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**SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL  
AND TECHNOLOGICAL ADVICE**Ninth meeting  
Montreal, 10-14 November 2003  
Item 5.2 of the provisional agenda\***SUSTAINABLE USE: DEVELOPMENT OF PRACTICAL PRINCIPLES, OPERATIONAL  
GUIDANCE AND ASSOCIATED INSTRUMENTS***Note by the Executive Secretary***EXECUTIVE SUMMARY**

During the biennium 2001-2002, the Secretariat of the Convention on Biological Diversity, in response to decision V/24 of the Conference of the Parties, organized three regional workshops for the sustainable use of biological diversity. The workshops resulted in a series of principles and guidelines for the sustainable use of components of biodiversity, as well as additional information on the issues associated with the operationalization of the guidelines.

At its sixth meeting, the Conference of the Parties, in its decision VI/13, called for a fourth open-ended workshop in order to: (i) synthesize the outcomes of the three workshops; (ii) integrate different views and regional differences; and (iii) develop a set of practical principles and operational guidelines. The Fourth Open-ended Workshop on the Sustainable Use of Biological Diversity was held in Addis Ababa from 6 to 8 May 2003. The Workshop produced the draft Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity, which consist of seven underlying conditions for sustainable use, fourteen inter-dependent practical principles, related operational guidelines and a few instruments for their implementation that should govern the uses of components of biodiversity to ensure that such uses are sustainable.

The present note has prepared in response to decision VI/13 and is based on the discussions during the Addis Ababa Workshop. Section I introduces the mandate under the Convention on Biological Diversity with regard to sustainable use, provides some information on the focus of the regional workshops, and reports on the organization of the fourth workshop. Section II provides a brief overview of the draft Addis Ababa Principles and Guidelines, as developed by the Fourth Workshop.

Section III contains some elements for discussion on instrument that should be associated with the implementation of the principles and guidelines. Implementation of the principles and guidelines for the sustainable use of biodiversity will in fact depend on many interrelated factors including, but not

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\* UNEP/CBD/SBSTTA/9/1.

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limited to, existence of appropriate incentive measures, ability to manage and exchange information and sufficient capacity with which to implement sustainable management plans and the capacity to adapt to changing conditions based on monitoring and feedback. The Fourth Workshop elaborated, in particular, on the issues pertaining to adaptive management and monitoring and indicators (see UNEP/CBD/SBSTTA/9/INF.8). The present note is based on the results of the discussions held during this workshop.

### SUGGESTED RECOMMENDATIONS

The Subsidiary Body on Scientific, Technical and Technological Advice may wish to recommend that the Conference of the Parties adopt a decision along the following lines:

*The Conference of the Parties,*

*Underlining* that the proposals for the application of ways and means to remove or mitigate perverse incentives elaborated by the Workshop on Incentive Measures for the Conservation and Sustainable Use of Components of Biological Diversity, held in Montreal from 3 to 5 June 2003, provide further guidance on the implementation of principle 3 of the draft Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity,

*Stressing* that the ecosystem approach is the primary framework for action in the Convention on Biological Diversity and that there is a need to consider the interlinkages between the draft Addis Ababa Principles and Guidelines for the Sustainable Use of Biological Diversity and the ecosystem approach in the sustainable management of biodiversity,

*Noting* the ongoing work on impact assessment under the Convention on Biological Diversity,

1. *Adopts* the draft Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity, as contained in the annex to the present document;

2. *Invites* Parties, other Governments and relevant organizations to initiate a process for the implementation of the Addis Ababa Principles and Guidelines at the national and local levels, including the development of pilot projects, with a view to:

(a) Integrating and mainstreaming the principles and guidelines into national legislation and other regulations, sectoral and cross-sectoral plans and programmes addressing consumptive and non consumptive use of biodiversity, including plans and programmes addressing the removal or mitigation of perverse incentives for the conservation and sustainable use of biodiversity; and

(b) Gathering relevant information on experiences and lessons learned for the further improvement of the guidelines;

3. *Invites* the Executive Secretary, in order to facilitate the gathering of relevant information, to continue assembling and compiling case-studies that can illustrate the importance of the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity, in different thematic areas and geographical contexts and will lead to guidance specific to sectors and biomes. Case studies should follow a format prepared by the Executive Secretary. Lessons learned from the case studies could be used to further elaborate and/or refine the Addis Ababa Principles and Guidelines.

4. *Requests* the Executive Secretary to undertake further work on issues pertaining to use of terms for sustainable use, adaptive management, monitoring and indicators building on the outcome of the Addis Ababa workshop.

5. *Invites* Parties and Governments, in collaboration with other relevant organizations (e.g., IUCN, the Food and Agriculture Organization of the United Nations) and the Executive Secretary to undertake further research investigating:

(a) The impacts of sustainable use and non-sustainable use on livelihoods, and ecosystems goods and services;

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- (b) The role of women in the sustainable use of components of biodiversity;
  - (c) The relationship between resilience of ecosystems and the sustainable use of biodiversity;
  - (d) The terms used in the description of sustainable use, in particular what “long-term decline” of biodiversity should mean in concrete terms, taking into account the aspirations of present and future generations in different regions and situations;
  - (e) The elaboration of management plans at time scales appropriate to the life history of species or populations;
  - (f) The applicability of the Addis Ababa Principles and Guidelines on the use of components of biological diversity that are subject to multiple jurisdictions, (e.g., a resource shared between different countries, or migratory species moving across national jurisdictions), in collaboration with relevant international agreements (such as the Convention on the Conservation of Migratory Species of Wild Animals);
  - (g) The functional relationships between different components of biological diversity in the context of sustainable use;
6. *Requests* the Executive Secretary to gather information and experiences on how sustainable use of biodiversity can contribute to the achievement of the biodiversity target of significantly reducing the rate of biodiversity loss by 2010 and how sustainable use can contribute to sustainable development;
7. *Requests* the Executive Secretary to integrate the work on indicators for monitoring sustainable use referred to in section III into the broader work undertaken pursuant to decision IV/7 on the “identification, monitoring, indicators and assessment”. In particular, indicators of external influences (e.g. pollution, natural disasters, poverty, foreign debts, refugees and displaced persons) should be developed/identified.

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## I. INTRODUCTION

1. In recent decades, biodiversity components have been used in a way leading to degradation of habitats, loss of species and erosion of genetic diversity, thus jeopardizing present and future livelihoods. Sustainable use of components of biodiversity, one of the three objectives of the Convention, is a key to achieving the broader goal of sustainable development and is a cross-cutting issue relevant to all thematic issues and areas addressed by the Convention and to all biological resources. It entails the application of methods and processes in the utilization of biodiversity to maintain its potential to meet current and future human needs and aspirations and to prevent its long-term decline.

2. Sustainable use of the components of biological diversity is defined in Article 2 of the Convention as the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations. Provisions relating to sustainable use are given in Article 10, which, *inter alia*, requests Parties to “adopt measures relating to the use of biological diversity to avoid or minimize impacts on biological diversity”. In order to assist Governments in their implementation of Article 10, the Conference of the Parties at its fifth meeting requested the Executive Secretary “to assemble practical principles, operational guidelines and associated instruments, and guidance specific to sectors and biomes, which would assist Parties and Governments to develop ways to achieve the sustainable use of biological diversity, within the framework of the ecosystem approach” (decision V/24).

3. In response to that decision, the Executive Secretary, in collaboration with the Governments of Mozambique, Viet Nam and Ecuador and with financial support from the Government of the Netherlands, convened three regional expert workshops in 2001-2002 designed to develop a set of practical principles and operational guidelines and associated enabling instruments for Parties, resource managers and other stakeholders.

4. The first workshop, held in Maputo in September 2001, focused on key elements relating to the sustainable use of dry-land resources and wildlife utilization in Africa. <sup>1/</sup> The second workshop was held in Hanoi in January 2002 and addressed in particular the uses of forest biological diversity, including timber and non-wood forest products in Asia, with references to agricultural biological diversity. <sup>2/</sup> The third workshop, held in Salinas, Ecuador, in February 2002, focused on marine and freshwater fisheries uses particularly in Latin America and the Caribbean. <sup>3/</sup>

5. At its sixth meeting, the Conference of the Parties, in its decision VI/13, called for a fourth open-ended workshop in order to:

- (a) Synthesize the outcomes of the three workshops;
- (b) Integrate different views and regional differences; and
- (c) Develop a set of practical principles and operational guidelines for the sustainable use of biological diversity.

6. The fourth open-ended workshop was organized in Addis Ababa, Ethiopia, from 6 to 8 May 2003. The report of the meeting is available to the ninth meeting of SBSTTA as an information document (UNEP/CBD/SBSTTA/9/INF/8).

7. Information contained in the present note as well as the suggested recommendations are based on the outcome of the aforementioned fourth workshop.

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<sup>1/</sup> The report of the Maputo workshop is contained in document UNEP/CBD/COP/6/INF/24/Add.1  
<sup>2/</sup> The report of the Hanoi workshop is contained in document UNEP/CBD/COP/6/INF/24/Add.2  
<sup>3/</sup> The report of the Salinas workshop is contained in document UNEP/CBD/COP/6/INF/24/Add.3.

## II. OVERVIEW OF THE DRAFT ADDIS ABABA PRINCIPLES AND GUIDELINES FOR THE SUSTAINABLE USE OF BIODIVERSITY

8. The draft Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity are annexed to the present note. A preamble to the principles gives a list of seven underlying conditions that should be taken into account in government and natural resources planning. This list is followed by the fourteen principles, which provide a framework for advising governments, resource managers and other stakeholders, including indigenous and local communities and the private sector, about how they can ensure that their uses of biodiversity components will not lead to the long-term decline of biological diversity. Each principle is followed by the rationale, a thorough explanation and exemplification of the motivation and meaning of the principle, and the operational guidelines, which provide functional advice on the implementation of the principle.

9. The principles are intended to be of general relevance, although not all principles will apply equally to all situations, nor will they apply with equal rigour. Their application will vary according to the biodiversity being used, the conditions under which they are being used, and the institutional and cultural context in which the use is taking place. The practical principles in most instances apply to both consumptive and non-consumptive uses of biodiversity components. They take into account requirements related to:

- (a) Policies, laws, and regulations;
- (b) Management of biological diversity;
- (c) Socio-economic conditions and
- (d) Information, research and education.

## III. ASSOCIATED INSTRUMENTS<sup>4/</sup>

10. Implementation of the principles and guidelines for the sustainable use of biodiversity will depend on many inter-related factors including, but not limited to, existence of appropriate incentive measures, ability to manage and exchange information and sufficient capacity with which to implement sustainable management plans, and, the capacity to adapt to changing conditions based on monitoring and feedback. In particular, because in ecosystem management, circumstances change and thus uncertainties are inherent in all managed uses of components of biodiversity, adaptive management must be an essential part of any management for sustainable use. The successful application of adaptive management is dependent on monitoring changes in the indicators being used, which could lead to changes in an array of activities associated with the management system. The issues of adaptive management and monitoring and indicators for sustainable use are addressed below.

### 3.1. *Adaptive management*

11. Sustainable use is not a fixed state, but rather the consequence of balancing an array of factors, which vary according to the context of the use. In addition, sustainability of uses cannot be expressed with certainty, but rather as a probability that may have to change if the conditions in which management is taking place change. In this context, adaptive management deals with the complex and dynamic nature of ecosystems and their uses and the absence of complete knowledge of their functioning, it is able to respond to uncertainties and it contains elements of “learning-by-doing” or research feedback. Achievement of sustainability is also dependent on institutional capacities to adapt to changing conditions based on monitoring and feedback. Given the uncertainties, sudden changes and different contexts in which the use of biodiversity is taking place, sustainable use entails the adaptive management of biological resources.

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<sup>4/</sup> Information contained in this section is based on information contained in the report of the Fourth Open-ended Workshop on the Sustainable Use of Biological Diversity (Addis Ababa, 6-8 May 2003 (UNEP/CBD/SBSTTA/9/INF/8)).

12. Briefly, adaptive management is considered the appropriate approach toward the management of biological resources because of its ability to deal with the uncertainty and natural variation, its iterative nature of monitoring biological resource through the management cycles, and the feedback/decision-making mechanisms to alter the management. Adaptive management can be applied at each of the recognized components of biological diversity, where the scale of management (and adaptive-management needs) is determined by the component being used.

### 3.2. *Monitoring and indicators*

13. Monitoring is a key component of adaptive management and managers should be accountable and responsible for developing and implementing the monitoring programme. The indicators and benchmarks that form part of that monitoring programme should be agreed upon by all relevant stakeholders including governments and scientists.

14. A series of criteria and characteristics should be taken into consideration in developing a monitoring system. For instance, monitoring should be bounded by spatial and temporal scales that are relevant to the potential impact, but should not ignore “downstream”, indirect side effects of management. There are also different levels at which consumptive and non-consumptive uses should be conducted. For instance, harvest efforts should be monitored, in order to determine changes in the yield per unit effort as an index of the impact of the management programme, taking into account improvements in technology and practice relating to the efficiency of harvesting.

15. Monitoring of both consumptive and non-consumptive use should be conducted at the same frequency and by the same agencies, although the combination of monitoring may result in a greater probability that use-related impacts will be detected and that monitoring systems will be maintained in the long term. Monitoring at multiple levels is particularly important in cases where limited information is available about the current status of the component of biological diversity that is being used, or to avoid bias resulting from information derived as the result of use (e.g., harvesting is most often targeted at specific components only). It is also important to consider impacts on a resource other than influence by direct management actions, such as illegal off-takes, and to use all other relevant sources of information to verify conclusions about the trends in resource status and recommendations concerning its management.

16. There is the need to identify/further develop indicators <sup>5/</sup> within the context of sustainable use in order to describe; status of a system, change in a system, trends in a system, combinations of the above. Desirable characteristics of indicators should also be identified.

17. Indicators should be developed at various scales. Some will be national in context; some will be management-area indicators. It is important for managers/planners to include in the monitoring system indicators relevant to their specific situation. Managers should be aware that there are many existing sources of information on indicators (e.g., the Food and Agriculture Organization of the United Nations (FAO), Agenda 21, the United Nations System Wide Earth Watch Indicators, the World Bank).

18. For each of the components of biological diversity a set of indicators to measure their decline should be finalized. In this biological context, indicators should be identified for the components of biological diversity that can be subject to use. The assessment of the sustainability of use on a particular component will largely depend on the scale and extent of use. Indicators of sustainability should be applied to the component of biological diversity that approximates the unit of management.

19. The indicators identified should be suitable to demonstrate the impact of use, and only refer to the biological status of each component of biological diversity, as they should be built to detect decline in the status of biodiversity components.

20. Economic indicators will be also essential in indicating status, change and trends of use of biological components of biodiversity in economic terms. Indicators identified should be used to assess

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<sup>5/</sup> See also the note by the Executive Secretary on designing national-level monitoring programmes and indicators (UNEP/CBD/SBSTTA/9/10).

sustainability of the use. For example, the degree to which biological resources are priced and reflect true value, being a condition for effective management, may serve as an economic indicator.

21. In addition, social indicators that reflect social values with respect to the sustainable use of biological components. The indicators identified should be suitable examples to demonstrate:

- (a) The incorporation of social values into the use of biological resources;
- (b) How unique needs of individuals and communities are considered in management decisions; and
- (c) The extent to which the allocation of resources can be considered to be fair and equitable.

22. All cultures use aspects of biological diversity for the maintenance of their cultures. Using indicators to monitor sustainable use in a cultural context is important to understand the impact of the use upon cultures, and vice versa. Cultures need to be defined beyond indigenous groups; to include beliefs, customs, practices and social behaviour of all people. Some cultural indicators should therefore be identified.

*Annex*

**DRAFT ADDIS ABABA PRINCIPLES AND GUIDELINES FOR THE SUSTAINABLE USE OF BIODIVERSITY<sup>6/</sup>**

1. The Addis Ababa Principles and Guidelines for the Sustainable use of Biodiversity consist of fourteen interdependent practical principles, operational guidelines and a few instruments for their implementation that govern the uses of components of biodiversity to ensure the sustainability of such uses. The principles provide a framework for advising Governments, resource managers and other stakeholders, including indigenous and local communities and the private sector, about how they can ensure that their use of biodiversity components will not lead to the long-term decline of biological diversity. The principles are intended to be of general relevance, although not all principles will apply equally to all situations, nor will they apply with equal rigour. Their application will vary according to the biodiversity being used, the conditions under which they are being used, and the institutional and cultural context in which the use is taking place.
2. Sustainable use is a valuable tool to promote conservation of biological diversity, since in many instances it provides incentives for conservation and restoration because of the social, cultural and economic benefits that people derive from that use. In this context, and as recognized in the Plan of Implementation of the World Summit on Sustainable Development, sustainable use is an effective tool to combat poverty, and, consequently, to achieve sustainable development.
3. The practical principles in most instances apply to both consumptive and non-consumptive uses of biodiversity components. They take into account requirements related to: (i) policies, laws, and regulations; (ii) management of biological diversity; (iii) socio-economic conditions; and (iv) information, research and education.
4. It is a fundamental assumption that the application of the practical principles and operational guidelines is set within the context of the ecosystem approach (decision V/6 of the Conference of the Parties). For the practical principles, footnotes provide cross references to the relevant principle(s) of the ecosystem approach.
5. Progress towards sustainability will require the political will to bring about changes to create the necessary enabling environment at all levels of government and society. The operational guidelines are intended to provide functional advice on the implementation of the principles. These guidelines have been developed taking into account regional and thematic differences and best practices and lessons learned that have been documented in case-studies on the sustainable use of biological diversity in different biomes as well as existing codes of conduct.
6. The operationalization of the principles will require an enabling institutional, legal and administrative structure at all levels of government and society within each Party. Further, to be effective, policies and regulations that are adopted should ensure that the application of the principles is flexible and adaptable to different local realities and adjustable to specific ecosystems. In this context, seven underlying conditions should be taken into account as a framework for the correct implementation of the principles and guidelines, as listed in section A below.

**A. *Underlying conditions for sustainable use***

7. In structuring a sustainable use programme and the attendant policies, laws and regulations to implement such a programme, there are a few underlying conditions that should be taken into account in government and natural resource management planning:
  - (a) While it is possible to use biodiversity components with ecological processes, species and genetic variability remaining above thresholds needed for long-term viability, it is the responsibility of

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<sup>6/</sup> Both the *underlying conditions for sustainable development* contained in section A and the *practical principle and operational guidelines* contained section B are reported exactly as developed by the Fourth Workshop on the Sustainable Use of Biological Diversity, held in Addis Ababa in May 2003.

governments and resource managers to ensure that use does not exceed these capacities. It is crucial that the biodiversity in ecosystems is maintained to ensure that those ecosystems are capable to sustain the ecological services on which both biodiversity and people depend;

(b) Ecosystems, ecological processes within them, species variability and genetic variation change over time whether or not they are used. Therefore, governments and resource managers should take into account the need to accommodate change, including stochastic events that may influence the sustainability of a use;

(c) In circumstances where the risk of converting natural landscapes to other purposes, encouraging sustainable use can provide incentives to maintain habitats and ecosystems, the species within them, and the genetic variability of the species. Also, for particular species, such as crocodiles, sustainable use has provided substantial incentives for conserving a dangerous animal that represents a threat to humans;

(d) The basic necessities of life, such as food and shelter, are produced either directly or indirectly from using biological diversity. In many countries, there is complete or substantial dependence on harvested plants and animals by millions of people, often among the poorest, for their livelihoods. Increasingly other uses such as pharmaceuticals for disease prevention and cure are becoming evident and are also met from using biological diversity. Finally, indigenous and local communities and their cultures often depend directly on the uses of biological diversity for their livelihoods. In all of these instances, governments should have adequate policies and capacities in place to ensure that such uses are sustainable;

(e) The supply of biological products and ecological services available for use is limited by intrinsic biological characteristics of both species and ecosystems, including productivity, resilience, and stability. Biological systems, which are dependent on cycling of finite resources, have limits on the goods they can provide and services they can render. Although certain limits can be extended to some degree through technological breakthroughs, there are still limits, and constraints, imposed by the availability and accessibility of endogenous and exogenous resources;

(f) To ameliorate any potential negative long-term effects of uses it is incumbent on all resource users, to apply every precaution in their management decisions. Likewise, governments should be certain that licensed or authorized sustainable uses of biological diversity are taking such precautions in their management;

(g) In considering individual guidelines provided below, it is necessary to refer to and apply the provisions of Article 8(j) and related provisions and their development in relevant decisions of the Conference of the Parties in all matters that relate to indigenous and local communities.

***B. Practical principles, rationale and operational guidelines for the sustainable use of biodiversity***

8. Sustainability of use of biodiversity components will be enhanced if the following practical principles and related operational guidelines are applied:

***Practical principle 1: Supportive policies, laws, and institutions are in place at all levels of governance and there are effective linkages between these levels.***

***Rationale:*** There is need to have congruence in policies and laws at all levels of governance associated with a particular use. For example, when an international agreement adopts a policy regarding use of biodiversity, national and subnational laws must be compatible if sustainability is to be enhanced. There must be clear and effective linkages between different jurisdictional levels to enable a “pathway” to be developed which allows use of a resource to proceed from collection or harvest through to final use without unnecessary impediment. In most cases the primary means for achieving congruence

between local and international levels of governance should be through national and subnational governments.

*Operational guidelines*

- Consider local customs and traditions (and customary law where recognized) when drafting new legislation and regulations;
- Identify existing and develop new supportive incentives measures, policies, laws and institutions within the jurisdiction in which a use will take place;
- Identify any overlaps, omissions and contradictions in existing laws and policies and initiate concrete actions to resolve them;
- Strengthen and/or create cooperative and supportive linkages between all levels of governance in order to avoid duplication of efforts or inconsistencies.

***Practical principle 2: Recognizing the need for a governing framework consistent with international <sup>7/</sup> national and subnational laws, local users of biodiversity components should be sufficiently empowered and supported by rights to be responsible and accountable for use of the resources concerned. <sup>8/</sup>***

*Rationale:* Uncontrolled access to biodiversity components often leads to over-utilization as people try to maximize their personal benefits from the resource while it is available. Resources for which individuals or communities have use, non-use, or transfer rights are, in general, used more responsibly because they no longer need to maximise benefits before someone else removes the resources. Therefore sustainability is enhanced if Governments grant “rights” or “stewardship” authority, responsibility and accountability to the people who use and manage the resource, which may include communities, indigenous peoples, and private landowners. Moreover, to reinforce local rights or stewardship of biological diversity and responsibility for its conservation, resource users should participate in making decisions about the resource use and have the authority to carry out any actions arising from those decisions.

*Operational guidelines*

- Where possible adopt means that aim toward delegating rights, responsibility, and accountability to those who use and/or manage biological resources;
- Review existing regulations to see if they can be used for delegating rights; amend regulations where needed and possible; and/or draft new regulations where needed. Throughout local customs and traditions (including customary law where recognized) should be considered;
- Refer to the programme of work related to the implementation of Article 8(j) with regard to indigenous and local community issues (decision V/16) and integrate tasks relevant for the sustainable use of biodiversity components;
- Provide training and extension services to enhance the capacity of people to enter into effective decision-making arrangements as well as in implementation of sustainable use methods.

***Practical principle 3: International, national and subnational policies, laws and regulations that distort markets and promote habitat degradation or otherwise generate***

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<sup>7/</sup> Where consistency with international law is referred to this recognizes: a) that there are cases where a country will not be a party to a specific international convention and accordingly that law will not apply directly to them; and b) that from time to time countries are not able to achieve full compliance with the conventions to which they are a party and may need assistance.

<sup>8/</sup> See principle 2 of the ecosystem approach.

***perverse incentives for conservation and sustainable use of biodiversity, should be identified and removed or mitigated. <sup>9/</sup>***

*Rationale:* Some policies or practices induce unsustainable behaviours that reduce biodiversity, often as unanticipated side effects as they were initially designed to attain other objectives. For example, support policies in agriculture that encourage domestic over production often generate perverse incentives for the conservation and sustainable use of biological diversity. Eliminating subsidies that contribute to illegal, unreported and unregulated fishing and to over-capacity, as required by the WSSD Plan of Implementation in order to achieve sustainable fisheries, is a further instance of the recognition of the need to remove perverse incentives.

*Operational guidelines*

- Identify economic mechanisms, including incentive systems and subsidies at international, national and subnational levels that are having a negative impact on the potential sustainability of uses of biological diversity;
- Remove those systems leading to market distortions that result in unsustainable uses of biodiversity components;
- Avoid unnecessary regulations of uses of biological diversity because it can increase costs, foreclose opportunities, and encourage unregulated uses thus decreasing the sustainability of the use.

***Practical principle 4: Adaptive management should be practiced, based on:***

- (a) Science and traditional and local knowledge;***
- (b) Iterative, timely and transparent feedback derived from monitoring the use, environmental, socio-economic impacts, and the status of the resource being used; and***
- (c) Adjusting management based on feedback from the monitoring procedures. <sup>10/</sup>***

*Rationale:* Biological systems and the economic and social factors that can affect the sustainability of use of biological diversity are highly variable. It is not possible to have knowledge of all aspects of such systems before a use of biological diversity begins. Therefore, it is necessary for the management to monitor the effects of that use and allow adjustment of the use as necessary. In this context, it is preferable to use all sources of information about a resource when deciding how it can be used. In many societies traditional and local knowledge has led to much use of biological diversity being sustainable over long time-periods without detriment to the environment or the resource. Incorporation of such knowledge into modern use systems can do much to avoid inappropriate use of a resource. Also, irrespective of scientific information about a resource, its use will most often be determined by the cultural beliefs and social norms of local society.

*Operational guidelines*

- Ensure that for particular uses adaptive management schemes are in place;

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<sup>9/</sup> See principle 4 of the ecosystem approach.

<sup>10/</sup> See principles 9 and 11 of the ecosystem approach

- Require adaptive management plans to incorporate systems to generate sustainable revenue necessary for successful implementation;
- Provide extension assistance in setting up and maintaining monitoring and feedback systems;
- Include clear descriptions of their adaptive management system, which includes means to assess uncertainties;
- Design monitoring system on a temporal scale sufficient to ensure that information about the status of the resource and ecosystem is available to inform management decisions to ensure that the resource is conserved.

***Practical principle 5: Sustainable use management goals and practices should avoid or minimize adverse impacts on ecosystem services, structure and functions as well as other components of ecosystems. <sup>11/</sup>***

Rationale: Use of any resource must take into account the functions that resource may fulfil within the ecosystem in which it occurs, and that use must not adversely affect ecosystem functions. For example, clear felling in a watershed could lead to erosion of soil and impairment of the water filtration function of the ecosystem. Avoidance of this situation would involve setting conservative cutting quotas with appropriate harvesting techniques and monitoring the effects of the harvest as it occurs. As another example, the shrimping industry has developed nets that can separate out juveniles and by-catch and also reduce negative effects on benthic and other associated communities.

*Operational guidelines*

- Ensure management practices do not impair the capacity of ecosystems to deliver goods and services that may be needed some distance from the site of use. For example, selective cutting of timber in a watershed would help maintain the ecosystem's capacity to prevent soil erosion and provide clean water;
- Ensure that consumptive and non-consumptive use does not impair the long-term sustainability of that use by negatively impacting the ecosystem on which the use depends, e.g., when a tourism operation destroys a coral reef on which it was based;
- Apply the "precautionary principle" to management decisions as provided in paragraph 15 of the Rio Declaration on Environment and Development;
- Identify successful experiences of management of biodiversity components in other countries in order to adapt and incorporate this knowledge in their efforts to resolve their own difficulties;
- Where possible consider the aggregate and cumulative impact of activities on the target species or ecosystem in management decisions related to that species or ecosystem.

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<sup>11/</sup> See principles 3, 5 and 6 of the ecosystem approach

**Practical principle 6:** *Interdisciplinary research into all aspects of the use and conservation of biological diversity should be promoted and supported.*

*Rationale:* International conventions and national and subnational decisions that affect use should always apply the best information on which to base decisions and be aware of the local circumstances where a use is undertaken. In addition, there is need to ensure that research is supported into the biological and ecological requirements of the species to ensure that the use remains within the capacity of the species and ecosystem to sustain that use. Further, to enhance incentives that promote sustainability, there would be value in investing in research to develop new commodities and open up new economic opportunities for stakeholders.

*Operational guidelines*

- Ensure that the results of research inform and guide international, national and subnational policies and decisions.
- Invest in research into techniques and technologies of management of biodiversity components that promote sustainability in both consumptive and non-consumptive uses of biodiversity;
- Encourage active collaboration between scientific researchers and people with local and traditional knowledge;
- Encourage and support international support and technology transfer, relating to both consumptive and non-consumptive uses of biodiversity;
- Involve local people who use biodiversity as research partners and use their expertise to assess management methods and technologies;
- Make research results available in a form which decision makers, users, and other stakeholders can apply;
- Promote exchange programmes in scientific and technical areas.

**Practical principle 7:** *The spatial and temporal scale of management and regulation should be compatible with the ecological and socio-economic scales of the use and its impact. <sup>12/</sup>*

*Rationale:* Management and regulation of sustainable use activities should be scaled to the ecological and socio-economic needs of the use. If, for example, fish are harvested from a lake, the owner of the lake should be in charge of, and accountable for, the management of the lake subject to national or subnational policy and legislation. Likewise, if neighbouring countries share a resource then appropriate authority should include representation from those States and all should participate in the management and regulatory decisions about that resource. Accountability over decisions governing multi-jurisdictional shared resources will remain with the cooperating sovereign States; however, in such cases there is need to promote transparency in decisions by all parties and to foster an approach of joint decision making.

*Operational guidelines*

- Link responsibility and accountability to the spatial and temporal scale of use;
- Define the management objectives for the resource being used;
- Enable full public participation in preparation of management plans to best ensure ecological and socio-economic sustainability.

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<sup>12/</sup> See principles 2 and 7 of the ecosystem approach.

**Practical principle 8:** *There should be arrangements for international cooperation where multinational decision-making and coordination are needed.*

**Rationale:** If a resource is shared between two or more countries then it is advisable to have a bilateral or multilateral agreement between those states to determine how the resource will be used and in what amounts. Absence of such agreements can lead to each state implementing separate management regimes which, when taken together, may mean that the resource is over-utilized.

*Operational guidelines*

- Make arrangements for international cooperation when the distribution of populations or communities/habitats being used span two or more nations;
- Promote multinational technical committees to prepare recommendations for the sustainable use of shared resources;
- Have bilateral or multilateral agreements between or among the States sharing the resource;
- Spell out the basis for taking decisions governing sustainable use of shared resources in such agreement.

**Practical principle 9:** *An interdisciplinary, participatory approach should be applied at the appropriate levels of management and governance related to the use.*

**Rationale:** Sustainability of use depends on factors other than purely biological parameters of the resource being utilized. It is recognized that social, cultural, political and economic factors are equally important. It is therefore necessary to take such factors into consideration and involve the stakeholders, including indigenous and local communities and the private sector, and the people experienced in these different fields, at all levels of the decision making process.

*Operational guidelines*

- Consider providing mechanisms that encourage interdisciplinary cooperation in management of biodiversity components;
- Set standards for resource management activities that promote interdisciplinary consultations;
- Facilitate communication and exchange of information between all levels of decision-making;
- Identify all relevant stakeholders and seek their participation in planning and executing of management activities;
- Take account of socio-economic, political, biological, ecological, institutional, religious and cultural factors that could influence the sustainability of the management;
- Seek guidance from local, traditional and technical specialists in designing the management plan;
- Provide adequate channels of negotiations so that potential conflicts arising from the participatory involvement of all people can be quickly and satisfactorily resolved.

**Practical principle 10:** *International, national and subnational policies should take into account:*

- (a) *Current and potential values derived from the use of biological diversity;*
- (b) *Intrinsic and other non-economic values of biological diversity and*
- (c) *Market forces affecting the values and use.*

**Rationale:** Recent work in calculating the potential costs of replacing natural systems with man-made alternatives has shown that such natural systems should be

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valued very highly. It follows that international, national and subnational policies that guide trade and development should compare the real value of natural systems against any intended replacement uses before such development is undertaken. For instance, mangroves have the function of fish-spawning and nursery sites, erosion and storm-surge alleviation and carbon sequestration. Coral reefs provide protection for juvenile fish and many species, as well as coastal zone protection.

*Operational guidelines*

- Promote economic valuation studies of the environmental services of natural ecosystems;
- Incorporate this information in policy and decision making processes, as well as educational applications;
- Consider this principle in relation to land use/habitat conversion tradeoffs. Recognize that market forces are not always sufficient to improve living conditions or increase sustainability in the use of components of biological diversity;
- Encourage governments to take into account biodiversity values in their national accounts;
- Encourage and facilitate capacity building for decision makers about concepts related to economic valuation of biodiversity.

***Practical principle 11:*** *Users of biodiversity components should seek to minimize waste and adverse environmental impact and optimize benefits from uses.*

*Rationale:*

Users should seek to optimize management and to improve selectivity of extractive uses through environmentally friendly techniques, so that waste is minimized, especially in regards to fisheries discards and by-catch, and socio-economic and ecological benefits from uses are optimized. For example, in the energy industry, survey roads are typically 30 metres across. With such roads, there is virtually no chance for the surrounding forest to re-colonize the roadbed. There exists equipment that can cut a 2.5-metre swath through the forest, which is adequate for seismic studies. In this case the forest is capable of re-colonizing the cleared area.

*Operational guidelines:*

- Provide economic incentives for resource managers to invest in development and/or use of more environmentally friendly techniques, e.g., tax exemptions, funds available for productive practices, lower loan interest rates, certification for accessing new markets;
- Establish technical cooperation mechanisms in order to guarantee the transfer of improved technologies to communities;
- Endeavour to have an independent review of harvests to ensure that greater efficiencies in harvest or other extractive uses do not have a deleterious impact on the status of the resource being used or its ecosystem;
- Identify inefficiencies and costs in current methods;
- Conduct research and development into improved methods;
- Promote or encourage establishment of agreed industry quality standards of biodiversity component processing and management at the international, national and subnational levels, e.g., Forest Stewardship Council Guidelines, ITTO Tropical Timber Guidelines, Marine Aquarium Council Guidelines for tropical fish and coral trade;
- Promote more efficient and humane transportation of biodiversity components.

**Practical principle 12:** *The needs of indigenous and local communities who live with and are affected by the use and conservation of biological diversity, along with their contributions to its conservation, should be reflected in the equitable distribution of the benefits from the use of those resources.*

**Rationale:** Local communities often shoulder significant costs or forgo benefits of potential use of biological diversity, in order to ensure or enhance benefits accruing to others. Many resources (e.g., timber, fisheries) are over-exploited because regulations are ignored and not enforced. When local people are involved as stakeholders such violations are reduced. Management regimes are enhanced when constructive programs that benefit local communities are implemented, such as capacity training that can provide income alternatives, or assistance in diversifying their management capacities.

**Operational guidelines:**

- Promote economic incentives that will guarantee additional benefits to the local stakeholders who are involved in the management of any biodiversity components, e.g., job opportunities for local peoples, equal distribution of returns amongst locals and outside investors/co-management;
- *Adopt* policies and regulations that ensure that local stakeholders who are engaged in the management of a resource for sustainable use receive an equitable share of any benefits derived from that use;
- Consider ways to bring uncontrolled use of biological resources into a legal and sustainable use framework, including promoting alternative non-consumptive uses of these resources;
- Ensure that an equitable share of the revenues remain with the local people in those cases where foreign investment is involved;
- Involve local stakeholders in the management of any natural resource and provide those involved with equitable compensation for their efforts;
- In the event that management dictates a reduction in harvest levels, to the extent practicable assistance should be provided for local communities who are directly dependent on the resource to have access to alternatives.

**Practical principle 13:** *The costs of management and conservation of biological diversity should be internalized within the area of management and reflected in the distribution of the benefits from the use.<sup>13/</sup>*

**Rationale:** The management and conservation of natural resources incurs costs. If these costs are not adequately covered then management will decline and the amount and value of the natural resources may also decline. It is necessary to ensure that some of the benefits from use flow to the local natural resource management authorities so that essential management to sustain the resources is maintained. Such benefits may be direct, such as entrance fees from visitors to a national park paid directly to, and retained by, the park management authority or indirect, such as stumpage tax revenue from timber harvesting paid by loggers that flows through a national treasury to a local forest service. In some cases licence fees for fishing rights are paid directly to the management authority, or to the national treasury.

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<sup>13/</sup> See the operational guidance for the application of the ecosystem approach (decision V/6, annex, section C, para. 11).

*Operational guidelines*

- Ensure that national and subnational policies do not provide subsidies that mask true costs of management;
- Ensure that harvest levels and quotas are set according to information provided by the monitoring system, not the economic needs of the management system;
- Provide guidelines for resource managers to calculate and report the real cost of management in their business plans;
- Create other alternative mechanisms to invest revenues from biodiversity management;
- Provide economic incentives for managers who have already internalized environmental costs, e.g., certification to access new markets, waiver or deferral of taxes in lieu of environmental investment, promotion of “green-labelling” for marketing.

***Practical principle 14: Education and public awareness programmes on sustainable use should be implemented and more effective methods of communications should be developed between and among stakeholders and managers.***

*Rationale:*

To ensure that people are aware of the connectivity between different parts of biological diversity, its relevance to human life, and the effects of uses it is advisable to provide means to engage people in education and awareness of the opportunities and constraints of sustainable use. It is also important to educate people on the relationship of sustainable use and the other two objectives of the Convention. An important way to achieve sustainable use of biological diversity would be to have in place effective means for communications between all stakeholders. Such communications will also facilitate availability of the best (and new) information about the resource.

*Operational guidelines*

- Plan education and public-awareness activities concerning: management, values of sustainable use, changing consumptive patterns and the value of biodiversity in the lives of people;
- Ensure that public-awareness programmes also inform and guide decision makers;
- Target all levels of the chain of production and consumption with such communications;
- Report lessons learned about sustainable use activities to the clearing-house mechanism of the Convention on Biological Diversity;
- Encourage and facilitate communication of lessons learned and best practices to other nations;
- Ensure that resource users report to government on their activities in a manner that facilitates broader communications.

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