up to UNCED is Agenda 21. In Chapter 11 of Agenda 21, Combating Deforestation (Section 11.22[b]), governments agreed to pursue, in cooperation with special interest groups and international organizations, *"the formulation of scientifically sound criteria and guidelines for the management, conservation and sustainable development of all types of forests"*.

2. The call for action for the development of criteria and indicators for sustainable forest management was reiterated at several post-UNCED initiatives. The Bandung Declaration arising from the Global Forest Conference organized by the Government of Indonesia (February 1993), the Forestry Forum for Developing Countries (FFDC) organized under the auspices of FAO (New Delhi, September 1993), the New Delhi Resolution, passed by the international workshop "Towards Sustainable Forestry: preparing for the Commission on Sustainable Development 1995" (July 1994), and the workshop "Science, Forests and Sustainability - a policy dialogue", organized by the Government of Indonesia and the Centre for International Forestry Research (CIFOR) in December 1994, helped strengthen the calls for international cooperation and global partnership in sustaining and developing the world's forest resources. The "Inter-Governmental Working Group on Global Forests",

sponsored jointly by the Governments of Malaysia and Canada, drew upon the know-how of experts worldwide, and provided a forum for discussing important forest issues with a view to promoting conflict resolution prior to the third session of the Commission on Sustainable Development (CSD) in April 1995, during which follow-up to UNCED in forestry was reviewed and discussed. The development of criteria and indicators for sustainable forest management, including the elaboration of a globally acceptable definition of sustainable forest management, are among the major tasks and priorities for the Inter-Governmental Panel on Forests (IGPF), which was recently established by the CSD and which met for its first session, 11-15 September 1995, in New York.

### **THE ROLE OF CRITERIA AND INDICATORS FOR SUSTAINABLE FOREST MANAGEMENT**

3. Sustainable forest management is commonly viewed as one of the most important contributions that the forestry sector can make to sustainable development. There is, therefore, need for a clear international consensus and understanding of the definition of sustainable forest management and how it can be widely implemented.

4. Criteria and indicators are tools which can be used both in the process of conceptualization and in the process of moving towards sustainable forest management. The role of criteria is to define the essential elements or principles of forest management against which the sustainability of forests may be assessed. Each criterion relates to a key element of sustainability in forestry and may be characterised by one or more related qualitative, quantitative or descriptive indicators. Through the measurement and monitoring of these indicators, the overall effects of forest management interventions, or of non-intervention by man, can be assessed and evaluated, and action can be adjusted to better meet stated aims and objectives. Criteria and indicators may be identified at the forest-, national- and regional levels.

5. At the national level, systematic and periodic assessment of indicators provides the basis for monitoring changes and trends and, ultimately, for monitoring progress in sustaining the various functions of the forest recognized in Agenda 21 of UNCED and in the "Forest Principles". Within an internationally agreed definition for sustainable forest management, assessments carried out at the forest management unit level can potentially contribute to clarifying issues related to environment and trade, including forest product certification.

6. Based on a review of on-going initiatives it may be possible to globally agree on a core set of national-level criteria and a small number of corresponding, common indicators by which the degree of sustainability of management may be monitored within an international framework by countries concerned. It may also be possible to develop additional indicators that could be suitably adjusted to environmental and developmental policies and conditions of each country<sup>1/</sup>. Thus, the exact, appropriate sets of indicators for a given criterion may vary between countries and regions/eco-regions.

<sup>1/</sup> As laid down in the second principle of the Rio Declaration on Environment and Development.

7. Although a given forest area may not satisfy all national and international criteria for sustainability, the corresponding overall, aggregate national criteria may still be satisfied. Examples include the conservation of variation at ecosystem, species and within-species levels and carbon sequestration, where limited forest areas cannot, per se, satisfy national and global needs but can only contribute towards them within the framework of an overall, national land

use plan.

## OVERVIEW OF INTERNATIONAL ON-GOING INITIATIVES

8. Prior to UNCED, guidelines for the sustainable management of natural tropical forests had been drawn up in 1990 under the auspices of the International Tropical Timber Organization (ITTO), followed by criteria for their measurement published in early 1992. In 1993, these were supplemented by: guidelines for the establishment and sustainable management of planted tropical forests; and guidelines on the conservation of biological diversity in tropical production forests. In continuation of these guidelines, ITTO is presently developing: guidelines for the protection of tropical forests from fire, guidelines for sustainable forest industries, and guidelines for the sustainable management of tropical tidal forests.

9. In the time following UNCED, criteria and indicators for sustainable forest management have been formulated through several international and national, governmental and nongovernmental initiatives. Inter-Governmental activities in this respect have been conducted mainly within the framework of three major international initiatives. As an outcome of two Ministerial Conferences on the Protection of European Forests held in 1990 and 1993, the "Helsinki Process" focuses on European (temperate, boreal and Mediterranean) forests. All European countries have tentatively agreed upon six criteria, twenty-seven most suitable quantitative indicators and a number of descriptive indicators. A consolidated report on national-level performance in these criteria and indicators was presented at the third meeting of the CSD (April 1995). The second initiative is the "Montreal Process", which is a follow-up of the CSCE<sup>2/</sup> Seminar of Experts on Sustainable Development of Temperate and Boreal Forests (Montreal 1993). The initiative deals with the definition of criteria and indicators of sustainable forest management in temperate and boreal forests outside of Europe. The 10 participating countries<sup>3/</sup> agreed in February 1995 on a set of non-legally binding criteria and indicators for sustainable forest management for national implementation. Seven criteria and sixty-seven indicators have been identified in the "Montreal Process". The third initiative is the "Tarapoto Proposal on Criteria and Indicators of Sustainability for the Amazon Forest", which was adopted in February 1995 in Tarapoto (Peru), under the auspices of the Amazon Cooperation Treaty<sup>1/</sup>. This initiative covers twelve criteria and seventy-seven indicators for sustainable forest management at the local, national and global levels. In addition to the above, main initiatives, there have been some moves towards starting similar processes, i.a. in Central America, under the auspices of the Central American Alliance for Sustainable Development. FAO has assisted and actively participated in all post-UNCED governmental, international initiatives.

<sup>1/</sup>Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Surinam, Venezuela.

<sup>2/</sup>CSCE= Conference on Security and Cooperation in Europe.

<sup>3/</sup>Australia, Canada, Chile, China, Japan, Korea, Mexico, New Zealand, Russia & United States.

10. The international initiatives mentioned above have been complemented by a number of national activities carried out by both governmental agencies and national and international non-governmental organizations. The activities of the latter ones include those of the World Wide Fund for Nature (WWF) and the Forest Stewardship Council, aimed at the identification of criteria and indicators at the forest management unit level. International testing of criteria and

indicators at the forest management unit level is under way under the project, "Testing Criteria and Indicators for Sustainable Management of Forests", coordinated by CIFOR. The project aims at identifying criteria and indicators which are objective, cost-effective and relevant for assessing the sustainable management of forests, and includes field trials to evaluate existing criteria and indicators, inter alia. in Côte d'Ivoire.

### **FAO/UNEP SUPPORT TO THE ELABORATION OF CRITERIA AND INDICATORS AND THEIR ROLE IN FACILITATING A DIALOGUE AMONG ON-GOING INITIATIVES**

11. At the request of the international community and its own Statutory Bodies, FAO, in collaboration with ITTO, called a three-day Expert Meeting on the Harmonization of Criteria and Indicators for Sustainable Forest Management in February 1995. The meeting included experts from countries and organizations involved in the international initiatives mentioned above (except the "Central American initiative"), and experts knowledgeable of those geographical and ecological regions which, at the time, had not been involved in international post-UNCED forestry activities in this field. The meeting was specifically aimed at reviewing the thematic and geographical coverage of on-going initiatives on the formulation of criteria and indicators for sustainable forest management at national level, at seeking ways and means of involving countries and regions not covered by them, and at promoting compatibility, and possible harmonization of on-going initiatives.

12. The 12th Session of the Committee on Forestry (COFO) (Rome 13-16 March 1995), in reviewing the report of the above FAO/ITTO Expert Meeting on the Harmonization of Criteria and Indicators for Sustainable Forest Management, *"requested that FAO, in collaboration with other international organizations concerned, promote the exchange of information, research results, data and experience between and among [on-going and forthcoming] initiatives, and involve countries which had not to date been part of on-going international initiatives"*. This FAO/ITTO Expert Meeting was the first effort of its kind aimed at facilitating a dialogue among existing initiatives.

13. The Rome Statement on Forestry, issued by the Ministers responsible for forestry, who met in Rome in March 1995 emphasised the need to *"continue to develop and apply criteria and indicators for the sustainable management of all types of forests, and to demonstrate and evolve the concept of sustainable forest management through their application, taking into account specific regional and sub-regional conditions as well as the need to promote comparability in international initiatives in this regard"*.

14. FAO, as the lead agency and in close collaboration with other international and national agencies concerned such as UNEP, ITTO, and IUCN, has offered to assist the UNCSD and the Inter-Governmental Panel on Forests in its task to engage regions and countries not yet involved in the identification and formulation of criteria and indicators, and to help promote a dialogue and comprehension among the existing international initiatives.

15. Taking account of the above, FAO and the United Nations Environment Programme, UNEP have jointly organized the present meeting to discuss criteria and indicators for dry-zone African countries. The findings and recommendations of the present meeting will be submitted at the 10th Session of the African Forestry and Wildlife Commission, to be held in South Africa from 27 November - 1 December 1995. For the Mediterranean climate, North African and Near East countries, FAO plans to organize a similar expert meeting in collaboration with other, concerned international organizations in connection

with the 12th session of the Near East Forestry Commission (October 1996).  
FAO has recently been requested by the Central American countries to provide assistance to a similar process under the auspices of the Central American Alliance for Sustainable Development.

## **CRITERIA AND INDICATORS FOR SUSTAINABLE FOREST MANAGEMENT IN DRY-ZONE AFRICA**

16. Work carried out to date in the identification of national level criteria and indicators for sustainable forest management of relevance to the countries in Africa includes mainly that related to the ITTO guidelines, criteria and examples of indicators on sustainable forest management, focused on the humid tropics<sup>1/</sup>. In addition, some African countries could, in principle, benefit directly from work carried out within the framework of the "Helsinki" and the "Montreal" processes, and from the sub-regional initiative described above.

<sup>1/</sup> ITTO Member countries in Africa include: Cameroon, Congo, Côte d'Ivoire, Equatorial Guinea, Gabon, Ghana, Liberia, Togo, United Republic of Tanzania, Zaire.

17. As mentioned above, the need has been repeatedly stressed in international fora to involve countries and ecological regions which have not to date been part of on-going international initiatives. Special mention has in this regard been made of countries in the arid and semi-arid zones. While these countries often have limited forest resources, forests and other wooded lands play an important role in meeting basic subsistence needs of local populations; forests and woodlands in these areas also help maintain a multitude of social, cultural and environmental functions.

18. In the light of the contribution that the application of criteria and indicators could provide to the management of all types of forests and woodlands in dry-zone African countries, the discussions of this Meeting will be guided by the FAO/UNEP Secretariat Note and by the three Background Documents, which were prepared by an expert from each of the following sub-regions: countries of the sub-Saharan East African zone (Inter-Governmental Authority on Drought Control and Development -IGADD)<sup>1/</sup>, countries of the West African Sahel region (Permanent Interstate Committee for Drought Control in the Sahel - CILSS<sup>2/</sup>), and for countries in Southern Africa (Southern African Development Community - SADC)<sup>3/</sup>.

<sup>1/</sup>IGADD: Djibouti, Ethiopia, Kenya, Somalia, Sudan and Uganda.

<sup>2/</sup>CILSS: Burkina Faso, Cape Verde, Guinea Bissau, Gambia, Mali, Mauritania, Niger, Senegal and Chad.

<sup>3/</sup>SADC: Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe.

19. The discussions will review overall strategies, philosophy and aims of on-going international initiatives in the formulation of criteria and indicators of sustainable forest management and their applicability to ecological, economic, social and environmental needs and aspirations in dry-zone African countries. The meeting may wish to review the possibilities of the promotion of national programmes in this field under an Africa-wide, regional umbrella, aimed at the identification and subsequent testing of common criteria and sets of regionally applicable indicators. It may also wish to discuss a possible strategy and timetable for action to promote the testing and adaptation of common criteria and a set of regionally applicable indicators of sustainable forest management

in dry-zone Africa.

## **PART II**

### **SUBSTANTIVE ISSUES RELATED TO THE NEED. RELEVANCE AND APPLICABILITY OF CRITERIA AND INDICATORS FOR SUSTAINABLE FOREST MANAGEMENT IN DRY-ZONE AFRICAN COUNTRIES**

1. The main purpose of Part II of the FAO/UNEP Secretariat Note is to facilitate the debate for the Expert Meeting and is in no way intended to favour any sub-region or any given criteria and/or indicators. The focus of this Note is on the management of forests and other wooded vegetation in dry-zone African countries<sup>1/</sup>, which are presently not involved in any initiative on developing guidelines, criteria and indicators for sustainable forest management (such as the ITTO guidelines applicable for moist tropical forests for example). The sub-saharan African dry-zone belts are largely (but not exclusively) covered by the countries which form part of the IGADD, CILSS and SADC sub-regional organizations (see Appendix 2).

<sup>1/</sup>The North African countries are not included in this review, as a separate expert consultation on the subject for the North African and Near East countries is planned for October 1996.

### **STATUS AND OBJECTIVES OF FOREST MANAGEMENT IN DRY-ZONE AFRICA**

Physical context and extent of dry-zones in Africa

2. Dry zones usually have only one (short) rainy season, a 8 to 9-month dry (to very dry) season, and where evapotranspiration exceeds rainfall throughout most of the year.

3. Drylands are defined in terms of the "Aridity Index", as used by UNEP in the "World Atlas of Desertification" (UNEP, 1992, Nairobi. 72 pp.), which is the ratio of P/PET, where P is the mean annual rainfall and PET the mean annual potential evapotranspiration. Rainfall is measured and PET is calculated according to the Thornthwaite method (Thornthwaite 1948). "Dry zones" are those areas where the Aridity Index is < 0.65. Thomas and Middleton<sup>2/</sup> (1994) give four different aridity zones within this limit: dry sub-humid, semi-arid, arid and hyper-arid. The hyper-arid zones do not fall within the scope of this study, since such areas are deserts where wooded lands are rare (oasis, temporary ponds) and their management is very special. An overview of the extent of drylands in Africa and their relative share of the world's aridity-zones is presented in Table 1.

<sup>2/</sup>Thomas, D.S.G. and Middleton, N.J. (1994). *Desertification: exploding the myth*. John Wiley and Sons, Chichester. 194 pp.

4. In Africa, drylands that is, dry zones excluding the hyper-arid zones or deserts (which, in Africa only account already for 978.2 million hectares), cover 1.286 million hectares, or 43% of the total land area of the continent (2.964 million ha). African drylands represents 25% of the world's total (UNEP 1995).

#### **Table 1: Extent of drylands in Africa and the world (in million hectares)<sup>1/</sup>.**

<sup>1/</sup>Source: taken from: "Development of Desertification Indicators for Field Level Implementation", UNSO/UNDP and NRI, April 1995. (Page 4, merging of Table 1 and 2).

Aridity Zones	Aridity Index	World coverage	Africa (ha) (%)	
1. Dry sub-humid	0.50-< 0.65	1294.7	268.7	21
2. Semi-arid	0.20-< 0.50	2305.3	513.8	22
3. Arid	0.05-< 0.20	1569.1	503.5	32
Total		5169.1	1286.0	25

#### Vegetation types of dry-zone areas

5. The natural vegetation types of drylands include: dry deciduous forests, very dry forests, mangroves (for coastal zones), forest-savanna mosaics, gallery forests, woodlands, tree savannas, wooded steppes and thickets (FAO/UNEP Forest Resources of Tropical Africa, 1981).

6. The forest resources and other wooded land vegetation types which occur in the countries of the dry-zone African belts and which are of relevance for this study extend from: dense mangrove forests along the coastal fringes of East and West Africa (Senegal, Kenya, etc), coastal dense semi-evergreen forests (Tanzania, Mozambique), dry-deciduous forests (miombo woodlands as in Kenya, Malawi, etc); open woodlands and tree-savannas (Combretaceae bushes in Mali, Niger, Chad, Sudan); through the evergreen montane forests, prominent in Central Kenya, western and eastern Uganda, and Ethiopia; to tropical rain forests in western Kenya. To the north and south of the African continent, decreasing rainfall and an extended dry season increasingly give rise to deciduous and open woodlands of lower stature. Further north, this gradually blends into grasslands, scrubland and finally the desert.

#### Fundamental socio-economic features of African dry-zones

7. Agricultural and pastoralism production is the basis of the economy and the main source of economic development in the region. Most of the rural population depend upon commercial or subsistence agriculture activities for their survival. Much of the agricultural production stems from forest lands and major agricultural activities such as pastoralism or itinerant cultivation occur largely on forest and other wooded lands. Forests and other wooded lands in the African dry-zone countries are thus essential for the food security of its population, through the provision of various food crops for self-consumption or for providing cash income.

8. Non-Timber-Forest-Products (NTFP) are particularly crucial for the supply of basic needs such as: fruits, nuts, edible leaves, drugs, honey, rubber, game, fodder, tanning agents and dyes, and for the gathering of traditional medicines. NTFP are often the unique source of proteins and vitamins in the largely cereal based diet of the rural people. Forests and other forested lands contribute also to energy production since fuel and energy demands are largely met by wood (approximately 85 per cent of domestic energy).

9. Forests and other wooded lands further provide essential services for the population and the environment in general, such as protecting permanent agricultural lands, waterways and other fragile environments, but also in meeting a substantial part of the religious, cultural, spiritual and recreational needs of the rural and urban population in the region.

10. Dry-zone Africa has a high population growth rate (3 to 4 per cent), which is among the highest in the world. Because of sluggish economic growth, which provides only a few options for non-agricultural based employment, and a persistently low level of agricultural yields and technological development, the

increased demand for food, energy, cash-crops and grazing lands can only be met by further horizontal expansion of agriculture into forests and/or other wooded lands. Consequently, the countries are experiencing escalating rates of deforestation and degradation of their forest ecosystems. The savannas and the dry lowland forests are among the most severely affected.

11. Although forests and forest lands play a central role in development, forest policies often lack harmonization with other land use policies. Experiences spanning three decades of independence show that traditional forest service structures, with strict custodial policies and regulatory laws have often alienated and marginalized communities from forest management, and have embroiled governments in bitter battles that they can never win. Plantation based forestry has, in general been well developed although the management programmes have been lately weakened. The area of private forestry is very small but on-farm forestry is building up especially in the more humid areas.

#### Status and Objectives of forest management in dry-zone African countries

12. Countries in the dry-zone region have done a great deal to work out appropriate forest management policies. National Forest Action Plans, laws, forestry methodologies and techniques, and several programmes/projects are and have been implemented to improve management and conservation techniques, plantation establishment or to lay down sound natural forest management rules.

13. Forests which are being properly managed only account for a small percentage of total forest lands. Financial, technical, legal, socio-economic, political and other constraints are responsible for this state of affairs. However, it should be noted that for most of the countries in the region concerned there is an ever increasing awareness and political will to improve the management of their natural resources and in some countries to place some of the responsibility for managing the forest resource at the grassroots community level. Participatory forest management options may substantially increase the areas being managed according to multiple objectives which best reflect the traditional usages of the forest resources (fuelwood, fodder, miscellaneous commodities, grazing, agro-forestry).

14. Forest policies and forest management objectives in most of the countries of the region fit in well with the UNCED "Forest Principles". Prime forest management objectives common to most countries include i.a.:

- to contribute to food security by increasing the multiple roles of forests;
- to promote more sustainable natural resource utilisation and the conservation of key ecosystems;
- to introduce more equitable land occupancy systems;
- to promote grassroots communal organisations for participatory resource management
- to foster the integrated (agriculture, livestock, forests, rural development) management of natural resources in order to guarantee food security, energy security, and economic, social and cultural development.

#### **RELEVANCE OF ON-GOING INTERNATIONAL INITIATIVES FOR THE DRY-**

## ZONE AFRICAN COUNTRIES

15. The various criteria and indicators formulated in the framework of international initiatives (such as: ITTO, Helsinki, Montreal, WWF) have been examined in the three Background Notes in terms of their applicability to a regional context and to the needs and aspirations of the people living in these regions. All initiatives were found highly relevant and a number of complementary or supplementary criteria and indicators have been proposed by these Notes to facilitate the elaboration/monitoring of forest development and environmental protection programmes.

16. A synthesis of the findings and recommendations from these three Background Notes is herewith presented as a listing of the 7 criteria retained with their recommended corresponding indicators in order to facilitate the discussions during the Expert Consultation.

Applicability of existing Criteria and indicators for dry-zone African countries

17. Before dealing with the review of the criteria and indicators, it is necessary to set the basic notions of "forest" and "forest management" in the context of dry-zone African countries.

### The notion of "forests"

18. There are various definitions of "forest", but the notion which best meets the conditions of the dry-zones in Africa is the FAO definition on "Forests" and "other wooded lands" taken together. For the purpose of this debate, "Forests" cover all ecosystems with a minimum of 10 per cent crown cover of trees and/or bamboos, AND "Other wooded lands" which are covered by trees, bushes or scattered shrubs, whether natural or planted by man, and which may be cultivated (as agro-forestry lands) or not, and which are generally associated with wild flora and fauna.

### The concept of sustainable forest management

19. The existing definitions (including those from FAO, ITTO, Helsinki and Montreal Process) are very similar and refer to all eco-regions of the world. They take account of the multiple roles of forests in ecological, economic and social terms; consider present and future needs; and refer to the need to maintain or enhance the potential of forests to provide products and services. However, it should be noted that the above definitions were based on the concept of sustainable management of what are known as permanent forest estates, occupying a specific area and used mainly for the production of specific forests products or services.

20. As already mentioned above, much of the needs of the population in countries of the dry-zone regions in Africa (food, fuelwood, construction timber, other miscellaneous products and services) are met from agricultural activities on forest lands (irrespective their legal land-use status). In some cases, food production and pastoral activities on forest lands and the gathering of products considered as secondary (fodder, fruit, rubber, gum) may be economically and socially more important than timber. This means that the contribution of forests to food security needs to be fully included into the concept of sustainable forest management.

21. Integrating the above considerations leads us to the following concept of sustainable forest management that takes account of the situation in dry-zone African countries: **sustainable forest management is to optimise the value**

**of forests and other wooded areas while maintaining their productivity, health and vitality, and biological diversity in order to meet the present and future needs of the people in economic, environmental, social and cultural terms (Goumandakoye, 1995).**

#### Review of Criteria

22. The review of the existing criteria for sustainable forest management, developed by the ongoing processes and initiatives described in Part I, comprise 7 criteria which were retained and selected as relevant for sustainable forest management in dry-zone african countries and for which indicators can be derived. A synoptic overview on the relevance and adequacy of these Criteria is presented in Table 2.

23. The table shows clearly a general agreement on the existing 7 major groups of criteria regarding their relevancy and applicability to the context of dry-zone African countries. Only on the criterion relating to the contribution to global carbon cycles is there some different interpretation on its relevance for dry-zone countries. It is either not considered as a priority and thus not retained as a relevant criterion (CILSS), or it is retained as an indicator (IGADD), or retained as a criterion "Carbon sequestration" (SADC). Institutional and legal frameworks are identified by all as relevant, although not explicitly mentioned in the Background Note on the SADC countries. The underlying messages found in all background notes, highlighting the importance of an integrated approach when looking at forest management and especially the suggested additional criterion of combatting desertification, are very relevant.

**Table 2: Tabular overview of the relevance of criteria for dry-zone African countries by sub-region.**

Criterion	Relevance and adequacy by sub-region		
	CILSS	IGADD	SADC
Forest resources	yes	yes	yes
Biological diversity	yes	yes	yes
Health and vitality	yes + "integrity"	yes	yes
Contribution to global carbon cycles	NO	NO indicator	yes
Production functions	yes	yes	yes
Protection functions	yes	yes	yes
Socio-economic functions	yes	yes	yes
Legal and institutional frameworks	yes	yes	NO
Additional criteria proposed	Combating Desertification	NO	YES <sup>1/</sup>

<sup>1/</sup> 12 additional Criteria were proposed in the Background Note, which can however be grouped into one of the above 7 major groups of criteria. The proposed additional criteria on "Land use and Management" and "Permanence of forest resource (or tenure)" have some bearing on the "institutional and or legal frameworks", although "Legal and Institutional frameworks" is not explicitly recommended as a relevant criterion.

#### Review of Indicators

24. The following analysis takes account of all the indicators drawn up by the various processes and initiatives and includes newly proposed ones taken from the three Background Notes. These indicators are the ones deemed to be

appropriate (to the sustainable development objectives for the dry-zone forests), sound (measuring or effectively characterising what they are supposed to measure or evaluate), clear (easy to understand), reliable (verifiable and objective), applicable (practical to measure, without serious technical or scientific constraints, not requiring high administrative or financial costs, or involving heavy work-loads in terms of national capacities or priorities). These indicators can be quantitative, qualitative or descriptive.

25. One of the characteristics of the dry zone African countries which is that they are not only economically poor and ill-endowed with natural forest resources, but they also have weak forest services. This will strongly affect their ability to gather the amount and the type of information required for the indicators. However, it is important to underline here that the absolute values of given indicators are less important as numbers but as indicators of trends.

### **PROPOSED STRATEGY AND TIMETABLE FOR TESTING AND ADAPTING CRITERIA AND INDICATORS FOR SUSTAINABLE FOREST MANAGEMENT IN DRY-ZONE AFRICA**

26. The strategies presented in the three Background Notes provide ample opportunities for discussions at national and regional level on criteria and indicators for sustainable forestry. Also, intergovernmental consultations are proposed, together with the participation of the international community and non-governmental organisations involved with forestry.

27. However, the dissemination of criteria and indicators, followed by their effective and continual use can only be guaranteed through a process which must comprise the following:

- testing and adaptation to the context of the dry-zone African countries;
- incorporation into national forestry action programmes;
- controlled and routine implementation.

28. A number of concrete and concerted actions are necessary, which are presented in full in the three Background Notes. However some important common issues may be highlighted here.

29. The need to place the commitment to sustainable forest management at the highest political level in the country, as the adoption of these criteria is a policy issue which will affect the social and economic well being of most people in the region. It will also facilitate the presentation of regional consensus on sustainable forest management at international meetings.

30. The role of governments in the forestry sector might be reviewed, as policy changes may be needed to liberalise state interests such as through the encouragement of NGOs and the private sector to take up some of the forest management and monitoring roles.

31. Support to national governments will be necessary to assist the development of (sub) regional initiatives on criteria and indicators for sustainable forest management.

32. Harmonization between dry-zone countries and with other processes is required. The setup of networks for different aspects of the development of criteria and indicators, and specifically the identification of areas for joint initiatives might be useful.

## CONCLUSIONS

33. The process of formulating forest management criteria and indicators for the dry-zone African countries has only just begun. It is hoped that through this expert meeting it will continue as an ongoing process, adapted to the ecological, economic and social dynamics, as well as to the pace of scientific, technological and technical progress of the countries concerned.

34. It is important to back this process with a programme to support the countries concerned, which are presently confronted with numerous difficulties that are limiting their investment capacity and their ability to act. But it is the conviction and the commitment of the countries, their decision-makers, their technicians and their people, rather than their means, which will determine what is to become of the African dry-zone forests in the future.

35. Because of their multiple uses and the support they provide for agriculture and livestock, the future of the dry-zone African forests also determines the future development of the dry-zone African countries. Destruction of the forest resources will lead to the destruction of the production bases with disastrous consequences on food and energy security, and on the economy and well-being of the people in general. For many countries, but particularly for dry-zone African countries, forests are a vital strategic natural resource. Sound forest management is therefore essential.

36. Furthermore, the process should not be limited merely to drafting criteria and indicators. Once they have been analyzed they must determine and guide the action needed to guarantee effective sustainable forest management. These criteria and indicators drawn up on relevant and objective bases will thus become decision-making tools.

