



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.

GENERAL

UNEP/CBD/COP/3/1
22 August 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY

Third meeting
Buenos Aires, Argentina
4 to 15 November 1996

DRAFT PROVISIONAL AGENDA

1. Opening of the meeting.
2. Organisational matters:
 - 2.1 Election of officers;
 - 2.2 Adoption of the agenda;
 - 2.3 Organisation of work.
3. Pending issues arising from the work of the second meeting of the Conference of the Parties:
 - 3.1 Paragraph 1 of rule 40 of the rules of procedure for meetings of the Conference of the Parties to the Convention on Biological Diversity;
 - 3.2 Paragraphs 4 and 16 of the financial rules for the administration of the Trust Fund of the Convention on Biological Diversity;
4. Consideration of the report and recommendations of the second meeting of the Subsidiary Body on Scientific, Technical and Technological Advice and instructions by the Conference of the Parties to the Subsidiary Body on Scientific, Technical and Technological Advice.
5. Report on assessment and review of the operation of the clearing-house mechanism.

6. Financial resources and mechanism:

- 6.1 Report on the activities of the Global Environment Facility;
- 6.2 Report of the Executive Secretary on the implementation of decision II/6 on financial resources and mechanism;
- 6.3 To consider the availability of additional financial resources and to consider possible suggestions to funding institutions on how to make their activities in the area of biodiversity more supportive of the Convention;
- 6.4 To consider guidelines for the Conference of the Parties' review of the effectiveness of the financial mechanism;
- 6.5 To consider the revised draft "Memorandum of Understanding Between the Conference of the Parties to the Convention on Biological Diversity and the Council of the Global Environment Facility Regarding the Institutional Structure Operating the Financial Mechanism of the Convention";
- 6.6 To endeavour to decide upon the institutional structure to be designated in accordance with Article 21 of the Convention.

7. General measures for conservation and sustainable use:

- 7.1 Implementation of Articles 6 and 8 of the Convention.

8. Identification, monitoring and assessment:

- 8.1 To consider options for implementing Article 7 of the Convention;
- 8.2 Appraisal of the Subsidiary Body on Scientific, Technical and Technological Advice □ assessment of biological diversity for the implementation of Article 25 (2)(a) and advice on methodologies for future assessments.

9. Conservation and sustainable use of agricultural biological diversity:

- 9.1 To consider agricultural biological diversity within the context of the Convention's objectives and its provisions;
- 9.2 To consider a report on progress under the FAO Global System for the Conservation and Utilisation of Plant Genetic Resources for Food and Agriculture.

10. Consideration of the future programme of work for terrestrial biological diversity in the light of the outcome of deliberations of the third session of the Commission on Sustainable Development in 1995:
 - 10.1 Communication of the Secretariat of the Intergovernmental Panel on Forests on progress on issues relevant to forests and biological diversity;
 - 10.2 To consider whether further input to the Intergovernmental Panel on Forests is required;
 - 10.3 Future programme of work for terrestrial biological diversity in the light of the outcome of deliberations of the third session of the Commission on Sustainable Development in 1995.
11. Knowledge, innovations and practices of indigenous and local communities:
 - 11.1 Implementation of Article 8(j).
12. Access to genetic resources:
 - 12.1 To consider the compilation of views of the Parties on possible options for developing national legislative, administrative or policy measures, as appropriate, to implement Article 15.
13. Issues related to technology:
 - 13.1 To consider ways to promote and facilitate access to and transfer and development of technology, as in envisaged by Articles 16 and 18 of the Convention.
14. Intellectual property rights:
 - 14.1 To consider the impact of intellectual property rights on the conservation and sustainable use of biological diversity and the equitable sharing of benefits derived from its use with a view to better understand the implications of Article 16.5;
 - 14.2 To consider a possible input into the negotiations that are taking place in the Committee on Trade and Environment of the World Trade Organisation.
15. Incentive measures:
 - 15.1 To consider the compilation of information and experiences shared on the implementation of Article 11.

/...

16. Special session of the General Assembly to review implementation of Agenda 21:
 - 16.1 To provide a report from the perspective of the Convention's three objectives.
17. Issues related to biosafety:
 - 17.1 To consider the first report of the Open-ended Ad Hoc Working Group on Biosafety.
18. Relationship of the Convention with the Commission on Sustainable Development and biodiversity-related conventions, other international agreements, institutions and processes of relevance.
19. Medium-term programme of work of the Conference of the Parties for 1996-1997.
20. Administrative matters:
 - 20.1 Report of the Executive Secretary on the administration of the Convention.
 - 20.2 Budget of the Trust Fund for the Convention on Biological Diversity
21. Report on the credentials of representatives to the third meeting of the Conference of the Parties.
22. Venue and date of the fourth meeting of the Conference of the Parties.
23. Other matters.
24. Adoption of the report.
25. Closure of the meeting.

**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/1/Add.1
9 September 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Third meeting
Buenos Aires, Argentina
4 to 15 November 1996

ANNOTATED PROVISIONAL AGENDA**1. Opening of the meeting**

1. The third meeting of the Conference of the Parties (COP) to the Convention on Biological Diversity will take place from 4 to 15 November 1996 at the Golden Centre, Buenos Aires, Argentina. Meeting rooms will be made available on the afternoon of Sunday, 3 November 1996 for informal consultations among the five regional groups for the designation of their respective candidates to the Bureau of the meeting. Registration of participants will commence on Sunday, 3 November at 9.00 a.m. The meeting will be opened at 10.00 a.m. on Monday, 4 November 1996.

2. Organisational matters**2.1 Election of officers**

2. Under agenda item 2.1, the Conference of the Parties, at its opening session, will elect its Bureau. Rule 21 of the rules of procedure for the meetings of the Conference of the Parties states that "[a]t the commencement of the first session of each ordinary meeting, a President, eight Vice-Presidents and a Rapporteur are to be elected from among the representatives of the Parties present at the meeting. They serve as the Bureau. In electing its Bureau, the Conference of the Parties shall have due regard to the principle of equitable geographical representation of the Small Island Developing States. The office of President and Rapporteur of the meeting of the Conference of the Parties shall normally be subject to rotation among the five groups of States

referred to in section I, paragraph 1, of General Assembly resolution 2997 (XXVII) of 15 December 1972, by which the United Nations Environment Program was established".

3. In accordance with Article 36, paragraph 3, of the Convention, States that have deposited their instrument of ratification, acceptance, approval or accession before 6 August 1996 may participate in the third meeting of the COP as a Party.

2.2 Adoption of the Agenda

4. The draft provisional agenda contained in document UNEP/CBD/COP/3/1 has been prepared by the Executive Secretary in the light of the provisions of rule 8 of the rules of procedure for meetings of the Conference of the Parties, and taking into account the medium-term program of work and other relevant decisions adopted by the second meeting of the COP. In preparing the provisional agenda, the Executive Secretary benefited from the guidance of the Bureau of the COP.

2.3 Organisation of work

5. At its first plenary session, the COP may wish to establish a Committee of the Whole. A division of the agenda items between the plenary and the Committee of the Whole is suggested for the consideration of the meeting in the provisional organisation of work contained in document UNEP/CBD/COP/3/1/Add.2.

Ministerial Segment

6. In accordance with decision II/21 of the COP, the Ministerial-level segment of the third meeting of the COP will be held on 13 and 14 November 1996. The list of speakers wishing to make an intervention will be open from 1 August to 31 October 1996 at the offices of the Secretariat to the Convention on Biological Diversity in Montreal and Geneva. The list will be subsequently transferred to the offices of the Secretariat at the venue of the meeting in Buenos Aires. In light of the short duration of the ministerial segment, it is recommended that interventions focus on a specific theme being addressed by the third meeting of the COP and do not exceed 10 minutes.

3. Pending issues arising from the work of the second meeting of the Conference of the Parties

3.1 Paragraph 1 of rule 40 of the rules of procedure for meetings of the Conference of the Parties to the Convention on Biological Diversity

7. At its fourth session, the second meeting of the COP decided to defer to its third meeting the pending issue related to the final wording of paragraph 1 of rule 40 of the rules of procedure for meetings of the Conference of the Parties to the Convention on Biological Diversity (see paragraph 32 of document UNEP/CBD/COP/2/19).

3.2 Paragraph 4 and 16 of the financial rules for the administration of the Trust Fund of th
Convention on Biological Diversity

8. In decision II/20 the COP also deferred the pending issues related to paragraphs 4 and 16 of th financial rules for the administration of the Trust Fund for the Convention on Biological Diversity contained in annex II to the decision.

9. To facilitate the consideration of agenda item 3, the Executive Secretary has prepared document UNEP/CBD/COP/3/2 containing the different proposals by Parties related to the pending issues arising from th second meeting of the COP.

4. Consideration of the report and recommendations of the second meeting of the Subsidiary Body on Scientific, Technical and Technological Advice and instructions to the Subsidiary Body on Scientific, Technical and Technological Advice

10. Article 23, paragraph 4(b) provides that the COP shall keep under review the implementation of th Convention and shall review scientific, technical and technological advice on biological diversity provided in accordance with Article 25.

11. The report of the second meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), held from 2 to 6 September 1996 in Montreal (contained in document UNEP/CBD/COP/3/3), will be introduced to the meeting by the Chairman of the SBSTTA, Mr. Peter Johan Schei (Norway). The Bureau of the COP has suggested that the COP may wish to further consider this report in connection with relevant items of the provisional agenda. Accordingly, the meeting may wish to invite th Chairman of the SBSTTA to present the recommendations of the SBSTTA as each relevant item of th provisional agenda is considered.

12. The recommendations of the SBSTTA are directly relevant to consideration of items 5, 7, 8, 9, 10.2, 10.3, 11, 12, 13, 14, 17 and 18 of the provisional agenda for this meeting.

5. Report on assessment and review of the operation of the clearing-house mechanis

13. In decision I/3, the COP established a clearing-house mechanism to promote and facilitate technical and scientific cooperation in accordance with Article 18, paragraph 3 of the Convention. At its second meeting, th COP agreed on a pilot phase for 1996-1997. It also decided to review the implementation of the pilot phase of the clearing-house mechanism at its third meeting. Paragraph 10 of decision II/3 requested the Executiv Secretary to submit a progress report on the implementation of the pilot phase. The Executive Secretary prepared a progress report on the implementation of the pilot phase of the clearing-house mechanism for 1996 which was submitted to the second meeting of the SBSTTA. The report describes the activities carried out by the Secretariat, pursuant to Decision II/3 of the COP, during the period from January to August 1996. An updated report, for consideration by the COP at its third meeting, has been prepared by the Executive Secretary (document UNEP/CBD/COP/3/4). The COP may also wish to refer to the relevant recommendations of th second meeting of the SBSTTA, contained in document UNEP/CBD/COP/3/3, in its consideration of this item of the provisional agenda.

14. Decision II/3 also requested the Global Environment Facility (GEF) to explore the modalities of providing support through the financial mechanism to developing country Parties for capacity building in relation to the operation of the clearing-house mechanism and to report to the COP at its third meeting. Accordingly, the COP may also wish to refer to the report of the GEF (document UNEP/CBD/COP/3/5) to assist in its consideration of this item of the provisional agenda.

6. Financial resources and mechanism

15. Given the complexity, importance and magnitude of this item the Bureau of the COP suggested that the Executive Secretary provide detailed guidance on the implications of decision II/6 for the work programme of the COP.

6.1 Report on the activities of the Global Environment Facility as the interim institutional structure

16. In accordance with paragraph 2.1 of the annex of decision II/18 of the COP, the meeting will have before it document UNEP/CBD/COP/3/5, which is the report of the GEF describing its activities as the interim financial mechanism. The report will be made available in the languages in which it has been submitted by the GEF.

17. Paragraph 6 of decision II/6 requested the GEF to take the following comments into account when preparing its report to be submitted to the third meeting of the COP:

- (a) Detailed information should be provided on the conformity of the approved work programmes with the guidance of the Conference of the Parties;
- (b) A list of projects submitted by eligible country Parties and information on their status should be included.

18. Paragraph 7 of decision II/6 also requested the GEF to take any additional appropriate steps to expedite the project preparation and approval process with a view to implementing fully the guidance of the COP contained in Annex I to decision II/2 on financial resources and mechanism entitled "Policy, strategy, programme priorities and eligibility criteria for access to and utilisation of financial resources" (UNEP/CBD/COP/1/17).

19. Paragraph 10 of decision II/6 further recommended that the GEF explore the possibility of promoting diverse forms of public involvement and more effective collaboration between all tiers of government and civil society, including the feasibility of a programme of grants for medium-sized projects, in order to more effectively implement its policies, strategies and programme priorities. Such exploration should take into account the eligibility criteria set out by the COP in Annex I to decision II/2 on financial resources and mechanism, contained in document UNEP/CBD/COP/1/17.

20. Paragraph 11 of decision II/6 also requested the GEF, as the interim institutional structure for the financial mechanism, to implement the relevant provisions of the following decisions: II/3 on clearing-house mechanism; II/7 on consideration of Articles 6 and 8 of the Convention; II/8 on preliminary consideration of components of biological diversity particularly under threat and action which could be taken under the Convention; and II/17 on form and intervals of national reports by Parties. Paragraph 12 of decision II/17

requested the financial mechanism to make available financial resources to developing country Parties to assist in the preparation of their national reports. The first national reports will focus in so far as possible on the measures taken for the implementation of Article 6.

6.2 Report of the Executive Secretary on financial resources and mechanism

21. Paragraph 12 of decision II/6 requested the Executive Secretary to present a report to the third meeting of the COP on the implementation of decision II/6. This meeting will have before it document UNEP/CBD/COP/3/6 which contains the report of the Executive Secretary on the implementation of decision II/6. This report describes the overall structure of this item of the provisional agenda and the various activities undertaken pursuant to decision II/6. The report of the Executive Secretary also will:

- (a) review actions taken by the interim financial mechanism pursuant to Paragraphs 5, 6, 7, 8, 10 and 11 of decision II/6; and
- (b) confirm the reciprocal participation of representatives of the SBSTTA and the Scientific and Technical Advisory Panel of the GEF in respective meetings as requested by Paragraph 8 of decision II/6.

6.3 To consider the availability of additional financial resources and possible suggestions to funding institutions on how to make their activities in the area of biodiversity more supportive of the Convention

22. Paragraph 9 of Decision II/6 on financial resources and mechanism adopted by the second meeting of the COP requested the Executive Secretary to:

- (a) Further explore possibilities to identify additional financial resources to support the objectives of the Convention;
- (b) Continue to monitor the availability of additional financial resources and further identify where and how country Parties might gain access to these resources;
- (c) Study characteristics specific to biodiversity activities to allow the COP to make suggestions to funding institutions on how their activities in the area of biodiversity might be made more supportive of the Convention.

23. To assist the COP in its consideration of this item of the provisional agenda the Executive Secretary has prepared document UNEP/CBD/COP/3/7. This identifies a need for more detailed monitoring of existing commitments by donors in support of the objectives of the Convention. Accordingly, the COP may wish to consider establishing a data collection and dissemination programme in order to meet this need. In this regard the COP may wish to consider using the clearing-house mechanism to gather information on financial flows from private and public sources in support of the aims of the Convention. The document also identifies a need for greater strategic clarity to enable funding institutions to better understand how the provisions of the Convention relate to their programmes of work. Accordingly, the COP may wish to consider establishing a consultative mechanism with such funding institutions to develop guidelines for the implementation of the provisions of Article 20 as they might apply to these institutions.

6.4 To consider guidelines for the Conference of the Parties' review of the effectiveness of the

financial mechanism

24. Article 21 paragraph 3, provides that the COP shall review the effectiveness of the financial mechanism , as well as the criteria and guidelines for eligibility for access to and utilisation of the financial resources, not less than two years after the entry into force of the Convention and thereafter on a regular basis.

25. In paragraph 2 of decision II/6, the COP decided to undertake the first review of the effectiveness of the financial mechanism at its fourth session in 1997. This first review will be carried out within the basic approach described in document UNEP/CBD/COP/2/9. Paragraph 3 of decision II/6 requested the Executive Secretary to further develop guidelines for such a review for consideration and decision by the COP at its third meeting, taking into account comments made by participants at its second meeting and/or provided by Parties in writing to the Executive Secretary not later than the end of February 1996.

26. The Executive Secretary invited further comments on the guidelines from Parties and observers in a letter of 5 January, 1996. The contributions received by the Executive Secretary are contained in document UNEP/CBD/COP/3/Inf.1.

27. To assist the COP in their consideration of this item of the provisional agenda the Executive Secretary has prepared document UNEP/CBD/COP/3/8. This document observes that it may be too soon to properly review the effectiveness of the financial mechanism. However, it is clear from the experience gained so far that the financial mechanism would benefit from further clarification of the guidance provided by the COP, contained in Annex I to decision I/2 on financial resources and mechanism entitled "Policy, strategy, programme priorities and eligibility criteria for access to and utilisation of financial resources" (UNEP/CBD/COP/1/17). Accordingly, the document contains a number of possible changes to the guidance which the COP may wish to consider.

6.5 To consider and decide upon the revised draft "Memorandum of Understanding Between the Conference of the Parties to the Convention on Biological Diversity and the Council of the Global Environment Facility Regarding the Institutional Structure Operating the Financial Mechanism of the Convention"

28. The COP, in paragraph 4 of decision II/6, took note of the draft "Memorandum of Understanding between the Conference of the Parties to the Convention on Biological Diversity and the Council of the Global Environment Facility regarding the institutional structure operating the financial mechanism of the Convention", and requested the Secretariat of the Convention to continue consultations on the draft Memorandum of Understanding, in order to ensure that comments by Parties are reflected, and to submit a revised draft Memorandum of Understanding for consideration and decision by the COP at its third meeting. The draft Memorandum of Understanding submitted to the second meeting of the COP is contained in document UNEP/CBD/COP/2/11.

29. In response to the COP's request to continue consultations on the draft Memorandum of Understanding, the Executive Secretary invited written submissions from Parties on 8 January 1996. Submissions received by the Executive Secretary are contained in document UNEP/CBD/COP/3/Inf.2, together with a note by the Executive Secretary identifying issues of common concern. The Executive Secretary also organised a series of informal meetings to, *inter alia*, further discuss and consider the comments of Parties on the Memorandum of

Understanding. It is expected that the Memorandum of Understanding will be considered at the preparatory regional meetings for the third meeting of the COP and for the meeting of the Council of the GEF in October 1996. The Executive Secretary also continued discussion throughout the year with the Secretariat of the GEF with a view to developing a revised Memorandum of Understanding.

30. The result of these consultations and of the consideration of the comments of the Parties is reflected in the revised Memorandum of Understanding contained in document UNEP/CBD/COP/3/10.

6.6 To endeavour to decide upon the institutional structure to be designated in accordance with Article 21 of the Convention

31. The COP decided at its second meeting that the restructured GEF should continue to serve as the institutional structure to operate the financial mechanism under the Convention on an interim basis, in accordance with Article 39 of the Convention, until a decision is taken on which institutional structure is to be designated in accordance with Article 21 of the Convention. Article 21 provides that the financial mechanism shall operate, *inter alia*, within a democratic and transparent system of governance, function under the authority and guidance of, and be accountable to, the COP for the purposes of this Convention.

32. Paragraph 1 of decision II/6 provides that the third meeting of the COP shall endeavour to make a decision with regard to the designation of the institutional structure to operate the financial mechanism. To assist the COP in its consideration of this item of the provisional agenda the Executive Secretary has prepared document UNEP/CBD/COP/3/9.

7. General measures for conservation and sustainable use

7.1 Implementation of Articles 6 and 8 of the Convention

33. At its second meeting, the COP requested the Executive Secretary to make available through the clearing-house mechanism information and lessons drawn from national experience pertaining to the implementation of Article 6 (General Measures for Conservation and Sustainable Use of Biological Diversity) and Article 8 (*In-situ* Conservation) contained in national reports submitted by Parties in accordance with Article 26 of the Convention. In accordance with decision II/3, the pilot phase for the clearing-house mechanism has begun and a report by the Executive Secretary is contained in document UNEP/CBD/SBSTTA/2/9. In decision II/17, the COP decided that the first national reports should focus on the measures taken for the implementation of Article 6; urged all Parties to submit their first national reports no later than 30 June 1997; and urged the financial mechanism to make available financial resources to developing country Parties to assist in the preparation of their national reports. Accordingly, the meeting may wish to refer to the report of the interim financial mechanism contained in UNEP/CBD/COP/3/3.

34. Paragraph 7 of decision II/7 (Consideration of Articles 6 and 8 of the Convention) requested the Executive Secretary to report to this meeting on the implementation of the decision. This report is contained in

/...

document UNEP/CBD/COP/3/11, which also describes measures taken by the Executive Secretary to:

- (a) compile and disseminate information on the implementation of Articles 6 and 8 including experience of relevant conventions, United Nations bodies and intergovernmental and non-governmental organisations; and
- (b) prepare, on the basis of available information, suggestions on how the collection and sharing of relevant information and experience might be enhanced,

as requested in paragraph 4 of decision II/7.

8. Identification, monitoring and assessment

8.1 To consider options for implementing Article 7 of the Convention

35. The medium-term program of work of the COP provides for the consideration at the third meeting of options for implementing Article 7 of the Convention. The second meeting of the SBSTTA considered alternative ways and means in which the COP could start the process of identification, monitoring and assessment of components of biological diversity, as well as processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity, in accordance with Article 7.

36. At its second meeting the SBSTTA had before it document UNEP/CBD/SBSTTA/2/3 prepared by the Executive Secretary. The third meeting of the COP will have before it document UNEP/CBD/COP/3/12 prepared by the Executive Secretary. The recommendations of the SBSTTA are contained in document UNEP/CBD/COP/3/3.

8.2 Appraisal of the Subsidiary Body on Scientific, Technical and Technological Advice's assessment of biological diversity for the implementation of Article 25(2)(a) and advice on methodologies for future assessments

37. In decision II/17, the COP decided to consider at its third meeting the SBSTTA review of assessment of biological diversity for the implementation of Article 25(2)(a) and advice on methodologies for future assessments. The second meeting of the SBSTTA reviewed assessment of biological diversity made in 1995, and methodologies for carrying out such assessments.

38. At its second meeting the SBSTTA had before it document UNEP/CBD/SBSTTA/2/2 prepared by the Executive Secretary. The third meeting of the COP will have before it document UNEP/CBD/COP/3/13 prepared by the Executive Secretary. The recommendations of the SBSTTA are contained in document UNEP/CBD/COP/3/3.

9. Conservation and sustainable use of agricultural biological diversity

9.1 To consider agricultural biological diversity within the context of the Convention's three objectives and provisions

39. In adopting its medium-term program of work, the COP decided to consider, at its third meeting, agricultural biological diversity within the context of the Convention's three objectives and provisions.

40. The second meeting of the SBSTTA considered the conservation of agricultural biological diversity and sustainable use of its components. To assist the SBSTTA in its consideration of this issue the Executive Secretary prepared document UNEP/CBD/SBSTTA/2/10. The third meeting of the COP will have before it document UNEP/CBD/COP/3/14 prepared by the Executive Secretary. The recommendations of the SBSTTA are contained in document UNEP/CBD/COP/3/3.

9.2 To consider the report on progress under the FAO Global System for the Conservation and Utilisation of Plant Genetic Resources for Food and Agriculture

41. In paragraph 1 of decision II/16, the COP requested the FAO to present the outcome of the International Technical Conference on the Conservation and Utilisation of Plant Genetic Resources for Food and Agriculture to the third meeting of the COP and to make the Global Plan of Action and State of the World reports available to that meeting. The progress report submitted by the FAO is contained in document UNEP/CBD/COP/3/15.

42. The COP may wish to consider how the Convention as a whole can best support the work of the FAO Global System for the Conservation and Utilisation of Plant Genetic Resources for Food and Agriculture and, in particular, the nature of any appropriate institutional cooperation. The relationship of the Convention with other biodiversity-related processes is a standing item on the agenda of meetings of the COP and will be considered under item 18 of the provisional agenda for this meeting. To assist the COP with its consideration of item 18, the Executive Secretary has prepared document UNEP/CBD/COP/3/29, which contains information of general relevance to matters of cooperation. Accordingly, the COP may wish to refer to this document in its consideration of this item of the provisional agenda.

10. Consideration of the future programme of work for terrestrial biological diversity in light of the outcome of deliberations of the third session of the Commission on Sustainable Development in 1995

10.1 Communication of the Secretariat of the Intergovernmental Panel on Forests on progress on issues relevant to forests and biological diversity

43. At its third session, the Commission on Sustainable Development (CSD) decided to establish an open-ended ad hoc Intergovernmental Panel on Forests (IPF) to pursue consensus and formulation of coordinated proposals for action. Paragraph 4 of decision II/9 invited the Secretariat of the IPF to communicate progress on issues relevant to forests and biological diversity to the third meeting of the COP. The submission of the Secretariat of the IPF is contained in document UNEP/CBD/COP/3/17.

10.2 To consider whether further input to the Intergovernmental Panel on Forests is required

44. In decision II/9, the COP adopted a statement from the Convention to the IPF on biological diversity and

/...

forests and requested the Executive Secretary to provide advice and information pertaining to the relationship between indigenous and local communities and forests as invited by the Inter-Agency Task Force of the IPF. The advice of the Executive Secretary is contained in document UNEP/CBD/SBSTTA/2/Inf.3.

45. Decision II/9 of the COP also requested the Executive Secretary to produce a background document on the links between forests and biological diversity, in order to consider, at its third meeting, whether further input to the IPF is required and to transmit this document to the IPF for information. In accordance with paragraph 2(b) of the decision, the Executive Secretary has prepared document UNEP/CBD/COP/3/16 and has transmitted this document to the IPF for information. A draft of this background document (UNEP/CBD/SBSTTA/2/11) was considered by the SBSTTA at its second meeting. The recommendations of the SBSTTA are contained in UNEP/CBD/COP/3/3.

10.3 Future programme of work for terrestrial biological diversity in light of the outcome of deliberations of the third session of the Commission on Sustainable Development in 1995

46. The CSD also considered at its third session the "integrated approach to the planning and management of land resources", "combating desertification and drought", "sustainable mountain development", "promoting sustainable agriculture and rural development" and "conservation of biological diversity".

47. The second meeting of the SBSTTA considered scientific, technical and technological aspects of the future work for terrestrial biological diversity in the light of deliberations of the third session of the CSD in 1995. The Executive Secretary prepared document UNEP/CBD/SBSTTA/2/12 to assist the SBSTTA in its consideration of this item. The third meeting of the COP will have before it document UNEP/CBD/COP/3/18 prepared by the Executive Secretary. The document seeks to identify areas of relevance to the future programme of work on terrestrial biological diversity arising out of the third session of the CSD. To further assist consideration of this item by the SBSTTA, the Executive Secretary also prepared document UNEP/CBD/SBSTTA/2/Inf.1, which contains the relevant sections of the Report on the Third Session of the CSD. The recommendations of the SBSTTA are contained in document UNEP/CBD/COP/3/3.

48. The Bureau of the COP has suggested that the COP may wish to consider a future programme of work for terrestrial biological diversity as part of the overall review of the Convention to be undertaken at its fourth meeting in 1997.

11. Knowledge, innovations and practices of indigenous and local communities

11.1 Implementation of Article 8(j)

49. In its decision II/18, the COP decided under its medium-term programme of work to consider the implementation of Article 8(j) at its third meeting. In its decision II/1, the COP requested the SBSTTA, in considering its programme of work for 1996, to ensure that the programme is based on the priorities set in the programme of work of the COP for 1996 and 1997, as contained in decision II/18. Accordingly, the SBSTTA considered the knowledge, innovations and practices of indigenous and local communities at its second meeting. The Executive Secretary prepared document UNEP/CBD/SBSTTA/2/7 to assist the SBSTTA in its consideration of this issue. The third meeting of the COP will have before it document UNEP/CBD/COP/3/19

prepared by the Executive Secretary. The recommendations of the SBSTTA are contained in document UNEP/CBD/COP/3/3.

50. The relationship between indigenous and local communities and forests was addressed in the contribution by the Executive Secretary to the preparation of the Report of the Secretary -General on traditional forest-related knowledge prepared for the third session of the IPF. The Executive Secretary's submission is contained in document UNEP/CBD/SBSTTA/Inf.3 and the COP may also wish to refer to this document in its consideration of this agenda item.

51. Decision II/12 of the COP requested the Executive Secretary to consult with all stakeholders, in particular the private sector and indigenous and local communities in order to gain understanding of the needs and concerns of those groups with regard to the possible influence that intellectual property rights may have on the implementation of the Convention. The Executive Secretary invited contributions on the knowledge, innovations and practices of indigenous and local communities. The contributions received from Parties and observers, including indigenous peoples' organisations, are contained in document UNEP/CBD/COP/3/Inf.3.

52. Decision II/12 also requested the Executive Secretary to undertake a preliminary study which analyses the impact of intellectual property rights systems on the conservation and sustainable use of biological diversity and the equitable sharing of benefits derived from its use in order to gain a better understanding of the implications of Article 16, paragraph 5. The COP suggested that the study might focus on, *inter alia*, exploring the relationship between intellectual property rights and the preservation and maintenance of traditional knowledge and practices of indigenous and local communities and the possible role of intellectual property rights in encouraging the equitable sharing of benefits arising from the use of such knowledge and practices. The COP may also wish to refer to this preliminary study, contained in document UNEP/CBD/COP/3/22, in its consideration of this item of the provisional agenda.

12. Access to genetic resources

12.1 To consider the compilation of views of the Parties on possible options for developing national legislative, administrative or policy measures, as appropriate, to implement Article 15

53. The COP, at its second meeting, decided to consider at its third meeting the views of Parties on possible options for developing national legislative, administrative or policy measures, as appropriate, to implement Article 15.

54. To assist in the consideration of this agenda item, the meeting will have before it document UNEP/CBD/COP/3/20, which sets out relevant experience since the second meeting of the COP and analyses the options for developing national legislative, administrative or policy measures on access to genetic resources. The document outlines recent interpretations by Parties and experts on key terms such as prior informed consent, mutually agreed terms and the fair and equitable sharing of benefits, and considers possible elements of access legislation and procedures for granting access. The document outlines tasks which the COP may wish to consider including in the medium term programmes of work of the COP and/or the SBSTTA. These include the establishment of a working group under the SBSTTA to facilitate the development and exchange of technical information and experience among Parties on such measures, and the provision of associated information as a priority task for the clearing-house mechanism.

55. In considering this agenda item, the meeting may wish also to refer to the recommendations of the SBSTTA related to: economic valuation of biological diversity and its components; to access to genetic resources; to the transfer of technology; and to Article 8(j) contained in document UNEP/CBD/COP/3/3.

56. Given the close relationship between this topic and item 14 of the provisional agenda (intellectual property rights), the COP may also wish to refer to document UNEP/CBD/COP/3/22 when considering this item of the provisional agenda.

13. Issues related to technology

13.1 To consider ways to promote and facilitate access to and transfer and development of technology, as envisaged in Articles 16 and 18 of the Convention

57. Decision II/4 endorsed recommendation I/4 of the SBSTTA requesting the Executive Secretary to prepare, for consideration by the SBSTTA at its second meeting, a substantive and well-focused background document on ways and means to promote and facilitate access to, and transfer and development of technology in accordance with Articles 16 and 18 of the Convention. Such a background document should consider the importance of biotechnology to the conservation and sustainable use of biological diversity, as well as the enabling roles of capacity-building and the provision of adequate financial resources. It should also identify key priority issues relating to opportunities for and obstacles to the transfer of technology. The decision also endorsed the recommendation of the SBSTTA that the Executive Secretary should invite relevant submissions by States Parties, observers and relevant intergovernmental and non-governmental organisations.

58. The COP requested the SBSTTA to consider the background document at its second meeting and to submit a detailed report to the third meeting of the COP. The background document prepared by the Executive Secretary (UNEP/CBD/SBSTTA/2/6) was considered by the SBSTTA at its second meeting. The third meeting of the COP will have before it document UNEP/CBD/COP/3/21 prepared by the Executive Secretary. The recommendations of the SBSTTA are contained in document UNEP/CBD/COP/3/3. The relevant submissions received by the Executive Secretary are contained in document UNEP/CBD/COP/3/Inf.4.

14. Intellectual property rights

14.1 To consider the impact of intellectual property rights on the conservation and sustainable use of biological diversity and the equitable sharing of benefits derived from its use with a view to better understand the implications of Article 16.5

59. Decision II/12 requested the Executive Secretary to consult with all stakeholders, in particular the private sector and indigenous and local communities, in order to gain understanding of the needs and concerns of those groups with regard to the possible influence that intellectual property rights may have on the implementation of the Convention. Accordingly, the Executive Secretary sought written contributions from Parties and other relevant stakeholders. The contributions received by the Executive Secretary are contained in document UNEP/CBD/COP/3/Inf.5.

60. Decision II/12 also requested the Executive Secretary to undertake a preliminary study which analyses

the impact of intellectual property rights systems on the conservation and sustainable use of biological diversity and the equitable sharing of benefits derived from its use in order to gain a better understanding of the implications of Article 16, paragraph 5 and suggested that the study may focus on: (i) exploring the relationship between intellectual property rights and the preservation and maintenance of traditional knowledge and practices of indigenous and local communities and the possible role of intellectual property rights in encouraging the equitable sharing of benefits arising from the use of such knowledge and practices; and (ii) inviting Governments and other relevant stakeholders to submit case studies that address the role of intellectual property rights in the technology transfer process, in particular the role of intellectual property rights in the transfer of biotechnology. The preliminary study is contained in UNEP/CBD/COP/3/22.

61. As indicated in decision II/12 there is a close relationship between intellectual property rights and the preservation and maintenance of traditional knowledge and practices of indigenous and local communities. Consequently, the COP may also wish to refer to documents UNEP/CBD/COP/3/19 and UNEP/CBD/SBSTTA/2/Inf.3 which consider the implementation of Article 8(j).

14.2 To consider a possible input into the negotiations that are taking place in the Committee on Trade and Environment of the World Trade Organization

62. Decision II/12 requested the Executive Secretary to liaise with the Secretariat of the World Trade Organization (WTO) to inform it of the goals and the ongoing work of the Convention on Biological Diversity and to invite the Secretariat of the WTO to assist in the preparation of a paper for the Conference of the Parties that identifies the synergies and relationship between the objectives of the Convention on Biological Diversity and the Trade-Related Aspects of Intellectual Property Rights Agreement. The Executive Secretary accordingly prepared such a paper with the assistance of the Secretariat of the WTO and which is contained in document UNEP/CBD/COP/3/23.

63. On the basis of this consultation the COP may wish to consider the need for and modalities of any input to the negotiations that are taking place in the Committee on Trade and Environment of the WTO.

64. The relationship of the Convention with other biodiversity-related processes is a standing item on the agenda of meetings of the COP and will be considered under item 18 of the provisional agenda for this meeting. To assist the COP with its consideration of item 18 the Executive Secretary has prepared document UNEP/CBD/COP/3/29, which contains information of general relevance to matters of cooperation and the COP may wish to refer this document in its consideration of this item of the provisional agenda.

15. Incentive measures

15.1 To consider the compilation of information and experiences shared on the implementation of Article 11

65. The COP, in decision II/18, decided to consider at its third meeting the compilation of information and experiences shared on the implementation of Article 11. For consideration of this agenda item, the meeting will have before it document UNEP/CBD/COP/3/24, which considers economic incentives and highlights the importance of "socially sound measures" that act as incentives for the conservation and sustainable use of components of biological diversity, as required by Article 11. The report contains a series of case studies of effective incentive measures and notes that the impact of incentive measures is heavily dependant on the national and local conditions. A menu of options and a taxonomy of incentive measures is developed from the cas

studies and options for stimulating private sector involvement through the use of economic incentives are also discussed.

16. Special session of the General Assembly to review implementation of Agenda 21

16.1 To provide a report from the perspective of the Convention's three objectives

66. The COP, in decision II/18, decided to consider at its third meeting the provision of a report from the perspective of the Convention's three objectives to the special session of the General Assembly to review implementation of Agenda 21 in 1997. The agenda for the special session of the General Assembly and the proposed programme of preparatory work of the Commission on Sustainable Development is contained in document UNEP/CBD/COP/3/Inf.6.

67. To assist the COP in its consideration of this item of the provisional agenda the Executive Secretary has prepared document UNEP/CBD/COP/3/25.

68. The Bureau of the COP considered the various options available to the Convention for an input into the preparatory activities of the Commission on Sustainable Development and into the review of Agenda 21 by the special session of the General Assembly. It was noted that, due to the breadth of the issues being considered by the General Assembly at this special session, attention needs to be paid to the mode of the input as well as to the content.

17. Issues related to biosafety

17.1 To consider the first report of the Open-ended Ad Hoc Working Group on Biosafety

69. The COP, at its second meeting, decided to establish an Open-ended Ad Hoc Working Group on biosafety. At the invitation of the Government of Denmark, the first meeting of the Open-ended Ad Hoc Working Group on Biosafety was held in Aarhus, Denmark from 22 to 26 July 1996. The report of this meeting is contained in document UNEP/CBD/COP/3/26. A summary report of the meeting is contained in document UNEP/CBD/COP/3/27.

18. Relationship of the Convention with the Commission on Sustainable Development and biodiversity-related conventions, other international agreements, institutions and processes of relevance

70. In establishing its medium-term programme of work, the COP decided to make consideration of cooperation with other biodiversity-related processes a standing item on the agenda of its meetings. Decision II/13 requested the Executive Secretary to prepare, for the third meeting of the COP, a report on the implementation of the decision, containing concrete recommendations aimed at promoting and strengthening institutional cooperation with other global and regional biodiversity-related conventions. The decision also requested the Executive Secretary to report to the third meeting of the COP on modalities for enhanced cooperation with relevant international biodiversity-related bodies such as the FAO, UNESCO and the CSD taking into account the medium-term programme of work on this issue. This report is contained in document UNEP/CBD/COP/3/29.

71. The work of the SBSTTA provides an opportunity to develop relationships with other conventions and processes in a practical and meaningful way and the issue was considered by the second meeting of the SBSTT in relation to a number of issues. The COP may wish to refer to recommendations II/1, II/10 and II/11 of the SBSTTA concerning: indicators, assessment and monitoring; marine and coastal biological diversity; and the *modus operandi* of the SBSTTA. The SBSTTA noted that development of relationships with other processes would be important in the implementation of these recommendations. The recommendations of the second meeting of the SBSTTA are contained in document UNEP/CBD/COP/3/3.

72. Decision II/13 also invited the governing bodies of conventions and other international legal instruments related to biological diversity to consider at their next meetings their possible contribution to the implementation of the goals and objectives of the Convention. In response to this decision and at the request of the Executive Secretary, the Executive Secretary of the Ramsar Convention has prepared a note which is contained in document UNEP/CBD/COP/3/30.

73. The consideration of items 9 and 14.2 of the provisional agenda are also relevant to this item since they constitute specific examples of the need for future cooperation in order to implement the provisions of the Convention. Consequently, the COP may wish to refer to the documents prepared by Executive Secretary for these items of the agenda (documents UNEP/CBD/COP/3/14 and UNEP/CBD/COP/3/23).

19. Medium-term programme of work of the Conference of the Parties for 1996-1997

74. In decision II/18 the COP decided to review, at its third meeting, the medium-term programme of work in light of the progress achieved in the implementation of the Convention. The medium-term programme of work is contained in decision I/9 as amended by the Annex to decision II/18 and the provisional agenda for this meeting. The Bureau of the COP has recommended that consideration of this issue should also include a consideration of the implications for the longer-term programme of work to be considered by the COP at its fourth meeting. Accordingly, the Executive Secretary has prepared a Note which reviews the 1995-1997 medium-term programme of work of the COP in light of its implications for the longer-term programme of work. This review is contained in document UNEP/CBD/COP/3/31, which also contains a draft provisional agenda for the fourth meeting of the COP in 1997.

20. Administrative matters

20.1 Report from the Secretariat on the administration of the Convention

75. The meeting will have before it the report of the Executive Secretary on the administration of the Convention and the activities of the Secretariat (document UNEP/CBD/COP/3/32).

20.2 Budget of the Trust Fund for the Convention on Biological Diversity

76. The meeting will have before it for consideration and adoption a proposed budget of the Trust Fund for the Convention on Biological Diversity for 1997-1998 (document UNEP/CBD/COP/3/33).

21. Report on the credentials of representatives to the third meeting of the Conference of the Parties

77. Rule 18 of the rules of procedure for meetings of the Conference of the Parties states that "the credentials of representatives and the names of alternate representatives and advisers shall be submitted to the Executive Secretary of the Conference of the Parties or the representative of the Executive Secretary not later than twenty four hours after the opening of the meeting. Any later change in the composition of the delegation shall also be submitted to the Executive Secretary or the representative of the Executive Secretary. The credentials shall be issued by the Head of State or Government or by the Minister for Foreign Affairs or, in the case of a regional economic integration organisation, by the competent authority of that organisation". Rule 19 provides that "the Bureau of any meeting shall examine the credentials and submit its report to the Conference of the Parties for decision".

78. The COP will consider and adopt the report on credentials submitted to it by the Bureau.

22. Venue and date of the fourth meeting of the Conference of the Parties

79. In accordance with rules 3 and 5 of the rules of procedure for meetings of the Conference of the Parties, the meeting may wish to decide on the date and venue of its fourth meeting. To assist in the consideration of this item, the meeting will have before it document UNEP/CBD/COP/3/34.

23. Other matters

80. At its third meeting, the COP will consider other items raised and accepted for discussion in accordance with rule 12 of the rules of procedure for meetings of the Conference of the Parties.

24. Adoption of the report

81. The COP, at its third meeting, will consider and adopt its report.

25. Closure of the meeting

82. The meeting will close on Friday, 15 November 1996 at 6.00 p.m.

Annex

**LIST OF DOCUMENTS FOR THE THIRD MEETING OF THE CONFERENCE
OF THE PARTIES**

Symbol	Title
UNEP/CBD/COP/3/1	Provisional agenda
UNEP/CBD/COP/3/1/Add.1	Annotated provisional agenda
UNEP/CBD/COP/3/1/Add.2	Provisional organisation of work
UNEP/CBD/COP/3/2	Pending issues arising from the second meeting of the Conference of the Parties
UNEP/CBD/COP/3/3	Report of the second meeting of the Subsidiary Body on Scientific, Technical and Technological Advice
UNEP/CBD/COP/3/4	Report on the assessment and review of the operation of the clearing-house mechanism
UNEP/CBD/COP/3/5	Report of Global Environment Facility
UNEP/CBD/COP/3/6	Report of the Executive Secretary on financial resources and mechanisms
UNEP/CBD/COP/3/7	Availability of additional financial resources and possible suggestions to funding institutions on how to make their activities more supportive of the Convention
UNEP/CBD/COP/3/8	Guidelines for the Conference of the Parties' review of the effectiveness of the financial mechanism
UNEP/CBD/COP/3/9	Designation of the institutional structure to operate the financial mechanism
UNEP/CBD/COP/3/10	Revised draft of Memorandum of Understanding between the Conference of the Parties and the Council of the Global Environment Facility
UNEP/CBD/COP/3/11	Implementation of Articles 6 and 8
UNEP/CBD/COP/3/12	Options for Implementing Article 7
UNEP/CBD/COP/3/13	Assessments of biological diversity and methodologies for future assessments
UNEP/CBD/COP/3/14	Consideration of agricultural biological diversity under the Convention on Biological Diversity
UNEP/CBD/COP/3/15	Report on the Food Agriculture Organisation's Global System for the Conservation and Utilisation of Plant Genetic Resources for Food and Agriculture
UNEP/CBD/COP/3/16	Forests and biological diversity
UNEP/CBD/COP/3/17	Communication of the Secretariat of the Intergovernmental Panel on Forests on progress on issues relevant to forests and biological diversity
UNEP/CBD/COP/3/18	Future programme of work for terrestrial biological diversity
UNEP/CBD/COP/3/19	Implementation of Article 8(j)
UNEP/CBD/COP/3/20	Access to genetic resources
UNEP/CBD/COP/3/21	Promoting and facilitating access to and transfer and development of technology
UNEP/CBD/COP/3/22	Intellectual property rights
UNEP/CBD/COP/3/23	The Relationship between the Convention on Biological Diversity and the Agreement on Trade-Related Aspects of Intellectual Property Rights
UNEP/CBD/COP/3/24	Implementation of Article 11

/...

UNEP/CBD/COP/3/25	Submission to the special session of the General Assembly to review implementation of Agenda 21
UNEP/CBD/COP/3/26	Report of the first meeting of the Open-ended Ad Hoc Working Group on Biosafety
UNEP/CBD/COP/3/27	Report on the Elaboration of a Protocol on Biosafety
UNEP/CBD/COP/3/28	UNEP International Technical Guidelines for Safety in Biotechnology
UNEP/CBD/COP/3/29	Cooperation with other biodiversity-related conventions and processes
UNEP/CBD/COP/3/30	Cooperation between the Convention on Wetlands of International Importance, Especially as Waterfowl Habitat and the Convention on Biological Diversity
UNEP/CBD/COP/3/31	Medium-term programme of work of the Conference of the Parties for 1996-1997
UNEP/CBD/COP/3/32	Report of the Executive Secretary on the administration of the Convention
UNEP/CBD/COP/3/33	Proposed budget of the trust for the Convention on Biological Diversity
UNEP/CBD/COP/3/34	Date and venue of the fourth meeting of the Conference of the Parties
UNEP/CBD/COP/3/Inf.1	Submissions received by the Executive Secretary concerning guidelines for the review of the effectiveness of the financial mechanism
UNEP/CBD/COP/3/Inf.2	Submissions received by the Executive Secretary concerning the "Draft Memorandum of Understanding Between the Conference of the Parties to the Convention on Biological Diversity and the Council of the Global Environment Facility Regarding the Institutional Structure Operating the Financial Mechanism of the Convention"
UNEP/CBD/COP/3/Inf.3	Submissions received by the Executive Secretary concerning knowledge, innovations and practices of indigenous and local communities
UNEP/CBD/COP/3/Inf.4	Submissions received by the Executive Secretary concerning ways and means to promote and facilitate access to and transfer and development of technology
UNEP/CBD/COP/3/Inf.5	Submissions received by the Executive Secretary concerning the possible influence that intellectual property rights may have on the implementation of the Convention
UNEP/CBD/COP/3/Inf.6	Agenda for the special session of the General Assembly and the proposed programme of preparatory work of the Commission on Sustainable Development



Distr.
**CONVENTION ON
BIOLOGICAL DIVERSITY**

GENERAL

UNEP/CBD/COP/3/1/Add.2
14 September 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY

Third meeting

Buenos Aires, Argentina

4 to 15 November 1996

Item 2.3 of the provisional agenda

PROVISIONAL ORGANISATION OF WORK

Note by the Executive Secretary

1. A provisional organisation of work for the third meeting of the Conference of the Parties to the Convention on Biological Diversity is attached for the consideration of the Conference of the Parties.
2. The meeting may wish to adopt the suggested organisation of work, bearing in mind the need to retain the flexibility to make such adjustments to the organisation of work as may be needed during the course of the meeting.
3. Should the Conference of the Parties wish to submit a statement to the World Food Summit, organised by the Food and Agriculture Organisation of the United Nations and which takes place from 13 to 17 November 1996 in Rome, it may wish to consider beginning the proceedings of the Committee of the Whole with consideration of item 9 of the provisional agenda (Conservation and sustainable use of agricultural biological diversity).

Annex

**PROVISIONAL ORGANIZATION OF WORK
THIRD MEETING OF THE CONFERENCE OF THE PARTIES
Monday, 4 November - Friday, 15 November, 1996**

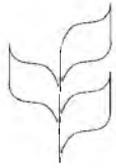
DATE	PLENARY	COMMITTEE OF THE WHOLE
Monday, 4 November 10 a.m. - 1 p.m.	1. Opening of the meeting 2.1 Election of officers 2.2 Adoption of the agenda 2.3 Organisation of work 3. Pending issues arising from the work of the second meeting of the Conference of the Parties: 3.1 Paragraph 1 of rule 40 of the rules of procedure for meetings of the of the Conference of the Parties to the Convention . 3.2 Paragraphs 4 and 16 of the financial rules for the administration of the Trust Fund of the Convention	
3 p.m. - 6 p.m.	4. Consideration of the report and recommendations of the second meeting of the SBSTTA and instructions to the SBSTT 20.1 Report of the Executive Secretary on the administration of the Convention and budget for the Secretariat 20.2 Budget of the Trust Fund for the Convention	
Tuesday, 5 November 10 a.m. - 1 p.m.		9.1 Consideration of agricultural biological diversity within the context of the Convention □ three objectives and its provisions 9.2 Report on progress under the FAO Global System and Utilisation of Plant Genetic Resources for Food and Agriculture
3 p. - 6 p.m.		6.1 Report on the activities of the GEF 6.5 Consideration of the revised draft Memorandum of Understanding Between the Conference of the

/...

DATE	PLENARY	COMMITTEE OF THE WHOLE
		<p>Parties to the Convention on Biological Diversity and the Council of the Global Environment Facility Regarding the Institutional Structure Operating the Financial Mechanism of the Convention”</p> <p>6.6 Endeavour to decide upon institutional structure to be designated in accordance with Article 21 of the Convention</p>
<p>Wednesday, 6 November 10 a.m. - 1 p.m.</p>		<p>6.2. Report of the Executive Secretary on the implementation of decision II/6 financial resources and mechanism</p> <p>6.3. Consideration of availability of additional financial resources and consideration of possible suggestions to funding institutions on how to make their activities in the area of biodiversity more supportive of the Convention</p> <p>6.4. Consideration of guidelines for the COP’s review of effectiveness of the financial mechanism</p>
<p>3 p.m. - 6 p.m.</p>		<p>5. Report on assessment and review of the operation of the clearing house mechanism</p> <p>7.1 Implementation of Articles 6 and 8 of the Convention</p> <p>8.1 Consideration of options for implementing Article 7 of the Convention</p> <p>8.2 Appraisal of the SBSTT’s assessment of biological diversity for the implementation of Article 25(2)(a) and advice on methodologies for future assessments</p>
<p>Thursday, 7 November 10 a.m. - 1 p.m.</p>		<p>10.1 Communication of the Secretariat of the Intergovernmental Panel on Forests on progress on issues relevant to forests and biological diversity</p> <p>10.2 Consideration of whether further</p>

DATE	PLENARY	COMMITTEE OF THE WHOLE
		<p>input to the Intergovernmental Panel on Forests in required</p> <p>10.3 Future programme of work for terrestrial biological diversity in the light of the outcome of the deliberations of the third session of the CSD in 1995</p>
3 p.m. - 6 p.m.		<p>11.1 Implementation of Article 8(j)</p> <p>12.1 Compilation of views of the Parties on possible options for developing national legislative, administrative or policy measures, as appropriate, to implement Article 15</p>
<p>Friday, 8 November 10 a.m. - 1 p.m.</p>		<p>13.1 Ways to promote and facilitate access to and transfer and development of technology, as envisaged by Articles 16 and 18 of the Convention</p> <p>14.1 Consideration of impact of intellectual property rights on the conservation and sustainable use of biological diversity and the equitable sharing of benefits derived from its use with a view to better understand the implications of Article 16.5</p> <p>14.2 Possible input into the negotiations taking place within the Committee on Trade and Environment of the World Trade Organisation</p>
3 p.m. - 6 p.m.		<p>15.1 Information and experiences shared on the implementation of Article 11</p> <p>16.1 Report to the special session of the General Assembly to review implementation of Agenda 21 from the perspective of the Convention on three objectives</p> <p>17.1 First report of the Open-ended Ad Hoc Working Group on Biosafety</p>
<p>Monday, 11 November 10 a.m. - 1 p.m.</p>		<p>18. Relationship of the Convention with the CSD and biodiversity-related conventions, other international</p>

DATE	PLENARY	COMMITTEE OF THE WHOLE
		agreements, institutions and processes of relevance 19. Medium-term programme of work of the COP for 1996-1997
3 p.m. - 6 p.m.		Informal consultations
Tuesday, 12 November 10 a.m. - 1 p.m.		Informal consultations
3 p.m. - 6 p.m.		Finalisation of all outstanding issues and adoption of report of the Committee of the Whole
Wednesday, 13 November 10 a.m. - 1 p.m.	Ministerial segment	
3 p.m. - 6 p.m.	Ministerial segment	
Thursday, 14 November 10 a.m. - 1 p.m.	Ministerial segment	
3 p.m. - 6 p.m.	Ministerial segment	
Friday, 15 November 10 a.m. - 1 p.m.	21. Report on the credentials of representatives to the third meeting of the COP 22. Venue and date of the fourth meeting of the COP 23. Other matters	
3 p.m. - 6 p.m.	24. Adoption of the report 25. Closure of the meeting	



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr
GENERAL

UNEP/CBD/COP/3/2
20 September 1996
ORIGINAL: ENGLIS

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Third meeting
Buenos Aires, Argentina
4 to 15 November 1996
Item 3 of the provisional agenda

**PENDING ISSUES ARISING FROM THE WORK OF THE SECOND
MEETING OF THE CONFERENCE OF THE PARTIES**

Note by the Executive Secretary

1. INTRODUCTION

1. Paragraph 3 of Article 23 of the Convention on Biological Diversity (the Convention) provides that the Conference of the Parties (COP) shall by consensus agree upon and adopt rules of procedure for itself and for any subsidiary body it may establish, as well as financial rules governing the funding of the Secretariat.

2. The second meeting of the COP transmitted to the third meeting for consideration issues related to the rules of procedure of the COP and to the financial rules for the administration of the Trust Fund for the Convention.

2. PARAGRAPH 1 OF RULE 40 OF THE RULES OF PROCEDURE FOR MEETINGS OF THE CONFERENCE OF THE PARTIES

3. At its first meeting held in Nassau, The Bahamas, the COP adopted the rules of procedure for meetings of the COP to the Convention on Biological Diversity with the exception of paragraph 1 of Rule 40. The following text of paragraph 1 of Rule 40, as contained in the annex of decision I/1 adopted by the first meeting of the COP, was transmitted for further discussion to the second meeting of the COP:

□he Parties shall make every effort to reach agreement on all matters of substance by consensus. If all efforts to reach consensus have been exhausted and no agreement reached, the decision [, except a decision under paragraph 1 or 2 of Article 21 of the Convention] shall, as a last resort, be taken by a two-thirds majority vote of the Parties present and voting, unless otherwise provided by the Convention, the financial rules referred to in paragraph 3 of Article 23 of the Convention, or the present rules of procedure. [Decisions of the Parties under paragraphs 1 and 2 of Article 21 of the Convention shall be taken by consensus.]”

4. At its second meeting, held in Jakarta, Indonesia, the COP decided to put this item on the agenda for its third meeting.

5. As presently drafted, the text of paragraph 1 of Rule 40 provides that, in the event that the Parties are unable to reach agreement by consensus, decisions on matters of substance shall be taken by two thirds majority vote of the Parties present and voting. However, a proposal has been made that decisions under paragraph 1 and 2 of Article 21 (Financial Mechanism) should be taken by consensus. This proposal is reflected in square brackets in the current draft of paragraph 1 of Rule 40. Although practice may vary from institution to institution, in general consensus is understood to mean the absence of a formally stated objection.

6. Not all environmental conventions rely upon decision-making by consensus in matters regarding the financial mechanism for the purposes of that convention. For example the Multilateral Fund of the Montreal Protocol on Substances that Deplete the Ozone Layer relies on a system of dual majorities. If all efforts at consensus have been exhausted and no agreement reached, decisions are to be adopted by a two-thirds majority vote of the Parties present and voting. The two-thirds majority must also include both a majority of the Parties operating under paragraph 1 of Article 5 of the Protocol 9 (developing countries) and a majority of the Parties not operating under paragraph 1 of Article 5 of the Protocol (developed countries).

3. FINANCIAL RULES FOR THE ADMINISTRATION OF THE TRUST FUND FOR THE CONVENTION

9. At its first meeting, the COP also adopted the financial rules for the administration of the Trust Fund for the Convention on Biological Diversity, with the exception of paragraphs 4 and 16, concerning contributions and voting procedures respectively.

3.1 Contributions to the Trust Fund

10. The following text of paragraph 4 of the financial rules for the administration of the Trust Fund for the Convention on Biological Diversity, as contained in annex II of decision II/20 on "Financing of and budget for the Convention", was transferred to the third meeting of the COP for consideration:

"It is for the Conference of the Parties to determine the scale referred to in paragraph 3 (a) above. The scale is based on the United Nations scale of assessments for the apportionment of the expenses of the United Nations [adjusted to provide that no one contribution shall exceed 25 per cent of the total, [and] no contributions shall be required when the United Nations scale provides for a contribution of less than 0.1 per cent], [and no developing country Party shall be required to pay more than any developed country Party]. [The Conference of the Parties will develop possible methodologies for the principle of common but differentiated responsibility of developed and developing countries to be reflected in the scale of assessment.] [This scale of assessment shall apply unless amended by the Conference of the Parties.] The contributions referred to in paragraph 3(a) shall be due on 1 January of each calendar year."

11. Document UNEP/CBD/IC/2/5, which was prepared for the consideration of the Intergovernmental Committee on the Convention on Biological Diversity by the Interim Secretariat, reviewed certain current practices in selected conventions in relation to, *inter alia*, the scale of assessments.

12. To date, the practice for assessing contributions under the Convention has been that the scale of contributions adopted has been based upon the United Nations scale of assessments for the apportionment of the expenses of the United Nations, adjusted to provide that no one contribution shall exceed 25 per cent of the total and that no contribution from a least developed country Party shall exceed 0.01 per cent of the total (decision I/6 and decision II/20). This approach is similar to the rule on contributions adopted in the financial procedures adopted by the Conference of the Parties to the UN Framework Convention on Climate Change.

3.2 Voting procedures for the Trust Fund

13. The following text of paragraph 16 of the financial rules for the administration of the Trust Fund for the Convention on Biological Diversity, as contained in annex II of decision II/20 on "Financing of and budget for the Convention", was transmitted for further consideration to the third meeting of the COP:

"16 A. The Parties shall reach agreement by consensus on:

- (a) The scale and any subsequent revision to it;
- (b) The budget.]

- [16 B. The Parties shall make every effort to reach agreement on the budget by consensus. If all efforts to reach consensus on the budget have been exhausted and no agreement has been reached, the budget shall, as a last resort, be adopted by a [two-thirds] [four-fifths] majority vote of the Parties present and voting representing a [two-thirds] [four-fifths] majority vote of the developing country Parties present and voting and a [two-thirds] [four-fifths] majority vote of the other Parties present and voting.]”



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/4
18 September 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY

Third meeting

Buenos Aires, Argentina

4 to 15 November 1996

Item 5 of the provisional agenda

**OPERATION OF THE CLEARING-HOUSE MECHANISM TO PROMOTE
AND FACILITATE TECHNICAL AND SCIENTIFIC CO-OPERATION**

Report by the Executive Secretary

I. INTRODUCTION

1. The first meeting of the Conference of the Parties (COP) decided to implement the provisions of Article 18, paragraph 3, of the Convention for the establishment of a clearing-house mechanism to promote and facilitate technical and scientific co-operation (decision I/3).

2. For the second meeting of the COP the Secretariat prepared, in accordance with decision I/3, a comprehensive study containing concrete, costed recommendations for the establishment of the clearing-house mechanism (document UNEP/CBD/COP/2/6).

3. At its second meeting, the COP decided that the clearing-house mechanism should be developed starting with a pilot phase for 1996-1997 (decision II/3, paragraph 4(a)). The COP also decided to review the implementation of the pilot phase of the clearing-house mechanism at its third meeting and requested the Executive Secretary of the Convention to submit a progress report (decision II/3, paragraph 10).

4. The present Note is an updated version of document UNEP/CBD/SBSTTA/2/9, prepared for the second meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), and reports on progress made by the Secretariat and by the active partners in the development of the pilot phase of the clearing-house mechanism. It recalls the guidance provided by the

/...

COP before providing: a) a description of the operational framework for the pilot phase; b) an update on the current status of the work; and c) a description of the activities envisaged for achieving the objectives of the two-year pilot phase. Progress reported upon in this Note refers to activities undertaken during the period from January to September 1996.

5. A list of National Focal Points (NFPs) for the clearing-house mechanism is contained in document UNEP/CBD/COP/2/Inf.11.

6. In decision II/3 the COP also requested the Global Environment Facility to explore the modalities of providing support through the financial mechanism to developing country Parties for capacity-building in relation to operation of the clearing-house mechanism and report to the Conference of the Parties at its third meeting". The report of the GEF on its response to this decision is contained in UNEP/CBD/COP/3/36.

2. GUIDANCE PROVIDED BY THE COP

7. In decision II/3, the COP stated (paragraph 4) that the clearing-house mechanism should be developed:

- (a) Starting with a pilot phase for 1996-1997;
- (b) Through specific and focused areas of activities related to the promotion of international technical and scientific co-operation;
- (c) By gradually building up its functions in response to clear and identified demand based on experience gained and resources available;
- (d) In a neutral, transparent, cost-effective, efficient and accessible manner;
- (e) As a decentralised mechanism using such resources as print and electronic media, including the Internet;
- (f) By making full use of existing facilities, which will avoid any duplication or overlap of activities and allow for the early implementation of the mechanism;
- (g) In close co-operation with relevant international organisations and entities as active partners in the clearing-house mechanism in order to maximise the existing experience and expertise;
- (h) By enhancing networking between existing national, regional, subregional and international centres of relevant expertise, as well as governmental and non-governmental institutions and the private sector."

8. The COP also decided (paragraph 5) that, during the pilot phase for 1996-1997, the Secretariat should act as a focal point and should:

- (a) Encourage the development of a network of active partners.... These partners should focus initially on:
 - (i) developing national capabilities through exchanging and disseminating information on the experiences and lessons learned by the Parties in the implementation of the Convention. This can be done through guidelines,

- training programmes, seminars, workshops, where appropriate, and upon request, and by using the clearing-house mechanism;
- (ii) facilitating access to and dissemination of research relevant to the objectives of the Convention;
 - (iii) facilitating the transfer of technology through exchanging and disseminating information on experiences and technologies relevant to the conservation and sustainable use of biological diversity;
- (b) Provide information on and facilitate access to these operating active partners;
 - (c) Support the active partners to develop specific training for the effective participation of users in the clearing-house network.”

3. OPERATIONAL FRAMEWORK

9. In accordance with the guidelines provided, the Secretariat has consulted with active partners who have indicated their interest in assisting with the start-up of the pilot phase. These active partners include the World Conservation Monitoring Centre (WCMC), the Commission of the European Communities, and the focal points in Australia, Brazil, Canada, and Germany. As a result of these discussions, an operational framework has been agreed upon for implementing the pilot phase of the clearing-house mechanism by means of a decentralised structure.

10. This framework provides the means by which access to, and the inter-active nature of, an information-exchange system can be maximised during the pilot phase of the clearing-house mechanism. Such an approach takes into account the complexity of the many Convention-related topics and is especially relevant when considering the demands for inputting and updating the different types of information to be submitted by a growing number of partners and participants.

11. The clearing-house mechanism will need to function at both national and international levels.

12. At the national level, the clearing-house mechanism will serve the information needs of those organisations involved in implementing the provisions of the Convention. The nature of these needs is complex and multi-faceted. Opportunities for addressing them are offered through ongoing developments in information technology. Increasing numbers of sources of information relevant to the implementation of the Convention are likely to be identified (*inter alia*, local and national government agencies, universities and research centres, indigenous and local communities with traditional ecological knowledge, and non-governmental organisations) and the potential volume of information is such that National Focal Points would need to invest immense amounts of time conducting searches through this mass of information. Further contact with each source holding such information would be likely to reveal a need to distinguish relevant information among the overall information held by the institution and to ensure its availability in an appropriate format.

13. The clearing-house mechanism at the national level therefore needs to support the activities of the National Focal Points and to assist with linking Thematic Focal Points (TFPs) to the wider clearing-house mechanism network. The operational framework presented here is specifically designed to avoid the duplication of effort, and to maximise the exchange of existing knowledge through the

development of databases of existing knowledge (or meta-databases) by national-level clearing-house mechanism partners.

14. At the international level, the operational framework provides for the development of a decentralised system of information gathering and retrieval, a visualisation function, and a decision-support function. These functions are explained in paragraph 18 below.

15. The role of the Secretariat should be that of facilitator, ensuring: the dissemination of experience and knowledge amongst all partners; that the system as a whole is learning from shared experience; and that different solutions to similar problems are being recorded and exchanged. As a facilitator, the Secretariat will need to provide learning feedback so that areas of priority interest to the Parties can be identified.

16. A crucial component of the clearing-house mechanism's operational framework is that it is service-oriented. It must be able to link its meta-databases in order to respond to queries on topics relevant to the implementation of the Convention, pointing the users to the location of relevant information, and answering specific scientific and technical questions posed by users. By its interactive nature, the clearing-house mechanism will provide a means for exploring and identifying topics and issues that will need to be addressed in future stages of the programme, and for identifying and disseminating multiple sources of information in an effective and decentralised way.

17. The process for gathering and organising the information that will feed into the clearing-house mechanism is itself decentralised, with active partners co-ordinating efforts amongst themselves and with the Secretariat to address topics of common interest. The contribution of each active partner will be included in the meta-databases of the clearing-house mechanism and will be made available to all users. In this way, updating the information in the system will not be the responsibility of any one institution, or of a programme officer in the Secretariat. It will be a decentralised activity, to be undertaken by the active partners, with the responsible programme staff at the Secretariat playing a role analogous to that of a "web manager" on the Internet.

18. The following section presents a number of proposals that have been developed in this initial stage of the pilot phase.

4. CURRENT STATUS

19. The most important feature of the operational framework that has been agreed upon is the identification of three distinct components that constitute the conceptual basis of the activity programme of the pilot phase. These are:

- (i) *the organising and linking of information* relevant to the implementation of the Convention. This is an essential first step in linking scientific knowledge on biodiversity to the policy-making process. In general, information relevant to the implementation of the Convention remains dispersed around the world, often in a form that is only useful to experts in a particular field. This component will begin the process of facilitating access to the information, and will provide the means of identifying the real needs of the user community at the national level;

- (ii) *the visualisation of the information*, which will facilitate the integration of information from many disciplines and domains into formats useful to the design of strategies, plans and programmes relevant to the Convention. Possibly the greatest challenge of the pilot phase lies in making a complex body of information comprehensible by its illustration in visual formats that can best demonstrate the links between the different factors relevant to the objectives of the Convention;
- (iii) *the decision-support function*, which will consist of providing syntheses of global trends and priorities identified by the Parties and others from information provided in national reports, thematic assessments, studies on the regional distribution of the condition of the components of biological diversity, and other information. This component will need to be developed in close collaboration with those involved in country-level decision-making processes in order to assist the development of increased national capacity for the implementation of the strategies, plans and programmes relevant to the Convention.

20. Identifying these three components has helped, in turn, to identify the different types of activities relating to information needs for the implementation of the Convention. It highlights the fact that data gathering, although a valuable activity in itself, does not of itself lead directly to improvements in the development and implementation of the strategies, plans and programmes required under the Convention.

21. The implementation of the pilot phase during the period in question has therefore focused on activities that enhance the value of existing data and information by improving access to that information "on-line" and, in particular, by developing ways of visualising the data and information to make it more useful to those involved in the decision-making process.

5. THE CLEARING-HOUSE MECHANISM'S WORLD WIDE WEB HOMEPAGE

22. The first product of the pilot phase has been the clearing-house mechanism's World Wide Web homepage, which can be explored on the Web (URL: <http://www.biodiv.org/>). (It is important to emphasise that this in itself is not the clearing-house mechanism, which is more than an Internet homepage or a database stored on a computer. The purpose of the clearing-house mechanism is to develop a self-sustaining process of information exchange to promote and facilitate technical and scientific co-operation for the implementation of the three-fold objectives of the Convention.)

23. Even though the clearing-house mechanism Web page is different from the traditional tree-based information-providing structure, this feature is still part of the system, and certainly has a place as a viable solution for providing information that is more specifically defined within a certain discipline or topic. In addition to this feature, however, it was felt that there is a need for an interactive system that can go directly to the information that users consider useful, going through the minimum number of intermediate pages on the Web.

24. To achieve this, the clearing-house mechanism Web page needs to include a number of features that are already freely available, but that are not common on most Web pages. Such features include interactive, multiple-field search engines directly included in the page; a self-indexing feature (this feature will be explained and illustrated below); the capacity to post up-to-date documents and texts

/...

concerning current activities relevant to the Convention; a question and answer service whereby users can ask a voluntary panel of recognised experts questions on a range of topics identified by the partners themselves.

25. In addition to these features, the clearing-house mechanism Web page includes a number of the elements seen in conventional Web pages, such as links to existing clearing-house mechanism focal points in all the countries, links to relevant international organisations, conventions, sectoral focal points, regional focal points, other World Wide Web engines, and the Convention Secretariat.

26. Features of the *Interactive Services* component of the clearing-house mechanism Web page include:

- (i) The *Question and Answer* feature mentioned above. It is envisaged that this service will have a volunteer moderator, assisted by a group of experts from around the world for each of the topics and themes suggested by the active partners. Those using this service can pose questions to the moderator, who will answer them with the assistance of the team of experts. It is hoped that moderators will come forward on a voluntary basis, motivated by the opportunity for involvement in an international network of interested partners, with potential benefits for the development of research or collaborative links around the topic of discussion;
- (ii) The *On-line meta-databases* feature includes an up-to-date written information service, comprising "grey literature" relevant to the Convention, reports and documents arising out of Convention-related activities, summaries of workshops, or calls for papers. Such written information can be made immediately available, providing an up-to-date information service for the Convention. The second service included in the on-line meta-database feature is the URL Internet Addresses service, which includes a self-indexing feature. This service indicates the Web addresses of useful sites identified by active partners, including the title, key words, summary, and author. The self-indexing feature is a sophisticated sorting system that can organise the records in the database according to user-defined criteria. Other meta-databases will be included in this feature, including the European Tropical Forest Project and Species 2000 databases, which have similar meta-database query capabilities.

27. The *Information exchange service* of the clearing-house mechanism Web page provides links to other relevant Web sites, including national, regional, international and sectorial organisations relevant to the implementation of the Convention. It is worth emphasising that responsibility for the accuracy and updating of the data and information found at any of these sites lies with the relevant institution. The clearing-house mechanism only provides a road-map to facilitate access to information and will not be in a position to verify the quality of the data.

28. The clearing-house mechanism Web page includes listings with links to recognised scientific and technical international organisations relevant to the Convention, regional centres or focal points, sectoral focal points, other conventions, other World Wide Web engines, and a link to the main Convention homepage.

29. The different features described above are not fixed or permanent components of the clearing-house mechanism Web page. These features have been included as part of the preliminary experimental

phase of the clearing-house mechanism in order to provide good examples of how the service-oriented nature of the clearing-house mechanism Web page might be fulfilled. As innovative ideas arise, or in response to suggestions from the active partners on improvements to the service, these can and will be included. For this reason, one of the boxes has been left open, signalling to all users that this Web page will constantly be under construction. The same is also true for the items currently included under each section of the Web page. For example, as new organisations are identified, they will be added to the existing list of International Organisations or Sectorial Focal Points, and the appropriate link will be made to their Web page, if this exists, or to the appropriate e-mail address.

6. ACTION PROGRAMME FOR THE NEXT 18 MONTHS OF THE CLEARING - HOUSE MECHANISM PILOT PHASE

30. This Note has emphasised the service-oriented nature of the clearing-house mechanism and has described the agreed-upon operational framework for implementing the pilot phase of its establishment as a mechanism for promoting and facilitating technical and scientific co-operation.

31. The operational design has paid particular attention to the iterative process of establishing the clearing-house mechanism. In this sense, the pilot phase serves as a way of encouraging partners to contribute their creative resources in order to identify innovative ways of facilitating the exchange of scientific, technical and technological information. The role of the Secretariat in this process will be to provide the learning feedback in order to identify areas considered priorities by the Parties and to ensure the world-wide sharing of experiences in the implementation of the Convention.

a. Organising and linking relevant information

32. In order to implement paragraphs 4(g) and (h) of decision II/3, it is hoped to organise six regional workshops as part of a pilot-phase process of user-driven development of the clearing-house mechanism. The organisation of these workshops depends upon securing the necessary funding, and details of dates and venues can only be finalised once this has happened. The workshops are intended to assist institutions of the Parties that do not have Internet access and will focus on identifying the key elements in a strategy for supporting clearing-house mechanism implementation needs in such countries.

33. In order to implement paragraphs 5(a)(i), (ii) and (iii) of decision II/3, several active partners are exploring the possibility of contacting Web Promoters in order to compile a subset of new Convention-related Internet links and pointers. An agreement on the harmonisation of formats and keywords would facilitate both the input of information by active partners and the efficiency of search procedures for users. Guidelines for the usage of such agreed formats, and periodic updates, would then be provided to partners and users.

34. As part of the implementation of paragraphs 4(e), 5(a) and (b) of decision II/3, the COP may wish to consider recommending the publication of a clearing-house mechanism newsletter. This could provide a vehicle for reporting on developments such as the creation of National Focal Points, on activities undertaken by the active partners, and for disseminating information on relevant topics, including technologies, methodologies and national experiences.

b. Visualisation of informatio

35. Active partners will be encouraged to explore options for information-dissemination systems able to present information on biological diversity in ways capable of being comprehended by policy-makers, the media and the general public. This will need to focus on flexible methods of generating large-scale meta-information and its summarised expression in spreadsheets or other formats, as well as systems for generating maps at different scales and other visual forms of presenting data.

c. Decisio -support functions

36. It is planned that an information service covering topics under consideration at meetings of the COP and of the SBSTTA will be included in the pilot phase. It is envisaged that, as topics are identified and programmed for consideration by the COP and the SBSTTA, active partners will compile subsets of specific pointers leading users to sources of information on that topic. A simple way to avoid duplication of effort would be to set up in the system a single pointer to the active partner responsible for the compilation.

37. With regard to the implementation of paragraph 5(a)(iii) of decision II/3, the active partners are exploring ways of encouraging agencies and other institutions to use the clearing-house mechanism for promoting and facilitating the access to and transfer of relevant technologies, drawing upon well-developed methodologies used in long-distance learning.

38. Several active partners have proposed the development of an Internet-based training package as part of the implementation of paragraph 5(c) of decision II/3. It is planned that the Secretariat will co-ordinate and assist the active partners in the development and evaluation of these training materials, and report on the results at the fourth meeting of the COP.

39. A logo has been developed for the clearing-house mechanism and its use will be encouraged. This will provide a distinct identity to all clearing-house mechanism activities and relevant information sources, and will assist in the easy identification of National Focal Points on the Internet. The COP may wish to consider recommending criteria for the use of the clearing-house mechanism logo.

7. CONCLUSION

40. The COP may wish to take note of recommendation II/7 of the SBSTTA, concerning the clearing-house mechanism, as contained in UNEP/CBD/COP/3/3.

41. In decision II/3, the COP also decided to review the implementation of the pilot phase at its fourth meeting and requested the SBSTTA to provide scientific and technical advice (paragraph 11). The COP may wish to consider whether it wishes to specify in more detail the kind of advice it will seek at its fourth meeting from the SBSTTA.

42. The COP may also wish to consider how the clearing-house mechanism can contribute to supporting initiatives arising out of other matters under consideration at the present meeting

43. The COP may wish to review the report by the GEF on its response to decision II/3 (UNEP/CBD/COP/3/36). It may wish to note particularly that in June 1996 the GEF secretariat, in consultation with the Convention Secretariat, revised the Operational Criteria for enabling activities to

include support for the clearing-house mechanism although without development of a cost norm. It may also wish to take note of the GEF secretariat's conclusion that the most expeditious modality for supporting the clearing-house mechanism at the country level is to adopt a modular approach within the context of enabling activities.

44. The COP may wish to urge the GEF to implement its revised Operational Criteria for enabling activities as expeditiously as possible.

45. The COP may wish to consider what role the Secretariat should play in the further design, development and coordination of the clearing-house mechanism and may wish to consider whether adequate budget allocation has been made to allow the Secretariat to fulfil this role.

46. The COP may wish to consider modalities of financing any regional workshops on the clearing-house mechanism which it may recommend are held.



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/6
22 September 1996
ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Third meeting
Buenos Aires, Argentina
4 to 15 November 1996
Item 6.2 of the provisional agenda

FINANCIAL RESOURCES AND MECHANISM

Report of the Executive Secretary

1. MANDATE AND RELATED DOCUMENTS

1. In paragraph 12 of decision II/6, "Financial Resources and Mechanism", the Conference of the Parties (COP) requested the Executive Secretary to present a report to the COP at its third meeting on the implementation of that decision. For ease of presentation, decision II/6 has been broken down into five main sections each of which is explored in a separate note prepared by the Secretariat.

2. The present note was prepared to respond to the request that the Secretariat present a report on the implementation of decision II/6.

3. The second note, contained in document UNEP/CBD/COP/3/7, responds to the request in paragraph 9 of decision II/6 for the Secretariat to:

- (a) further explore possibilities to identify additional financial resources to support the objectives of the Convention;
- (b) monitor the availability of additional financial resources and further identify where and how country Parties might gain access to these resources; and
- (c) study characteristics specific to biodiversity activities to allow the COP to make suggestions to funding institutions on how to make their activities in the area of biodiversity more supportive of the Convention.

4. The third note, contained in document UNEP/CBD/COP/3/8, responds to paragraphs 2 and 3 of decision II/6, and seeks to help the COP prepare for the first review of the effectiveness of the financial mechanism scheduled for its fourth meeting in 1997 by further developing guidelines for this review on the basis of:

- (a) the basic approach described in document UNEP/CBD/COP/2/9; and
- (b) comments made by participants at its second meeting and/or provided by Parties in writing to the Secretariat not later than the end of February 1996.

5. The fourth note, contained in document UNEP/CBD/COP/3/9, responds to paragraph 4 of decision II/6, and reports on the continued consultations on the draft Memorandum of Understanding Between the Conference of the Parties to the Convention on Biological Diversity and the Council of the Global Environment Facility Regarding the Institutional Structure Operating the Financial Mechanism of the Convention," jointly prepared by the Secretariats of the Convention and the restructured Global Environment Facility.

6. The fifth note, contained in document UNEP/CBD/COP/3/10, responds to the decision of the COP expressed in paragraph 1 of decision II/6 to endeavour to make a decision at its third meeting on which institutional structure is to be designated in accordance with Article 21 of the Convention, and seeks to set out relevant issues related to such a decision.

7. This note is divided into two separate sections. Section 2 describes the main activities undertaken by the Secretariat since the second meeting of the COP in November 1995, relating to the financial mechanism. Section 3 reviews the work of the interim financial mechanism pursuant to paragraphs 5, 6, 7, 8, 10, and 11 of decision II/6 of the COP.

2. ACTIVITIES OF THE SECRETARIAT RELATING TO THE FINANCIAL MECHANISM OF THE CONVENTION

2.1 Council Meetings of the GEF

8. The Council, the principal governing body of the GEF, met in April 1996 and will hold its only other meeting of the year in October. The Secretariat was invited to, and the Executive Secretary attended and addressed, the meeting of the Council in April. At this meeting the Executive Secretary communicated to the GEF Council the decisions taken by the second meeting of the COP on the financial resources and mechanism (decision II/6), as well as specific concerns raised by the COP during its second meeting. The Executive Secretary also expressed his concerns on the adequacy of the GEF work programmes for biodiversity activities, and made comments on other issues of interest for the Convention.

2.2 GEF Operations Committee and Task Force Meetings

9. The Secretariat is invited to, and attends, relevant meetings (usually held by teleconferencing) of the GEF Operations Committee (GEFOP). The main task of the GEFOP is to review project proposals with a view to recommending to the Chief Executive Officer (CEO) project proposals to be included in the proposed work programme to be reviewed and approved by the GEF Council. The GEFOP also recommends for CEO approval proposals for project preparation financing. In the reporting period, the

/...

GEFOP met almost every month and reviewed forty one project proposals for inclusion in the proposed work programme.

10. The Secretariat is also invited to, and attends, GEF Task Force meetings on biodiversity issues. The main purpose of the Task Force meeting is to consider enabling activities proposals designed to assist developing country Parties in undertaking activities aimed at "enabling" them to implement the Convention. Fifteen projects presented to the task force meeting were cleared.

11. The Secretariat reviews each biodiversity project proposal before each GEFOP meeting or task force with a view to considering the conformity of each project with the Policy, Strategy, Programme Priorities and Eligibility Criteria approved by the COP. This is a very useful channel for the Secretariat to advise on the consistency of the GEF activities with the guidance of the COP. For instance, the Executive Secretary requested that the development of the clearing-housing mechanism be included as a component of enabling activities in order to ensure prompt implementation of any decision of the COP concerning GEF assistance for clearing-house activities in developing country Parties'.

12. Under the GEF new procedures to expedite the project preparation and approval process for enabling activities and the proposed procedures for medium-sized projects, the Secretariat is requested to consider and comment in writing on each enabling activities project proposal within 10 working days and each medium-sized project proposal within 15 working days. The Programme Officer has been undertaking new endeavours to meet the increasing requests generated by the GEF.

2.3 Intersecretariat Cooperation

13. During the reporting period, the Secretariat has worked closely with the GEF Secretariat on all matters concerning the financial mechanism. The Executive Secretary and the Chief Executive Officer/Chairman of the GEF have met several times and talked over the telephone to exchange views on matters of common concern. The Secretariat to the Convention communicated to the GEF in a timely manner all decisions of the COP, and received various documents/information relevant to the Convention sent by the GEF.

14. The Secretariat, with the generous assistance of the German Government, organised an informal meeting of some 20 representatives in Germany from 2 to 4 July, 1996 to identify the principal problems and to strengthen the relationship between the Convention and the GEF. The meeting also provided a useful review of the Memorandum of Understanding (MOU). A further meeting on the MOU was organised by the Convention Secretariat from 31 August to 1 September in Montreal. Between this meeting in Montreal and the Council meeting in October, the two Secretariats will continue to work closely in order to finalise a draft of the MOU to submit to the Council. It is expected that these joint efforts will culminate in an agreed revised draft of the MOU being presented to the COP.

15. The Secretariat of the Convention has actively participated in the initiation, formulation and revision of the relevant GEF Operational Strategy, Criteria and Operational Programmes in order to ensure the full implementation of the decisions made by the COP. At the request of the GEF, the Secretariat has taken steps to inform eligible countries of the availability of financial resources to assist in the implementation of enabling activities.

3. IMPLEMENTATION OF DECISION II/6 BY THE FINANCIAL MECHANISM

/...

16. In its decision II/6, the COP requested the GEF to prepare a report on its biodiversity-related activities to be submitted to the third meeting of the COP. The report submitted by the GEF Council in response to this request has been made available to the COP in document UNEP/CBD/COP/3/5. The GEF Report provides an analysis of the GEF activities in the area of biological diversity, and demonstrates how the Convention's guidance has been implemented, including the guidance provided in decision II/6.

17. In addition to its Report, the GEF has made available additional reports and policy documents containing information relevant to the implementation of decision II/6, including the GEF Annual Report for 1995 and the Quarterly Operational Report, the GEF Operational Strategy, and a report for consideration by the COP on the GEF's efforts to explore modalities of providing support to developing country Parties for capacity building in relation to the operation of the clearing-house mechanism.

18. As part of its role in implementing decision II/6, the Secretariat had the opportunity to review and comment on an early draft of the GEF Report. These comments were taken into account by the GEF Secretariat in preparing the draft presented to the Council for approval at its eighth meeting, from 8 to 10 October 1996. Due to the proximity in timing of the GEF Council meeting and the third meeting of the COP, the GEF Secretariat has submitted to the Convention Secretariat, for the purposes of the COP, the draft report which it has prepared for review and approval by the Council at its meeting in October, 1996. Should the GEF Council make any revisions to the report, a revision to document UNEP/CBD/COP/3/5 will be issued at the third meeting of the COP.

19. This Note draws upon the draft of the GEF Report before the COP, the GEF Annual Report for 1995, the Quarterly Operational Report, the GEF Operational Strategy and related documents to report on the implementation of decision II/6.

20. In decision II/6, the GEF was requested, *inter alia*:

- (a) to incorporate fully, on an ongoing basis, guidance from the COP into the further development of the Operational Strategy and programmes to ensure that the objectives of the Convention are addressed;
- (b) to facilitate urgent implementation of Article 6 of the Convention by availing to developing country Parties financial resources for projects in a flexible and expeditious manner;
- (c) to implement the relevant provisions of decisions II/3, II/7, II/8 and II/17; and
- (d) to take any additional appropriate steps to expedite the project preparation and approval process with a view to implementing fully the guidance of the COP contained in Annex I to decision I/2 on financial resources and mechanisms.

3.1 Conformity with COP Guidance

21. The COP requested that the GEF provide:
 - (a) detailed information on the conformity of the GEF Operational Strategy and approved work programmes with the guidance of the COP; and
 - (b) a list of projects submitted by eligible country Parties and information on their status.²
22. For each relevant paragraph of decision II/6, the draft GEF Report provides an indication of progress it has made towards implementation of the COP guidance. The draft GEF Report indicates that various aspects of COP guidance are in different stages of implementation.
23. The GEF Operational Strategy for Biological Diversity was adopted by the GEF Council in October 1995 prior to the second meeting of the COP, and it has not been amended since then. The draft GEF Report indicates that it was considered that the new guidance provided by the COP at its second meeting could be addressed fully within the context of the approved GEF Operational Strategy.
24. The Operational Strategy indicates that particular care has been taken to incorporate the Policy, Strategy, Programme Priorities and Eligibility Criteria for Access to and Utilisation of Financial Resources, adopted at the first meeting of the COP.³
25. The GEF anticipates that further guidance from the COP can be incorporated into the design of specific Operational Programs that will guide the GEF long-term funding activities within particular ecosystems.
26. The approach of the GEF Operational Program reflects the COP decision that the ecosystem approach should be the primary framework of action to be taken under the Convention.⁴
27. The GEF Operational Strategy identifies four initial operational programmes:
 - (a) arid and semi-arid ecosystems;
 - (b) coastal, marine and freshwater ecosystems (including wetlands);
 - (c) forest ecosystems; and
 - (d) mountain ecosystems.
28. The choice of these ecosystems is consistent with the COP guidance in decision I/2.
29. The draft GEF Report provides an analysis of the projects approved for work programmes and for project preparation funding in the period under review. The analysis concludes that projects and project preparation has been approved in response to each of the 13 priorities identified by the COP in decision I/2.
30. Much of the guidance from the COP requires efforts by the GEF over the longer term, and progress can only be properly assessed as the projects approved by the GEF are monitored and evaluated in the course of their implementation.

31. While it is relatively straightforward to monitor the GEF progress in responding to some aspects of COP guidance, (e.g., whether activities have been approved that support the conservation and sustainable use of coastal and marine biodiversity), the experience of implementation, and more careful analysis, will be required to assess more subjective aspects of COP guidance (e.g., the extent to which GEF projects have been able to integrate social dimensions, such as poverty, in its projects).

3.2 Facilitating the Implementation of Specific Aspects of the Convention

32. Decision II/6 requests the GEF to implement the relevant provisions of the following decisions:

- (a) II/3 on the clearing-house mechanism ;
- (b) II/7 on consideration of Articles 6 and 8 of the Convention;
- (c) II/8 on preliminary consideration of components of biological diversity particularly under threat and action which could be taken under the Convention; and
- (d) II/17 on form and intervals of national reports by Parties.

3.2.1 Implementation of Article 6

33. Decision II/6, paragraph 5 requests the interim institutional structure to facilitate the urgent implementation of Article 6 of the Convention by making available to developing country Parties financial resources for projects in a flexible and expeditious manner.

34. Section IV.A of the draft GEF Report outlines the steps the GEF has taken to facilitate and expedite the preparation and implementation of biodiversity "enabling activities", as described in the GEF Operational Strategy. These enabling activities are intended to include the development of national strategies, plans or programmes as described in Article 6 of the Convention, and elaborated in subsequent decisions of the COP.

35. Operational Criteria for Enabling Activities for Biodiversity have been developed by the GEF Secretariat, in consultation with the GEF Implementing Agencies and the Convention Secretariat, to expedite the approval and implementation of enabling activity projects that are consistent with the operational criteria. Enabling activity proposals that exceed the scope of the operational criteria may be developed and approved in accordance with the regular procedures of the GEF project cycle.

36. The Operational Criteria includes detailed "activity norms" which describe the set of activities that would be typically included in an enabling activity, and which are intended to guide the GEF and its Implementing Agencies in designing and approving projects.

37. The draft GEF Report indicates that care has been taken to ensure that these activity norms will fund projects that reflect the guidance of the COP in relation to Article 6 and, in particular,

- (a) incorporate the Policy, Strategy, Programme Priorities and Eligibility Criteria for Access to and Utilisation of Financial Resources, adopted at the first meeting of the COP;⁵
- (b) support efforts to "identify priority issues specifically related to those components of biological diversity under threat";

- (c) follow the guidance provided in the document "Guidelines for Preparation of Biodiversity Country Studies" prepared by UNEP, and the document "National Biodiversity Planning: Guidelines Based on Early Country Experiences", prepared by the World Resources Institute, the United Nations Environment Programme and IUCN - the World Conservation Union;⁷ and
 - (d) follow the Form and Intervals of National Reports by Parties including the Suggested Guidelines for National Reporting on the Implementation of Article 6 adopted by the COP.⁸
38. Drawing from this guidance, the GEF has identified four major categories of enabling activities:
- (a) stocktaking and inventory of biodiversity based on national programmes and relying on studies, without new primary research;
 - (b) identification and analysis of options to conserve biodiversity, including cross-sectoral issues, and their linkage to national sustainable development;
 - (c) preparation of a national strategy or programme, and an action plan for its implementation; and
 - (d) preparation of a national report to the Convention in 1997 pursuant to decision II/17 of the COP.⁹
39. The GEF Operational Criteria also sets out cost norms associated with enabling activities. The GEF has estimated that the typical total cost ranges for these activities, applicable for most countries, should be \$200,000 - \$350,000. Project proposals within this range may be considered and approved under the expedited procedures. Project proposals exceeding this range may be developed and approved in accordance with the regular procedures of the GEF project cycle.
40. When reviewing these cost norms, the GEF Council agreed that "the financing amounts for the preparation of enabling activities have been developed on the basis of an average estimate used for planning purposes" but that "the actual level of support will vary from country to country and with the content of the enabling activities".¹⁰
41. The draft GEF Report indicates that in the period covered by the Report, the GEF has provided enabling assistance to 41 countries, including country studies, national plans and other enabling activities components. In addition, during the reporting period, ten proposals for project preparation financing were approved to prepare projects that will provide enabling activities in ten additional eligible countries. The GEF Implementing Agencies expect to submit an additional 40 enabling activity projects proposals during the 1997 fiscal year (July 1, 1996 to June 30, 1997).
42. While significant progress has been made in facilitating and expediting the approval of activities to enable developing countries to prepare their national reports, it is unclear how many of the developing country Parties will be able to submit their first national reports to the Secretariat by 30 June 1997, as was urged by the COP at its second meeting.¹¹

3.2.2 Implementation of Article 8 (*In-situ* conservation)

43. Paragraph 58 and tables 3 and 4 of the draft GEF Report describe the three project proposals and 24 proposals for project preparation financing that were approved by the GEF Council during this reporting period that contain elements addressing *in-situ* conservation.

3.2.3 Implementation of Article 18.3 (Clearing-house mechanism)

44. Decision II/3, paragraph 9, requests the GEF to explore the modalities of providing support through the financial mechanism to developing country Parties for capacity-building in relation to the operation of the clearing-house mechanism and to report to the COP at its third meeting.

45. The draft GEF Report indicates that such a report has been prepared and will be presented for consideration by the COP. Parties may wish to consider this report under item 5 of the provisional agenda when it reviews the Note by the Secretariat on the clearing-house mechanisms contained in document UNEP/CBD/COP/3/4.

3.2.4 Preliminary Consideration Of Components of Biological Diversity Particularly Under Threat

46. Decision II/6, paragraph 11 requests the GEF to implement the relevant provisions of decision II/8 on the preliminary consideration of components of biological diversity particularly under threat, and action which could be taken under the Convention.

47. Paragraphs 59 to 61 of the draft GEF Report indicates steps taken by the GEF during the reporting period that respond to this request. These include:

- (a) support for the preparation of national reports; and
- (b) the approval of two project preparation proposals totalling US \$305,000 that address endangered components of biodiversity.

3.3 Expediting the Project Preparation and Approval Process

48. Decision II/6, paragraph 7 requests the GEF to take additional appropriate steps to expedite the project preparation and approval process.

49. Annex C of the GEF report presents a list of project ideas that were submitted by the developing country Parties during the reporting period and their status. Out of approximately 50 project ideas submitted by Parties to the GEF Implementing Agencies, six ideas from Tunisia, India, Morocco and Argentina were not developed further since they were considered ineligible or not in conformity with the Operational Strategy. Some project ideas submitted in 1995 are still under consideration or development. For instance, a project idea from Mexico, submitted in October 1995, is still awaiting focal point endorsement. Project ideas from Ecuador, Syria, Trinidad and Tobago and Venezuela are still being prepared as project proposals. Enabling activities project requests submitted prior to the expedited procedures appear to be slow in development (e.g. Maldives, Myanmar, Iran).

50. Specific steps taken by the GEF in response to the Parties' request to accelerate the disbursement of GEF funds for project implementation are outlined in the draft GEF Report.

51. Furthermore, the GEF has recently included within its work programme a project designed to build and enhance capacity among a wide range of stakeholders in participating countries to develop high-quality, GEF-eligible projects.

3.4 Arrangements for Reciprocal Representatio

52. Decision II/6 also requests the GEF to:

- (a) make arrangements for the reciprocal participation of SBSTTA representatives at the meetings of the GEF Scientific and Technical Advisory Panel (STAP);¹²
- (b) explore the possibility of promoting diverse forms of public involvement and more effective collaboration between all tiers of government and civil society; and
- (c) explore the feasibility of a programme of grants for medium-sized projects.

53. As the draft GEF Report notes, the Council approved terms of reference for the GEF Scientific and Technical Advisory Panel (STAP), and, in doing so, the Council requested that STAP interact in a collaborative and cooperative manner with the scientific and technical bodies of the conventions. The STAP regularly invites the Chair of the SBSTTA to attend, or send a representative to each of its meetings.

54. Likewise, and in accordance with paragraph 8 of decision II/6, the SBSTTA invites a representative from the STAP to attend each of its meetings.

3.5 Public Involvement and Collaboration with All Tiers of Government

55. As the draft GEF Report notes, the GEF Instrument and its Operational Strategy stress the need for public participation in the GEF project cycle. The GEF Council approved the GEF policy on public involvement in GEF projects at its meeting in April 1996.

56. The GEF policy on public involvement contains five broad principles intended to guide the GEF Secretariat and the GEF Implementing Agencies in developing more specific operational guidelines for use in GEF project preparation.¹³ The Council has requested that these guidelines be prepared as expeditiously as possible.

57. The COP may wish to consider requesting that the GEF, when developing more specific operational criteria, take into account the need, specifically to promote collaboration between civil society and all tiers of government, which is not directly addressed in the draft GEF Report and related GEF documents.

3.6 Medium-size Grants

58. Decision II/6, paragraph 10 requests the GEF to explore, in the context of promoting public involvement of GEF activities, the feasibility of a programme of grants for medium-sized projects.

59. As indicated in the draft GEF Report, the Council has requested the GEF Secretariat to prepare for

/...

the Council consider a proposal on ways to streamline the processing and financing of medium-sized projects.

60. This proposal will be considered by the Council at its meeting in October 1996, and was available in draft form at the time this note was prepared.¹⁴

61. The proposal defines medium-sized projects as those for which GEF financing would not exceed US \$1 million. While ensuring that such projects were consistent with the GEF policies and operational strategy, and are country-driven, the proposal seeks to streamline and simplify all stages of project preparation and implementation process in order to make it "user-friendly" to a wide range of potential executing agencies.

62. The streamlined procedures and the more manageable size of the projects should facilitate public involvement by encouraging local communities, non-governmental organisations, academic institutions and private sector entities to apply for project funding in the role as executing agencies.

3.7 Balance in the GEF Portfolio

63. At the GEF Council meeting in April 1996, concern was raised about the balance in projects in terms of size, geographical balance and distribution among focal areas, in particular with regard to biodiversity.

64. Indeed, a review of the GEF project portfolio indicates that the share of biodiversity projects in the GEF approved work programme has significantly decreased in fiscal year 1996 from fiscal year 1995 and the Pilot Phase, both in terms of the number and the value of the projects.

65. The COP may wish to continue to monitor long term trends in the balance of projects within the biodiversity focal area, and as between the biodiversity portfolio and the project portfolios of other focal areas.

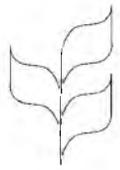
4. POSSIBLE FURTHER GUIDANCE TO THE COP

66. In light of the developments in GEF practice and policy since the second meeting of the COP, the Parties may wish to consider providing, with support from the SBSTTA and the Secretariat, further guidance relevant to biodiversity-related activities and policy initiatives likely to be undertaken in the upcoming year. In particular, the COP may wish to formulate:

- (a) guidance on the follow-up to the GEF paper on the clearing-house mechanism;
- (b) guidance on any refinement or prioritisation of the thirteen priorities identified by the COP in decision I/2;
- (c) development of its decision on eligibility criteria.

NOTE:

1. Decision II/3, paragraph 9, requests the GEF to explore the modalities of providing support through the financial mechanism to developing country Parties for capacity-building in relation to the operation of the clearing-house mechanism and report to the COP at its third meeting. For more information on how this decision has been implemented, see paragraphs 44 and 45 of this report.
2. Decision II/6, paragraph 6.
3. Decision I/2, Annex I.
4. Decision II/8.
- ⁵. Decision I/2, Annex I.
- ⁶. Decision II/8, paragraph 6(i).
- ⁷. Decision II/16, paragraph 13.
- ⁸. Decision II/17 and its Annex.
- ⁹. Operational Criteria for Enabling Activities: Biodiversity, GEF/C.7/Inf.11, paragraph 17.
- ¹⁰. GEF/C.7.
- ¹¹. Decision II/8, paragraphs 11 and 12.
- ¹². Decision II/6, paragraph 8.
- ¹³. GEF/C.7/6.
- ¹⁴. GEF/C.8/5.



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/7
22 September 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Third meeting
Buenos Aires, Argentina
4 to 15 November 1996
Item 6.3 of the provisional agenda

**CHARACTERISTICS SPECIFIC TO BIOLOGICAL DIVERSITY
AND SUGGESTIONS TO FUNDING INSTITUTIONS ON HOW TO MAKE THEIR
ACTIVITIES MORE SUPPORTIVE OF THE CONVENTION**

A Preliminary Consideration

Note by the Executive Secretary

1. MANDATE AND SCOPE

1. In paragraph 9 of decision II/6, the Conference of the Parties requested the Secretariat to, *inter alia*, “study characteristics specific to biological diversity activities to allow the Conference of the Parties to make suggestions to funding institutions on how to make their activities in the area of biological diversity more supportive of the Convention”.

2. The report, “Availability of Additional Financial Resources” (UNEP/CBD/COP/3/7), notes that Official Development Assistance for biological diversity projects has been decreasing since 1993. That report notes that one of the reasons for the decline may be the difficulty in designing and implementing successful biological diversity management projects. It was also noted that in the absence of new and additional resources, Parties may wish to consider ways in which the existing funds can be made more supportive of the Convention’s objectives.

3. The structure of this note is as follows. Section 2 reviews some of the issues relevant to the financing of biological diversity projects. Section 3 identifies the characteristics specific to biological diversity that differentiate it from more conventional donor-funded projects. Section 4 translates the specific characteristics into a set of principles that can be used as guidelines for the design of biological diversity projects. Section 5 presents recommendations to the COP.

2. BACKGROUND

4. The investment in biological diversity management programmes, whether the focus be on conservation, sustainable use, or the equitable sharing of benefits, must take into consideration several special characteristics that differentiate it from other national assets. The services provided by biological-diversity resources can be conceived of as national assets, and many of their benefits are in the nature of public goods. Within the context of the ecosystem approach to biological diversity management, the ecological functions and ecological resilience provided by biological diversity are examples of such public goods.

5. Conventional infrastructure projects, which receive the majority of foreign assistance are less complex than sustainable biological diversity management projects. The public-good benefits of infrastructure projects are known with greater certainty, are more easily estimated, can be supplied with greater predictability, and are less critical to the functioning of a country. While an infrastructure project will supply a country with, for example, improved transportation, communication, or utilities, biological diversity provides the underlying "life-support system" of a society in the form of its ecological functions, such as hydrological cycles, the mediation of energy flows at different trophic levels, soil and mineral content and quality, and so forth.

6. The maintenance of these ecological functional benefits depends upon the decisions made by numerous individuals and organisations over a wide range of temporal and spatial scales. Thus biological diversity projects may incorporate a wide range of activities for which it is difficult to set priorities for action. For example, the management of natural and biological resources by local communities is potentially as important as either the development of national biological diversity strategies or the introduction of intellectual property rights for genetic resources.

7. Recent experience shows that biological diversity management projects are very difficult to design and implement. Biological-diversity projects involve changing how humans interact with their environment and how they use natural resources. This often requires changing patterns of behaviour and traditions that have emerged over long periods of time, and have, as a result, become enshrined in law or social custom and have the support of powerful groups in society. The modification of human-environment interactions is a long-term process, which puts severe demands upon project design and implementation.

3. CHARACTERISTICS SPECIFIC TO BIOLOGICAL DIVERSITY

8. This section presents a classification of the attributes that differentiate biological diversity from other public goods in order to provide the basis for a set of principles to guide funding institutions.

9. Recent studies and evidence from field projects, donor institutions and recipient governments suggest that biological diversity has the following special characteristics that should inform the design of projects and programs:

3.1 The Time Sensitivity of Ecological Dynamics

10. Ecological processes take place over a wide range of time scales, many of which are extremely long. Thus a single biological-diversity project may involve the management of a number of ecological processes with varying time scales.

3.2 Heterogeneity in the Structure and Function of Biological Diversity

11. Biological diversity includes “overlapping ecosystems, many interdependent ecological functions, millions of species and an even bigger number of genetic attributes”. The provision of ecological functions depends upon the maintenance of “resilience” within ecosystems. This resilience refers to the ability of an ecosystem to absorb stress (as a sink for waste, or as a source of goods and services) and continue to deliver benefits. Present ecological knowledge suggests that resilience depends upon the diversity of organisms and the heterogeneity of ecological functions.

3.3 Uncertainty as to the Status, Trends and Values of Biological Diversity

12. The ecological functions of the different components of biological diversity are highly uncertain, particularly in light of the fact that perhaps only 10% of the species on earth have been identified. It is not well known how biological diversity responds to human-induced changes in the biosphere, including the effects of beneficial investments. Further, the values of biological diversity cannot be estimated with certainty (UNEP/CBD/SBSTTA/2/13), providing little basis for an investment strategy. As a result, projects for biological diversity management must be made in an environment of great uncertainty with respect to potential returns and ecological impact.

3.4 The Irreversibility of Biological Diversity Losses

13. Once past a specific, though usually unknown, threshold, the loss of biological diversity is irreversible. A threshold event could lead to an irreversible change in ecosystem resilience, having negative implications for the carrying capacity of the Earth, a reduction of options open to future generations, and increased uncertainty associated with the environmental effects of economic activities.

3.5 The Complexity of Causes and Processes Leading to the Degradation and Loss of Biological Diversity

14. The degradation of biological diversity resources comes from highly diffuse sources, involving a multitude of decisions by individuals and organisations. The proximate causes of biological diversity loss are often categorised into over-exploitation (hunting and harvesting), the introduction of exotic competitor species, and habitat destruction, or combinations thereof (see UNEP/CBD/COP/3/12). However, the driving forces, or underlying causes, of biological diversity loss are a subject of debate, and may include a wide range of economic and demographic factors. As a result, remediation or mitigation measures and investments are difficult to accurately target to the underlying causes of loss.

15. Though this list is not an exhaustive accounting of the characteristics of biological diversity that differentiate it from conventional projects, it gives an indication of the complexity of the issues that should be taken into account when designing and implementing biological-diversity projects.

16. The incorporation of these special characteristics into guidelines for biological diversity management projects will be a difficult process that can only be improved through experience, evaluation, experimentation and the sharing of results. The next section proposes a set of preliminary principles the COP may wish to incorporate or build upon in their preparation of suggested guidelines for funding agencies on ways to make their activities more supportive of the Convention.

4. PRINCIPLES TO GUIDE FUNDING INSTITUTIONS

17. The effectiveness of financial support for biological diversity will depend upon the extent to which donor institutions can incorporate the special characteristics noted above into their investment decisions. The following principles for the design of biological diversity projects apply equally to all of the funding institutions, including bi-lateral and multi-lateral institutions, the Global Environment Facility, and NGOs.

18. Articles 20 and 21 provide the framework within which Parties undertake to provide financial resources to enable developing-country Parties to meet the agreed-upon full incremental costs to them of implementing measures which fulfil the obligations of the Convention. In particular, Article 21, paragraph 4, provides that "the contracting Parties shall consider strengthening existing financial institutions to provide financial resources for the conservation and sustainable use of biological diversity". Article 20 not only calls upon developed-country Parties to provide additional financial resources, but identifies a number of key terms that are meant to guide Parties in the manner in which they fulfil their obligations under the Convention, namely that these commitments shall take into account the need for, *inter alia*: (a) adequacy, predictability, and the timely flow of funds; (b) that economic and social development and the eradication of poverty are the first and overriding priorities recipients; and (c) that projects should take into account the special conditions resulting from the dependence on, distribution and location of, biological diversity within developing-country Parties, in particular small island states. Each of these key terms, when applied to the specific characteristics of biological diversity, can be translated into several specific guidelines. These principles or guidelines can therefore be considered as providing greater definition and meaning to the concepts expressed in Article 20.

19. Table 1 shows the relationship of the following principles to each of the special characteristics of biological diversity:

Table 1
Suggested Principles for Project Design Based on Biological Diversity □ Special Characteristics

Characteristics	Principles
Time Sensitivity of ecological dynamics	<ul style="list-style-type: none"> • Adequacy, predictability, timelines • Long project duration • Project cycle adjustment
Heterogeneity of biological diversity assets	<ul style="list-style-type: none"> • Multi-criteria evaluation of benefits/objectives • Integration with other projects & national or regional strategies • Appropriate size to address multiple objectives
Uncertainty regarding status, trends, and values of biological diversity	<ul style="list-style-type: none"> • Acceptance of higher risk in project returns • Long project duration • Project cycle adjustment
Complexity of threats facing biological diversity	<ul style="list-style-type: none"> • Involvement of stakeholders in project implementation and design • Training and capacity building component in projects
Irreversibility of threshold events due loss or degradation of biological diversity	<ul style="list-style-type: none"> • Precautionary approach • Adequacy, timelines, predictability of funds

4.1 Adequacy, Timelines and the Predictability of Funds (Article 20, paragraph 2):

4.1.1 Longer duration

20. The gestation period for projects based on the functioning of biological cycles may well be longer than for more conventional projects. The time sensitive nature of ecological processes and uncertainty over ecosystem dynamics demand that biological-diversity projects be given long gestation periods. Also, biological-diversity projects involve the management of heterogeneous assets (species, functions, etc.) under a complex set of threats, so rapid success is unlikely. A successful biological diversity management project will likely require time for “adaptive management”.

4.1.2 Project cycle adjustment

21. Project cycles should be adjusted to disburse less funds up front, more downstream, and over a longer period of time. This structure of disbursements would allow for adaptive changes as more is learned about the project’s effects on human-ecological interactions. Because of the uncertainty of ecosystem processes and the complexity of managing human-ecological interactions, projects must have the financial capability to implement lessons learned from experience.

4.1.3 Appropriate size

22. A sustainable biological diversity project will address many components of the economic-ecological system. As a result of the multi-dimensional nature of biological diversity management, large projects need to be flexible enough to incorporate many separate but interlinked components. Small projects need to be integrated with larger projects and regional and national strategies. No general prescription for optimal project size can be asserted other than that projects need to be multi-dimensional, and able to address (either alone or in cooperation with other initiatives) the variety of human and ecological aspects of sustainable biological diversity management.

4.1.4 Multi-criteria evaluation

23. The heterogeneity of biological-diversity assets and the complexity of threats means that successful projects will need to meet multiple objectives. Achieving sustainable biological diversity management in a given area requires that a suite of different threats to a range of biological assets are addressed simultaneously. Furthermore, a successful biological diversity management project needs to have success at two or more levels: success for the people affected, and success for the biological assets under management. And success itself can have many attributes, particularly with regard to the evaluation of human or social conditions.

4.2 Economic and Social Development and the Eradication of Poverty as the First and Overriding Priorities of the Developing-country Parties (Article 20, paragraph 4)

4.2.1 Integration with national strategies

24. Since the degradation and loss of biological diversity is driven by a number of underlying causes, some local in scale, others national and international, biological-diversity projects need to be integrated with other relevant conservation and sustainable use initiatives to ensure effectiveness. In this regard, donor institutions should seek to incorporate the national-level biological diversity management objectives into their biological-diversity financing programmes.

4.2.2 Training and capacity-buildi

25. Since the sustainability of biological diversity management programmes ultimately depends upon the decisions of people who live in an area and use its resources, donor institutions should be advised to incorporate a significant element of local training and capacity-building into projects.

4.3 Special Conditions Resulting from the Dependence on, Distribution and Location of Biological Diversity within Developing-country Parties (Article 20, paragraph 6)

4.3.1 A precautionary approach

26. Because of the extent of scientific uncertainty and the potential for irreversible losses, funding institutions should incorporate a precautionary approach to the allocation of funds to biological-diversity projects. A precautionary approach includes responding to perceived threats in a timely and adequate manner. Again, this requires both considerable information flows on areas of threat and a means of setting priorities for action.

4.3.2 Risk tolerance

27. Biological diversity management projects will have highly uncertain returns because of unknown ecosystem dynamics and the complexity of threats. Donor institutions should not impose stringent requirements for financial or social returns on biological diversity projects. Although most biological-diversity assistance is based on grants or concessional loans, donor agencies require some measurement or indicator of success. In the case of biological-diversity projects, short-term indicators of success may be hard to obtain, leading to assumptions that projects are unsuccessful or offer poor (social) returns. Donor institutions should be encouraged to take on greater risks with regard to the expected returns on their investments, and should be willing to wait longer for results.

4.3.3 Implementation issues

28. Projects may be well designed for changing human-ecological interactions in a way more favourable to the sustainable management of biological resources, but implementation presents a separate set of issues. Recent experience from the implementation of biological diversity management projects provides a set of emerging lessons. Some of the requirements for successful project implementation include a supportive policy environment at the national level, the involvement of stakeholders in project design and implementation, and on-going monitoring and evaluation (World Bank 1995).

5. RECOMMENDATIONS

29. In its continuing efforts to assist funding institutions in making their activities more supportive of the Convention, the COP may wish to:

- (a) recommend a set of principles along the lines of those outlined in this Note to assist funding institutions in their activities relating to biological diversity;
- (b) compile information on innovative approaches and projects that successfully incorporate the special characteristics of biological diversity; and
- (c) request that the Executive Secretary further elaborate on these characteristics and principles in collaboration with the funding institutions and other relevant organisations.



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/8
20 September 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY

Third meeting

Buenos Aires, Argentina

4 to 15 November 1996

Item 6.4 of the provisional agenda

**REVIEW OF THE EFFECTIVENESS OF THE FINANCIAL MECHANISM
UNDER THE CONVENTION**

Note by the Executive Secretary

1. MANDATE AND SCOPE

1. Article 21, paragraph 3, of the Convention states: "The Conference of the Parties shall review the effectiveness of the mechanism established under this Article, including the criteria and guidelines referred to in paragraph 2 above, not less than two years after the entry into force of this Convention and thereafter on a regular basis. Based on such review, it shall take appropriate action to improve the effectiveness of the mechanism if necessary".

2. In response to a request that emerged from the first meeting of the Conference of the Parties, the Secretariat prepared document UNEP/CBD/COP/2/9, which sets out options for both the timetable and the nature of the review.

3. The second meeting of the Conference of the Parties decided that the first review would take place at its fourth meeting in 1997, and that it would be carried out with the basic approach described in document UNEP/CBD/COP/2/9. The Conference of the Parties requested the Executive Secretary to develop further guidelines for the review for the consideration of and decision by the Conference of the Parties at its third meeting, taking into account comments made by participants at its second meeting and/or provided by the Parties

in writing to the Secretariat no later than the end of February 1996.

4. During the discussion of this item at the second meeting of the Conference of the Parties, statements were made by the representatives of eight countries, one speaking on behalf of a regional economic integration organisation, and by the representative of an international organisation. Eleven of the Parties provided comments in writing to the Secretariat, which are contained in document UNEP/CBD/COP/3/Inf.1.

5. This note was prepared in order to provide a basis on which the Conference of the Parties can decide on the objectives, scope, criteria and modalities for the review of the effectiveness of the financial mechanism at its third meeting.

2. DISCUSSION

6. The basic approach for the review of the effectiveness of the financial mechanism contained in Document UNEP/CBD/COP/2/9 sets out proposed objectives, scope, criteria and modalities of the review. Taking into account the comments received by the Parties and summarised in the paragraphs that follow, the Secretariat has prepared the draft Procedures and Criteria for the Review of the Effectiveness of the Financial Mechanism, which is set out in the Annex to this note.

7. The Conference of the Parties is invited to review, amend and adopt these procedures, and to take any additional decisions necessary for laying the groundwork for the first review of the effectiveness of the financial mechanism at its next meeting.

2.1 Objectives and Scope of the Review

8. UNEP/CBD/COP/2/9 suggests that the review have a three-fold objective that assesses:

- (a) the effectiveness of the financial mechanism in providing financial resources;
- (b) how the financial mechanism's activities conform to the guidance of the Conference of the Parties; and
- (c) the impact that the activities funded have on the realisation of the Convention's objectives.¹

9. While, as these objectives suggest, the focus of the review will necessarily be on the biodiversity-related activities of the GEF, the institutional structure operating the financial mechanism on an interim basis, comments from several of the Parties and the experience of the Secretariat suggest that the review of the financial mechanism should encompass other sources of biodiversity-related finance as well.

10. Discussions of this agenda item have revealed a need and a desire to coordinate and rationalise the various reviews of financial issues that are being planned and undertaken both within and outside of the Convention's bodies.

11. Over the past two years, the Secretariat and the Conference of the Parties have undertaken an annual review of a number of issues related to financial resources and mechanisms.

12. The Secretariat and the Conference of the Parties have undertaken a review of the report of the biodiversity-related activities of the GEF and how of these activities conform to the guidance of the Conference of the Parties.
13. The Secretariat and the Conference of the Parties have undertaken a review of the availability of additional financial resources for the implementation of the Convention that monitors existing flows of financial resources and seeks to identify new sources of support for the implementation of the Convention.
14. Furthermore, at its second meeting, the Conference of the Parties requested that the Secretariat study characteristics specific to biodiversity activities to allow the Conference of the Parties to make suggestions to funding institutions on how to make their activities in the area of biodiversity more supportive of the Convention (UNEP/CBD/COP/3/7).
15. Since the second meeting of the Parties, the GEF Council has decided to develop a GEF-wide monitoring and evaluation system and has appointed a Senior Monitoring and Evaluation Coordinator. A work program and budget for the program was reviewed at the GEF Council Meeting in April 1996, and is expected to be adopted at the GEF Council Meeting in October 1996.
16. In order to avoid unnecessary duplication between these analyses and review procedures, it is important to ensure that the COP's triennial reviews build upon its annual reviews of the financial mechanism and resources and upon the work of the GEF. The triennial reviews should provide a longer-term, comprehensive analysis that focuses not merely on the conformity of the GEF's activities with COP guidance, but also on whether such guidance is itself practicable and effective in leading towards the realisation of the Convention's objectives.
17. Particular emphasis should be placed on the need to learn lessons and gain experience in the implementation of COP guidance based on the outcome and impact of activities funded by the financial mechanism.
18. In line with Article 21, paragraph 3, which provides for the Conference of the Parties to take appropriate action to improve the effectiveness of the financial mechanism, if necessary, a number of Parties have suggested the review could produce concrete guidance for improvements in, for example:
 - (a) the effectiveness of the guidance provided by the Conference of the Parties;
 - (b) the appropriateness of the division of responsibilities in the relationship between the Conference of the Parties and the GEF; and
 - (c) the balance and distribution of the GEF's project portfolio.
19. However, several of the Parties recognised that data on the implementation, monitoring and evaluation of specific GEF projects might be limited at the time that the first triennial review is to be undertaken in 1997.
20. One Party suggested that the review include the effect that the GEF's interim status may be having on the effectiveness of the financial mechanism.

2.2 Content of the Review

21. A number of Parties sought to focus the process of review by directing the Secretariat and the Conference of the Parties towards specific sources of information. In particular, it was felt appropriate that the review process draw upon:

- (a) the GEF's report to the Conference of the Parties;
- (b) GEF annual reports; and
- (c) reports and information from the GEF's monitoring and evaluation program.

22. One Party stressed the importance of the non-governmental organisations that monitor the GEF's work as a source of intelligence on the GEF.

23. Several Parties suggested that the experience of related financial institutions, such as the Multilateral Fund for the Montreal Protocol, could usefully inform the review process.

2.3 Review Criteria

24. Grouped into categories based on the review's three-fold objectives, document UNEP/CBD/COP/2/9 provided a non-exhaustive list of criteria for the review of the effectiveness of the financial mechanism.

25. With regard to the effectiveness of the financial mechanism in providing financial resources the Parties suggested a number of additional criteria, including:

- (a) the cost effectiveness of financed activities. While no Party suggested a methodology for analysing the costs and the benefits of a specific project, one Party suggested that concepts of incremental costs and global benefits might play a role in such calculations; and
- (b) the ability of the GEF to leverage additional financial resources.

26. Several of the Parties suggested that assessments of the amount of funding necessary for the implementation of the Convention and discussions of burden-sharing among developed-country Parties to the Convention should not form a part of the effectiveness review, but should instead be taken up in the COP's general discussions.

27. With regard to the conformity of the GEF's activities with the guidance of the Conference of the Parties, the Parties stressed the importance of GEF's demonstrating transparency and accountability in its operations, and that it fund projects that:

- (a) promote capacity-building;
- (b) increase public awareness; and
- (c) are country-driven.

28. With regard to the impact of the activities funded on the realisation of the Convention's objectives, it was suggested that the review seek to ensure the financial mechanism took a balanced approach to funding activities on the conservation and sustainable use of biodiversity, and to the fair and equitable sharing of benefits.

2.4 Modalities for Review

29. Document UNEP/CBD/COP/2/9 offered two options in preparing for the modalities of the review:

(a) the Conference of the Parties could conduct its own study based on the objectives and criteria for the review of effectiveness adopted by it at its third meeting, drawing upon information and analysis from the GEF and the GEF's monitoring and evaluation program; or

(b) the Conference of the Parties could request the GEF to include the objectives and criteria agreed to by the COP in the GEF's monitoring and evaluation program. The Conference of the Parties would then review the reports prepared by the GEF's program.

30. Those Parties that did express a preference supported option (a) on the basis that it would provide a greater degree of accountability and transparency if the review were undertaken by the COP as a body independent of the GEF process.

31. In response to option (b), several parties pointed out the potential usefulness of the monitoring and evaluation procedure adopted by the GEF and encouraged the Secretariat to participate in the development of appropriate indicators for the assessment of GEF projects.

3. CONCLUSIONS AND RECOMMENDATIONS

32. While the Convention provides that the Conference of the Parties is responsible for the review of the effectiveness of the financial mechanism, past experience and comments from the Parties suggest that the Secretariat, and the work carried out by the GEF itself, can play a vital role in laying the groundwork for such a review.

33. The Conference of the Parties may wish to consider requesting the Secretariat to:

(a) work with the GEF in suggesting criteria for the GEF's monitoring and evaluation program; and

(b) prepare relevant background documentation for the review of each of the three-fold objectives, according to the criteria adopted by the Conference of the Parties at its third meeting.

Objectives and Criteria for the first Review of the Effectiveness of the Financial Mechanis

1. Objectives

1. In accordance with Article 21, paragraph 3, of the Convention, to review and take appropriate action, if necessary to improve:

- (a) the effectiveness of the financial mechanism in providing financial resources;
- (b) the conformity of the activities of the Global Environment Facility, as the institutional structure operating the financial mechanism on an interim basis, with the guidance of the Conference of the Parties; and
- (c) the impact of the activities funded on the realisation of the Convention's objectives.

2. Scope

2. In order to avoid the duplication of review activities, and to ensure that relevant on-going reviews of biodiversity-related activities inform the review of the Conference of the Parties of the effectiveness of the financial mechanism, the review shall take into account:

- (a) annual reviews by the Conference of the Parties on:
 - (i) the conformity of GEF-related activities with the guidance of the Conference of the Parties; and
 - (ii) the availability of additional financial resources for the implementation of the Convention;
- (b) progress in the efforts by the Secretariat in developing common methodologies and procedures for monitoring the flow of financial resources in support of biodiversity-related activities, and in assessing the effectiveness of these flows in supporting the Convention's objectives; and
- (c) the experience of the GEF's monitoring and evaluation system.

3. Content

3. The review shall draw upon, *inter alia*, the following relevant information:

- (a) the GEF's Annual Report to the Conference of the Parties on its biodiversity-related activities, the GEF annual reports, and other relevant GEF policy and information documents;
- (b) reports from the GEF's monitoring and evaluation program;
- (c) information available from the Commission on Sustainable Development and the Organisation on Economic Cooperation and Development, and relevant bilateral and multilateral funding institutions;

/ ...

and

(d) information provided by non-governmental organisations, where appropriate.

4. Criteri

4. Progress towards the implementation of the review objectives shall be assessed against the following, non-exhaustive list of criteria:

- (a) the effectiveness of the financial mechanism in providing financial resources:
 - (i) the adequacy, predictability and timeliness of financial resources;
 - (ii) the responsiveness and efficiency of the GEF's project cycle;
 - (iii) the ability of the GEF to leverage additional finance;
 - (iv) the sustainability of funded projects; and
 - (v) the application of programme-design principles based on the special characteristics of biological diversity, as noted in COP2/9 and further elaborated in COP 3/7;
- (b) the conformity of the activities of the financial mechanism with guidance of the Conference of the Parties, as contained in Decisions I/2 and II/6, which include:
 - (i) the application of the eligibility criteria;
 - (ii) the application of programme priorities;
 - (iii) the urgent implementation of national strategies and programmes for conservation and sustainable use, in a flexible and expeditious manner;
 - (iv) exploring the possibility of promoting diverse forms of public involvement;
 - (v) exploring the possibility of more effective collaboration with all tiers of government and civil society;
 - (vi) exploring the feasibility of a programme of grants for medium-sized projects; and
 - (vii) the implementation of the relevant provision of the following decisions:
 - a. II/3 on the clearing house mechanism;
 - b. II/7 on consideration of Articles 6 and 8;
 - c. II/8 on the preliminary consideration of components of biological diversity

/...

particularly under threat; and

d. II/17 on national reporting by the Parties;

(c) the impact of the activities funded, in light of the guidance of the COP, on the realisation of the Convention's objectives:

(i) the conservation of biological diversity;

(ii) the sustainable use of the components of biological diversity;

(iii) the fair and equitable sharing of benefits; and

(iv) the maintenance of an appropriate balance between these objectives.

(d) any additional criteria that may arise from the decisions of COP-3.

5. Procedures

5. There shall be prepared, in time for the review by the Conference of the Parties at its fourth meeting, relevant background documentation for the review of each of the three-fold objectives, according to the above criteria.

6. The Conference of the Parties shall, if necessary, take appropriate actions to improve the effectiveness of the financial mechanism and/or the effectiveness of this review procedure.

NOTES

¹ The impact that the activities funded have on the realisation of the Convention's objectives is of a long-term nature and thus information on impacts may not be available until further project experience is gained.



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.

GENERAL

UNEP/CBD/COP/3/9
20 September 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY

Third meeting

Buenos Aires, Argentina

4 to 15 November 1996

Item 6.6 of the provisional agenda

**DESIGNATION OF THE INSTITUTIONAL STRUCTURE TO OPERATE THE
FINANCIAL MECHANISM**

Note by the Executive Secretary

1. Article 39 of the Convention states that the Global Environment Facility, provided that it has been fully restructured in accordance with the requirements of Article 21, shall be the institutional structure referred to in Article 21 on an interim basis, for the period between the entry into force of this Convention and the first meeting of the Conference of the Parties or until the Conference of the Parties decides which institutional structure will be designated in accordance with Article 21.
2. Article 21 provides that the operations of the financial mechanism shall be carried out by such institutional structure as may be decided upon by the Conference of the Parties at its first meeting.
3. At its first meeting, the Conference of the Parties in decision I/2, paragraph 2, decided that the restructured Global Environment Facility (GEF) shall continue to serve as the institutional structure to operate the financial mechanism under the Convention on an interim basis, in accordance with Article 39 of the Convention.
4. In decision II/6, paragraph 1, the Conference of the Parties expressed its intention to endeavour to make a decision at its third meeting on which institutional structure is to be designated in accordance with Article 21

/...

of the Convention.

5. In seeking to take a decision on this issue at its third meeting, the Conference of the Parties may wish to consider developments in several related issues before it, including:

(a) progress in the preparation of the draft Memorandum of Understanding between the Conference of the Parties and the Council of the Global Environment Facility (see document UNEP/COP/CBD/3/10);

(b) the Report of the Global Environment Facility (see document UNEP/COP/CBD/3/5);

(c) the Report of the Executive Secretary on financial resources and mechanisms (UNEP/COP/CBD/3/6); and

(d) preparations for the review of the effectiveness of the financial mechanisms (UNEP/COP/CBD/3/8).



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/10
11 October 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Third meeting
Buenos Aires, Argentina
4 to 15 November 1996
Item 6.5 of the provisional agenda

**MEMORANDUM OF UNDERSTANDING BETWEEN THE CONFERENCE OF THE PARTIES TO
THE CONVENTION ON BIOLOGICAL DIVERSITY AND THE COUNCIL OF THE GLOBAL
ENVIRONMENT FACILITY REGARDING THE INSTITUTIONAL STRUCTURE OPERATING
THE FINANCIAL MECHANISM OF THE CONVENTION**

Background

The first meeting of the Conference of the Parties authorised the Secretariat on behalf of the Conference of the Parties, taking into account the views of participants in the first meeting of the Conference of the Parties, to consult with the restructured Global Environment Facility (GEF) on the content of a Memorandum of Understanding between the GEF and the Conference of the Parties

The Secretariat received comments from: Australia; Canada; Denmark; France; Germany; the Group of 77 and China, Japan, Norway, Sweden, Switzerland; the United Kingdom; the United States of America; Greenpeace International; and the World Wide Fund for Nature.

On the basis of these comments the Secretariat developed a draft "Memorandum Of Understanding Between The Conference Of The Parties To The Convention On Biological Diversity and The Council Of The Global Environment Facility Regarding The Institutional Structure Operating The Financial Mechanism Of The Convention" and submitted it to the second meeting of the Conference of the Parties. At this meeting the Conference of the Parties took note of the draft Memorandum of Understanding and in Decision II/6 requested the Secretariat to continue consultations on the draft in order to ensure that additional comments by Parties were reflected, and to submit a revised draft for the Conference of the Parties to consider at its third meeting.

/...

In response to the Conference of the Parties' request to continue consultations on the draft Memorandum of Understanding, the Secretariat requested written submissions from Parties on 8 January 1996. The Secretariat received 18 submissions from: Argentina; Australia; Chad; Colombia; Czech Republic; France; Germany; Greece; Hungary; India; Indonesia; Niger; Norway; Pakistan; Spain; Uganda; United Kingdom; and United States of America.

The Secretariat received further input from Parties at a retreat held in Frankfurt between 2 and 4 July 1996 and at an informal meeting on the Memorandum of Understanding held for developing country parties in Montreal between 31 August and 1 September 1996. Both meetings were chaired by Ambassador Razali Ismail, then permanent representative of Malaysia to the United Nations and now President of the General Assembly. Further comments were also received after the informal meeting in Montreal from several developing country Parties who were unable to attend this meeting.

These comments formed the basis of a revised draft Memorandum of Understanding which was then presented to the GEF Secretariat. This revised draft Memorandum of Understanding was negotiated by the Secretariat of the Convention and the GEF over the course of September, and the final version was submitted to the GEF at the 8th Meeting of the Council of the Global Environment Facility held 8 to 10 October 1996. The Council took note of the revised draft Memorandum of Understanding but felt that it was unable to adopt the Memorandum due to the fact that the members were not able to adequately consult with their constituencies. The text of the revised draft Memorandum Of Understanding Between The Conference Of The Parties To The Convention On Biological Diversity And The Council Of The Global Environment Facility Regarding The Institutional Structure Operating The Financial Mechanism Of The Convention is contained in the Annex to this Note.

The Conference of the Parties should note that paragraph 11 of the revised draft Memorandum of Understanding provides that the revised draft Memorandum of Understanding will come into effect upon approval by the Conference of the Parties and the GEF Council. The Conference of the Parties may wish to approve the Memorandum of Understanding and forward it to the GEF Council for its approval.

Annex

Preamble

The Conference of the Parties to the Convention on Biological Diversity (hereinafter the Conference of the Parties) and the Council of the Global Environment Facility (hereinafter the Council),

Recognising the characteristics of the financial mechanism for the provision of financial resources for the purposes of the Convention on Biological Diversity (hereinafter the Convention) outlined in article 21, paragraph 1, of the Convention, and the provisions of article 21, paragraph 2, of the Convention, which call upon the COP to decide on the arrangements to give effect to article 21, paragraph 1, after consultation with the institutional structure entrusted with the operation of the financial mechanism,

Recognising further the willingness of the Global Environment Facility (hereinafter the GEF) to serve for the purposes of the financial mechanism for the implementation of the Convention,-

Recognising that the GEF, as decided by the Conference of the Parties, will operate the financial mechanism of the Convention

Having consulted with each other and taking into account the relevant aspects of their governance structures as reflected in their constituent instruments,

The Conference of the Parties and the Council have reached the following understanding.

1. Purpose

The purpose of the present Memorandum of Understanding is to make provision for the relationship between the Conference of the Parties and the Council in order to give effect to the provisions of article 21, paragraph 1, of the Convention and paragraph 26 of the GEF Instrument.

2. The Institutional Structure

The GEF will operate the financial mechanism referred to in Article 21 of the Convention until 1999, at which time the Conference of the Parties will review the effectiveness of the mechanism and take appropriate action as provided for in paragraph 3 of Article 21.

3. Guidance from the COP

3.1 In accordance with Article 21(1) of the Convention, the Conference of the Parties will determine the policy, strategy, programme priorities and eligibility criteria for access to and utilisation of financial resources available through the financial mechanism including monitoring and evaluation on a regular basis of such utilisation. The GEF, in operating the financial mechanism under the Convention, will only finance activities that are in full conformity with the guidance provided to it by the Conference of the Parties. For this purpose, the Conference of the Parties will communicate its guidance, and any revisions to such guidance as it may adopt, on the following matters:

/...

- (a) Policy and strategy;
- (b) Programme priorities;
- (c) Eligibility criteria;
- (d) An indicative list of incremental costs;
- (e) A list of developed country Parties and other Parties which voluntarily assume the obligations of developed country Parties;
- (f) Any other matter relating to Article 21, including periodic determination of the amount of resources needed.

3.2 The Council agrees to communicate to the Conference of the Parties all relevant information, including information on the projects in the area of biological diversity funded by the GEF outside of the framework of the financial mechanism of the Convention.

4. Reporting

4.1 The Council will prepare and submit a report for each ordinary meeting of the Conference of the Parties.

4.2 The reports will include specific information on how the GEF Council, its Secretariat and its Implementing and Executing Agencies have applied the guidance and implemented the Policy, strategies, programme priorities and eligibility criteria determined by the Conference of the Parties, as well as any other decision of the Conference of the Parties communicated to the GEF, in the operation of the GEF for the purposes of the Convention. The Council should also report on its monitoring and evaluation activities concerning projects in the biodiversity focal areas.

4.3. In particular, the reports will provide detailed information on the GEF's biodiversity focal area, including:

- (a) Information on how the GEF has responded to the guidance of the Conference of the Parties, including, where appropriate, through its incorporation in the GEF operational strategy and operational programs.
- (b) The conformity of the approved work programmes with guidance of the Conference of the Parties;
- (c) A synthesis of the different projects under implementation and a listing of the projects approved by the Council in the biodiversity focal area as well as a financial report with an indication of the financial resources required for those projects;
- (d) A list of project proposals submitted for approval to the Council, through the GEF Implementing Agencies, by eligible Parties, including reporting on their approval status and in cases of projects not approved the reasons thereof;

- (e) A review of the project activities approved by the GEF and their outcomes, including information on funding and progress in implementation.
- (f) GEF efforts to leverage additional financial resources for the implementation of the Convention.

4.4 In order to meet the requirements of accountability to the Conference of the Parties, reports submitted by the Council will cover all GEF-financed activities carried out for the purpose of the Convention, whether decisions on such activities are made by the Council or by the GEF's Implementing and/or Executing Agencies. To this end, the Council will make arrangements as might be necessary with the Implementing Agencies regarding disclosure of information.

4.5 The Council will also provide information on other matters concerning the discharge of its functions under article 21, paragraph 1, as may be requested by the Conference of the Parties. If the Council has difficulties in responding to any such request, it will explain its concerns to the Conference of the Parties and the Conference of the Parties and the Council will find a mutually agreed solution.

5. Monitoring and evaluation

5.1 The Conference of the Parties may raise with the Council any matter arising from the reports received.

5.2 The funding decisions for specific projects should be agreed between the developing country Party concerned and the GEF in accordance with policy, strategy, programme priorities and eligibility criteria established by the Conference of the Parties. The GEF Council is responsible for approving the GEF work programmes. If any Party considers that a decision of the Council regarding a specific project in a proposed work programme does not comply with the policies, programme priorities and eligibility criteria established by the Conference of the Parties in the context of the Convention, the Conference of the Parties should analyse the observations presented to it by the Party and take decisions on the basis of compliance with such policy, strategy, programme priorities and eligibility criteria. In the event that the Conference of the Parties considers that this specific project decision does not comply with the policy, strategy, programme priorities and eligibility criteria established by the Conference of the Parties, it may ask the GEF Council for further clarification on the specific project decision and in due time may ask for a reconsideration of that decision.

5.3 As provided for in article 21, paragraph 3, of the Convention, the Conference of the Parties will periodically review the effectiveness of the financial mechanism in implementing the Convention and communicate to the Council relevant decisions taken by the Conference of the Parties as the result of such review to improve the effectiveness of the financial mechanism in assisting developing country Parties to implement the Convention.

6. Joint Determination of the Available GEF Funding

- 6.1 In anticipation of the replenishment of the GEF, the COP will make an assessment of the amount of funds that are necessary to assist developing countries, in accordance with the guidance provided by the COP, in fulfilling their commitments under the Convention over the next GEF replenishment cycle, taking into account:
- (a) Article 20, paragraph 2, and Article 21, paragraph 1, of the Convention;
 - (b) Guidance to the financial mechanism from the COP which call for future financial resources;
 - (c) The information communicated to the COP in the national reports submitted in accordance with Article 26 of the Convention; and
 - (d) National strategies, plans or programs developed in accordance with article 6 of the Convention;
 - (e) Information communicated to the COP from the GEF on the number of eligible programmes and projects that were submitted to the GEF, the number that were approved for funding, and the number that were turned down owing to lack of resources.
- 6.2 On the occasion of each replenishment, the GEF will, in its regular report to the COP as provided for in paragraph 4 of this MOU, indicate how it has responded during the replenishment cycle to the COP's previous assessment prepared in accordance with paragraph 6.1, inform the COP of the conclusion of replenishment negotiations and indicate the amount of new and additional funding to be contributed to the GEF Trust Fund in the next replenishment cycle for the purposes of the GEF, including the implementation of the Convention.
- 6.3 The COP will review the amount of funding necessary and available for the implementation of the Convention on the occasion of each replenishment of the financial mechanism.

7. Reciprocal representation

On a reciprocal basis, representatives of the GEF will be invited to attend meetings of the Conference of the Parties and representatives of the Convention will be invited to attend meetings of the GEF.

8. Inter-secretariat Co-operation

The Secretariat of the Convention and the Secretariat of the GEF will communicate and co-operate with each other and consult on a regular basis to facilitate the effectiveness of the financial mechanism in assisting developing country Parties to implement the Convention. In particular, the two Secretariats will consult on the project proposals under consideration for inclusion in a proposed work program, especially with regard to the consistency of the project proposals with the guidance of the COP. Official documentation of the GEF will be

made available to the CBD Secretariat.

9. Amendments

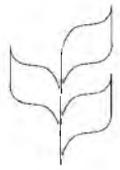
Any amendments to the present Memorandum of Understanding will be mutually agreed upon by the Conference of the Parties and the Council.

10. Interpretation

If differences arise in the interpretation of the present Memorandum of Understanding, the Conference of the Parties and the Council will reach a mutually agreed solution.

11. Entry into effect

The present Memorandum of Understanding will come into effect upon approval by the Conference of the Parties and by the Council. Either participant may withdraw this Memorandum of Understanding at any time by notification addressed to the other. The withdrawal will take effect six months after its notification.



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.

GENERAL
UNEP/CBD/COP/3/11
18 September 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Third meeting
Buenos Aires, Argentina
4 to 15 November 1996
Item 7.1 of the provisional agenda

THE CONSIDERATION OF ARTICLES 6 AND 8 OF THE CONVENTION

Note by the Executive Secretary

1. INTRODUCTION

1. In decision II/7, the COP requested the Executive Secretary to make available through the clearing-house mechanism information on Articles 6 (General Measures for Conservation and Sustainable Use) and 8 (*In-situ* Conservation) and lessons drawn from national experience, and also to make available relevant information on the implementation of Articles 6 and 8 contained in national reports submitted by the Parties in accordance with Article 26 of the Convention and decision II/17 of the COP. It further requested the Executive Secretary (paragraph 4):

“(a) To compile and disseminate that information as widely as possible, including experience of relevant conventions, United Nations bodies and intergovernmental and nongovernmental organizations in dealing with the provisions of Articles 6 and 8; and

(b) To prepare, on the basis of available information, suggestions on how the collection and sharing of relevant information and experience might be enhanced”.

2. It also requested the interim financial mechanism under the Convention to facilitate the urgent implementation of Articles 6 and 8 of the Convention by developing country Parties by making available financial resources for projects in a flexible and expeditious manner.

3. Finally, it requested the Executive Secretary to present a report on the implementation of this decision for consideration at its third meeting.

4. This Note responds to that request. Item 5 of the provisional agenda for this meeting, on the assessment and review of the operation of the clearing-house mechanism, and item 6 on financial resources and mechanism, particularly 6.1 (report on the activities of the Global Environment Facility as the interim institutional structure), are also directly relevant. The COP may therefore wish to refer to document UNEP/CBD/COP/3/4, which contains a progress report by the Executive Secretary on the implementation of the pilot phase of the clearing-house mechanism, and document UNEP/CBD/COP/3/5, which contains the report of the Global Environment Facility. Several other items on the provisional agenda of this meeting, including 11.1 (implementation of Article 8(j)), 17 (issues related to biosafety) and 18 (relationship of the Convention with the Commission on Sustainable Development and biodiversity-related conventions and processes), are also relevant to this agenda item.

5. The COP decided (decision II/17, paragraph 4) that the first national reports will be due at the fourth meeting of the COP. Therefore, the Parties have yet to submit their first national reports. Accordingly, the Executive Secretary, in preparing the present Note, has not been in a position to draw on the information contained in national reports regarding the implementation of Articles 6 and 8.

6. At its second meeting, the COP had before it document UNEP/CBD/COP/2/12, entitled "Approaches and experiences related to the implementation of Articles 6 and 8 of the Convention on Biological Diversity". This document drew extensively on the experiences of governments in the kinds of actions and approaches undertaken to meet the provisions of Articles 6 and 8 of the Convention. It also discussed the experiences of relevant conventions, United Nations bodies and intergovernmental and non-governmental organisations in dealing with these Articles. In response to decision II/7, the Executive Secretary has posted this paper on the Internet in an attempt to ensure the widest possible dissemination for it. To avoid duplication, the substantive discussion contained in the previous document on shared experience in the implementation of Articles 6 and 8 is not repeated here.

7. The present document focuses on the response of the financial mechanism to decision II/7 and on the developments of some specific aspects of Articles 6 and 8 in which the Executive Secretary has been involved, particularly with reference to the dissemination of information. In view of the fact that the clearing-house mechanism is still in a pilot phase, the Executive Secretary has endeavoured to find other channels for disseminating this information. It should be remembered that in addition to the activities in which the Executive Secretary has been involved, much additional activity has been carried out in the past year by individual Parties and by a wide range of national, regional and international organisations and bodies, which is of direct relevance to the implementation of Articles 6 and 8. It is expected that much of this will be reported in the first national reports, to be reviewed at the next meeting of the COP.

2. THE IMPLEMENTATION OF ARTICLE 6

8. Paragraph 6 of decision II/7 addressed this issue directly by requesting the interim financial mechanism under the Convention to facilitate the urgent implementation of Articles 6 and 8. The Global Environment Facility (GEF), which serves as the interim financial mechanism for the Convention, has submitted a report to the present meeting (document UNEP/CBD/COP/3/5) that sets out its response to guidance from the COP, including that contained in decision II/7.

9. That document reports on the steps that have been taken, chiefly with respect to enabling activities. These are activities that will assist recipient countries to develop national strategies, plans or programs referred to in Article 6 of the Convention on Biological Diversity, and to identify components of biodiversity together with processes and activities likely to have significant adverse impacts on conservation and sustainable use of biodiversity pursuant to Article 7 of the Convention on Biological Diversity" (*GEF Operational Strategy*, p 21).

10. These steps include: the preparation of operational criteria for enabling activities in the area of biological diversity; approval of an expedited process for approving enabling activities project proposals consistent with the operational criteria; approval of an initial allocation of US\$ 30 million for enabling activities in support of biodiversity and climate-change conventions; the informing of eligible countries by the GEF and secretariats of the conventions (the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change) that financial resources are available to assist the implementation of enabling activities.

11. During the period from 1 July 1995 to 30 June 1996, fifteen project proposals for enabling activities were approved, fourteen of them under expedited procedures. In addition, ten proposals for project-preparation financing were approved. To date, the GEF has provided enabling assistance to forty-one countries, with project-preparation financing approved for a further five. Recognising the urgency of activities for enabling developing-country Parties to implement the Convention, the Implementing Agencies expect to submit an additional forty enabling-activity project proposals during the period from 1 July 1996 to 30 June 1997.

12. In addition, document UNEP/CBD/COP/3/24, concerning Article 11 of the Convention (incentive measures) and prepared by the Executive Secretary to assist the COP in its consideration of item 15.1 of the provisional agenda, discusses ways and means of incorporating the conservation and sustainable use of biological diversity into sectoral plans and programmes at the national level, as required by Article 6(b), chiefly by addressing the elimination of perverse incentives and the propagation of positive incentives. Document UNEP/CBD/COP/3/14 on agricultural biological diversity, an earlier version of which was considered at the second meeting of the SBSTTA (as document UNEP/CBD/SBSTTA/2/10), specifically addresses the implementation of Article 6(b) in one major sector, that of agriculture.

3. THE IMPLEMENTATION OF ARTICLE 8

3.1 Articles 8(a) and 8(b): The Design and Management of Protected-area Systems

13. Experience in the design, establishment and management of protected-areas systems was discussed at some length in UNEP/CBD/COP/2/12. In addition, the Jakarta Mandate on Marine and Coastal Biological Diversity includes marine and coastal protected areas as one of its five major thematic areas, as discussed in document UNEP/CBD/SBSTTA/2/14.

14. The Memorandum of Cooperation established between the Convention and the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) calls for the regular exchange and dissemination of information in their respective fields of action. In the case of the Ramsar Convention this includes the designation and management of wetland protected areas in countries that are Contracting Parties to that Convention. The report by the Bureau of the Ramsar Convention, which forms the annex to document UNEP/CBD/COP/3/30, describes the Ramsar Convention's involvement in protected-area design and management in some detail. The Memorandum of Cooperation currently being developed with the UNESCO World Heritage Convention (in full) will similarly allow for the enhanced sharing of experience in the design and implementation of an internationally coordinated protected-areas system.

3.2 Article 8(c): The Management of Biological Resources

15. Document UNEP/CBD/COP/3/16 on biological diversity in forests was prepared by the Executive Secretary in response to decision II/9 for the consideration of the present meeting under item 10.2. of the provisional agenda. An earlier version of this paper, which discusses issues relevant to several parts of Article 8, including paragraphs (c), (d), (i) and (l), was considered by the second meeting of the SBSTT (as document UNEP/CBD/SBSTTA/2/11). In addition, the Memorandum of Cooperation signed in March 1996 by the Secretariats of the Convention and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) includes articles concerned with the exchange of information and experience as well as joint conservation actions and has thereby initiated the process of enhancing information sharing in the implementation of important aspects of Article 8(c) concerned with international trade. Management to ensure the sustainable use of coastal and marine living resources is one of the major themes identified under the Jakarta Mandate, and the sustainable use of inland aquatic resources will be a key area in forthcoming considerations of the biological diversity of inland water ecosystems, to be addressed at the fourth meeting of the COP.

3.3 Article 8(d): The Protection of Ecosystems, Habitats and Species in Natural Surroundings

16. Many of the background documents prepared by the Executive Secretary in the past year, and many of the activities in which the Executive Secretary has been involved, have a direct bearing on Article 8(d). These include the papers on biological diversity in forests referred to under Article 8(c) above, as well as those on the assessment of biological diversity and the use of indicators of biological diversity (documents UNEP/CBD/SBSTTA/2/2, UNEP/CBD/SBSTTA/2/4 and UNEP/CBD/COP/3/13 and annexes). Work undertaken within the remit of the Jakarta Mandate addresses this issue, as will

forthcoming work on biological diversity of inland water ecosystems.

3.4 Article 8(e): Sustainable Development in Areas Adjacent to Protected Areas

17. The Jakarta Mandate for Marine and Coastal Biological Diversity specifically encourages the use of integrated marine and coastal-area management as the most suitable framework for addressing human impacts on marine and coastal biological diversity and for promoting the conservation and sustainable use of this biodiversity (decision II/10, paragraph 2).

3.5 Article 8(f): Restoration Ecology and Species Recovery Plans

18. These issues have been addressed in document UNEP/CBD/COP/2/12. Mechanisms for monitoring and assessing the effectiveness of actions taken in these fields are discussed in UNEP/CBD/COP/3/13 and annexes.

3.6 Article 8(g): Biosafety

19. In 1996, UNEP published the *International Technical Guidelines for Safety in Biotechnology*, which address Article 8 (g). The guidelines were adopted by the Global Consultation of Government-designated Experts, hosted by the government of Egypt in Cairo from 11 to 14 December 1995. The guidelines were the product of a consensus-building process involving a wide spectrum of stakeholders, including the public and private sectors (including the biotechnology industry), the Secretariat of the Convention, relevant United Nations bodies, intergovernmental and non-governmental organisations, and others.

20. The COP, in its decision II/5, noted that the guidelines (at that time not finalised) could contribute to the development and implementation of a protocol on biosafety. The guidelines could also serve both as an interim mechanism during the development of the protocol and as a complement to it after its completion.

21. These guidelines have now been widely disseminated, having been distributed at the first meeting of the Open-ended Ad Hoc Working Group on Biosafety, instigated by the COP in its decision II/5 and hosted by the government of Denmark in Aarhus, Denmark, from 22 to 26 July 1996. In addition, these guidelines were distributed as document UNEP/CBD/SBSTTA/2/Inf.16 at the second meeting of the SBSTTA, and are included as a document for consideration by the present meeting (UNEP/CBD/COP/3/27). The consideration of a summary report of the Open-ended Ad Hoc Working Group on biosafety (document UNEP/CBD/COP/3/26) is included as item 17.1 of the provisional agenda for this meeting.

3.7 Article 8(h): Alien Species

22. In July 1996, the Norway/United Nations (UN) Conference on Alien Species was hosted in Trondheim, Norway, by the Norwegian Ministry of the Environment in collaboration with the Secretariat of the Convention, UNEP, UNESCO, IUCN - the World Conservation Union, and the Scientific Committee on Problems of the Environment (SCOPE) of the International Council of Scientific Unions (ICSU). This conference addressed itself directly to Article 8(h) of the Convention and was intended as a contribution to and a concrete step in facilitating the implementation of the Convention. Participants from over sixty countries discussed and shared experiences related to the control of invasive alien species. The proceedings of the conference and the Chairman's Report are expected to be available at the present meeting and represent an important contribution to the dissemination of information regarding the implementation of Article 8(h). In addition, the consideration of alien species is one of the five main themes of the Jakarta Mandate on Marine and Coastal Biological Diversity, discussed under Articles 8(a) and 8(b) above.

3.8 Article 8(i): The Compatibility of Present Use, Conservation, and Sustainable Use

23. As well as presenting case studies, in document UNEP/CBD/COP/3/24, on the implementation of Article 11, which has direct bearing on Article 8(i), the Secretariat has also addressed this issue in its papers on the economic valuation of biological diversity (UNEP/CBD/SBSTTA/2/13) and biological diversity in agricultural ecosystems (UNEP/CBD/SBSTTA/2/10), which were considered at the second meeting of the SBSTTA; a modified version of the latter document is contained in UNEP/CBD/COP/3/14 to assist the consideration of item 9 of the provisional agenda for this meeting.

3.9 Article 8(j): The Knowledge, Innovations and Practices of Indigenous and Local Communities

24. The COP has included the consideration of the implementation of Article 8(j) of the Convention as a separate item (11.1) on its provisional agenda. As noted under that agenda item, the Executive Secretary has prepared two substantive documents concerning Article 8(j). These are: document UNEP/CBD/SBSTTA/2/7, entitled "Knowledge, innovations and practices of indigenous and local communities", prepared by the Executive Secretary to assist the second meeting of the SBSTTA in its deliberations on this issue; and document UNEP/CBD/SBSTTA/2/Inf.3, entitled "Traditional Forest-related Knowledge and the Convention on Biological Diversity", which was the contribution of the Executive Secretary to the preparation of the Report of the Secretary-General on traditional forest-related knowledge presented at the third session of the Intergovernmental Panel on Forests.

25. Both these documents draw extensively on the experience of non-governmental and intergovernmental organisations, United Nations bodies, relevant conventions and treaties, and national experience in dealing with issues related to the implementation of Article 8(j). The latter paper includes, as Annex 3 ("Network Access Points"), contact details for groups concerned with indigenous knowledge and related issues. Both papers have been widely disseminated. A modified version of the former

(document UNEP/CBD/COP/3/19) will be before the meeting to assist discussion on the implementation of Article 8(j) under item 11.1 of the provisional agenda.

3.10 Article 8(k): Threatened-species Legislatio

26. As noted above, the Memorandum of Cooperation between the Convention and CITES has initiated the process of sharing of information and experiences concerned with the implementation of legal controls on the international trade in threatened species. Similarly, the Memorandum of Cooperation between the Convention and the Convention on the Conservation of Migratory Species of Wild Animals (the Bonn Convention) should enable information on the legal protection of migratory species, included in Appendix I of the Bonn Convention, to be more widely disseminated.

3.11 Article 8(l): The Regulation of Adverse Processes Identified Pursuant to Article 7

27. The implementation of Article 8(l) is dependent on the successful implementation of Article 7 in that processes and categories of activities that have or may have adverse impacts on biological diversity must be identified before they can be regulated and managed. At its second meeting, the SBSTT addressed the issue of identifying these processes. To assist it in its deliberations, the Executive Secretary prepared a background document (UNEP/CBD/SBSTTA/2/3). This document forms the basis of document UNEP/CBD/COP/3/12, which has been prepared to assist the COP in its discussion of item 8.1 of the provisional agenda (options for implementing Article 7 of the Convention). The Executive Secretary also prepared the document "Indicators for assessing the effectiveness of measures taken under the Convention" for the second meeting of the SBSTTA (UNEP/CBD/SBSTTA/2/4). This document draws on a wide range of experience in discussing the use, to date, of indicators of biological diversity, particularly those related to pressures on biological diversity and those related to responses to those pressures. To ensure the wide dissemination of this information, the document has been included as an Annex to UNEP/CBD/COP/2/13.

28. In addition, document UNEP/CBD/COP/3/24, already referred to in paragraph 12 above, discusses experiences in the elimination, or mitigation, of the effects of perverse incentives (i.e., those incentives that lead to processes and activities that have adverse effects on biological diversity). It draws together a number of examples and describes some cases in detail.

3.12 Article 8(m): Financial and Other Support for *In-situ* Conservatio

29. Paragraph 6 of decision II/7 addressed this issue directly by requesting the interim financial mechanism under the Convention to facilitate the urgent implementation of Articles 6 and 8. The report of the GEF notes that, to date, the GEF has approved fifty-five project proposals addressing *in-situ* conservation in pursuance of Article 8. During the period from 1 July 1995 to 30 June 1996, the GEF approved three project proposals and twenty-four proposals for project-preparation financing that contained elements addressing *in-situ* conservation. The three approved projects were for the Biodiversity Enterprise Fund in Latin America, Comoros Island Biodiversity, and Viet Nam Protected Areas. Further details are provided in document UNEP/CBD/COP/3/5.

4. RECOMMENDATIONS FOR ENHANCING THE COLLECTION AND SHARING OF EXPERIENCE AND INFORMATION

30. As envisaged under the Convention, the clearing-house mechanism, when operational, will play the central role in the dissemination of information relevant to the implementation of the Convention. In view of the facts that many parts of the world have, as yet, only partial access to the Internet and that much valuable information already exists in published form and not necessary in electronic versions, the COP may wish to stress that the clearing-house mechanism should not be viewed merely as an electronic system. The proposed development of the Global Biodiversity Outlook as a publication emphasises a commitment to the production and dissemination of information in non-electronic forms.

31. As is evident from the discussion above, many of the documents prepared, and many of the activities undertaken, by the Executive Secretary have a direct bearing on part or all of the provisions of Articles 6 and 8. In addition, many of the activities undertaken worldwide which help to meet the aims of the Convention do so by addressing these Articles without necessarily directly involving the machinery of the Convention. In light of this, the COP may wish to emphasise that the compilation and dissemination under the Convention of information relevant to the implementation of these Articles (or indeed of any other Articles) should complement and enhance existing efforts, rather than duplicate them.

32. To this end, the COP may wish to consider recommending that ways be sought to involve in a more systematic fashion organisations concerned with collecting and disseminating information on the implementation of Articles 6 and 8, such as the World Conservation Monitoring Centre (WCMC), which manages, *inter alia*, the CITES database on international trade in species listed in the CITES appendices, the database used to produce the UN list of national parks and other protected areas, and the database used to produce the IUCN Red Lists of threatened plant and animal species.

33. The COP may also wish to request an analysis of the proposed Biological Conservation Information System (BCIS), currently being developed by BirdLife International, Botanic Gardens Conservation International (BCGI), IUCN TRAFFIC, WCMC and Wetlands International, to determine whether this might contribute usefully to the dissemination of information on the implementation of Articles 6 and 8.

34. The COP may wish to consider recommending that any newsletter produced regularly by the Secretariat contain a section with reviews or listings of recent publications relevant to the implementation of the Convention.

35. The COP may also wish to consider requesting the Executive Secretary to produce a listing, with contact details, of organisations that regularly produce publications of relevance to the Convention. Such organisations would include IIED, IUCN, TRAFFIC, WWF, WCMC, WRI, CI, FAO, UNESCO, UNEP, The World Bank, and others. Such a listing should be made available both on the Internet and as a separate publication. It would have to be made clear that the list is for information purposes only and implied no sanction or approval by the Convention for publications produced by these organisations. Alternatively, the COP may wish to consider whether the publication, *A Sourcebook for Conservation and Biological Diversity Information* (IUCN in collaboration with UNEP INFOTERRA, 1995), adequately meets this

requirement and should be recommended for use in this regard.

36. The COP may wish to encourage the Secretariat to prepare for publication and wider dissemination the background documents prepared for meetings of the SBSTTA and/or the COP that contain substantive discussion of issues relevant to the implementation of Articles 6 and 8.

37. In view of the extremely wide range of provisions in these Articles, particularly in Article 8, the COP may wish to consider recommending the further development of a thematic approach in the compilation and dissemination of information concerning their implementation. It may wish to do this, for example, by encouraging the SBSTTA to consider adopting one of the subject areas dealt with in Article 8 as the theme of one of its future meetings. One area of major importance in the conservation and sustainable use of biological diversity, and which has hitherto been somewhat neglected, is that of alien species, addressed by Article 8(h). The choice of this as a theme for early consideration would enable the valuable work of the Norway/UN Conference on Alien Species, discussed under Article 8(h), to be carried forward in a timely fashion and would also allow opportunities for the collaboration with organisations and processes that are involved in work in this field, such as the Scientific Committee on Problems of the Environment (SCOPE), which has proposed a global strategy for invasive species, and the IUCN Invasive Species Specialist Group.

38. Further appropriate themes might be:

- (a) the design and management of protected areas;
- (b) restoration ecology and species recovery plans;
- (c) the sustainable use of wild resources;
- (d) threatened-species legislation; and
- (e) the assessment and mitigation of threats.



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/12
15 September 1996
ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY

Third meeting

Buenos Aires, Argentina

4 to 15 November 1996

Item 8.1 of the provisional agenda

OPTIONS FOR IMPLEMENTING ARTICLE 7 OF THE CONVENTION

Note by the Executive Secretary

1. INTRODUCTION

1. Under decision II/18, the COP included in its medium-term programme of work for 1996-1997 an item on the "identification, monitoring and assessment" of biological diversity, which it may consider at its third meeting. One of the issues that it may consider under this heading is "Options for implementing Article 7 [of the Convention]".

2. Article 7 provides that Parties "shall, as far as possible and as appropriate, in particular for the purposes of Articles 8 to 10:

- (a) Identify components of biological diversity important for its conservation and sustainable use having regard to the indicative list of categories set down in Annex I;
- (b) Monitor, through sampling and other techniques, the components of biological diversity identified pursuant to subparagraph (a) above, paying particular attention to those requiring urgent conservation measures and those which offer the greatest potential for sustainable use;
- (c) Identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity, and monitor their effects through sampling and other techniques; and
- (d) Maintain and organise, by any mechanism, data derived from identification and monitoring activities pursuant to subparagraphs (a), (b) and (c) above".

3. Implementation of Article 7 is self-evidently central to ensuring that the objectives of the Convention are met. Only by monitoring biological diversity and assessing human impacts on it can it be determined whether biological diversity is being conserved and its components sustainably used.

4. To assist the COP in its consideration of this item, the Executive Secretary has prepared this Note which draws on document UNEP/CBD/SBSTTA/2/3 entitled "Identification, monitoring and assessments of components of biological diversity and processes which have adverse impacts" prepared by the Executive Secretary to assist the second meeting of the SBSTTA in its consideration of the agenda item "Alternative ways and means in which the Conference of the Parties could start the process of identification, monitoring and assessment of components of biological diversity, as well as processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity in accordance with Article 7".

5. The SBSTTA considered in its recommendation II/1 that the document UNEP/CBD/SBSTTA/2/3 contained useful approaches to the subject and also made some specific observations on the contents of the document. This present Note has incorporated these observations and addresses itself directly to the needs of the Conference of the Parties. In considering this issue, the COP may wish to be mindful of the report of the second meeting of the SBSTTA (document UNEP/CBD/COP/3/3) which contains in its recommendation II/1 general advice, priority tasks and proposed specific recommendations concerning indicators, monitoring and assessment of biological diversity.

6. In its recommendation, the SBSTTA advised II/1 that issues of indicators, monitoring and assessment of biological diversity are inextricably interlinked. In considering this item on the provisional agenda, the COP may therefore wish also to be mindful of document UNEP/CBD/COP/3/13, prepared by the Executive Secretary to assist the COP in its consideration of the next item on the provisional agenda, concerning the SBSTTA's review of assessments of biological diversity and methodologies for future assessments.

2. IDENTIFYING THE COMPONENTS OF BIOLOGICAL DIVERSITY

7. With a limited knowledge and understanding of biological diversity and with limited resources, it is clearly not possible to identify, monitor and assess the whole of biological diversity. It is of paramount importance, therefore, that identification, monitoring and assessment be carried out in as efficient and strategic or action-oriented a manner as possible.

8. To be strategic, it is vital that priorities for identification, monitoring and assessment be set. Such priorities should consider the importance of the particular components of biological diversity and the processes and activities affecting them, but may also need to take into account the possibilities or otherwise of implementing actions based on the knowledge gleaned. In the context of the Convention, Article 7 provides the framework within which these priorities are to be identified. Article 7 stresses that identification and monitoring of biological diversity are essentially country-led exercises so that the priorities set will be determined by individual Parties. Nevertheless, some overall guidance is likely to be of value in assisting Parties to carry out this task.

9. The Convention implicitly acknowledges the need to set priorities in that Article 7(b) specifies that particular attention should be paid to components of biological diversity in need of urgent conservation action or that offer high potential for sustainable use. Annex I to the Convention gives more detailed indicative guidelines for the components of biological diversity that should be considered, as follows:

- (a) Ecosystems and habitats: containing either high diversity, large numbers of endemic or threatened species, or wilderness; required by migratory species; of social, economic, cultural or scientific importance; or, which are representative, unique or associated with key evolutionary or other biological processes;
- (b) Species and communities that are: threatened; wild relatives of domesticated or cultivated species; of medicinal, agricultural or other economic value; of social, scientific or cultural importance; or of importance for research into the conservation and sustainable use of biological diversity, such as indicator species; and
- (c) Described genomes and genes of social, scientific or economic importance.

10. An important and immediate way in which the COP could start the process of identifying, monitoring and assessing the components of biological diversity in accordance with Article 7 is to consider developing the guidance provided by Annex I so that it might further assist the Parties in developing their own priorities. Although the responsibility for the setting of such priorities rests, of course, with the individual Parties themselves, certain principles and practices have very widespread applicability and are therefore likely to be of wide relevance to the COP.

11. In its recommendation, the SBSTTA II/1 recognised elaboration and further interpretation of the terms in Annex I of the Convention to be an important task in assisting Parties to meet the requirements of Article 7 of the Convention.

2.1 Elaboration of Annex I

2.1.1 Ecosystems or habitats containing high diversity

12. High diversity in this context presumably principally means high species diversity. For most terrestrial ecosystems, such areas can be identified, at least at a coarse scale, using existing knowledge of patterns of diversity (e.g., in general, warmer areas support more species than colder ones, wetter areas more than drier ones; less seasonal areas more than very seasonal ones; and areas with varied topography support more species than uniform ones). A more detailed picture can emerge using the various inventory techniques discussed in the Note to the following item of the provisional agenda (document UNEP/CBD/COP/3/13), including surveys of indicator groups, although these should be interpreted with caution, as diversity in different taxa is not necessarily highly correlated at fine geographical scales. Identifying high-diversity areas does not necessarily require the identification of all component species. The COP may wish to consider developing an indicative overview of high-diversity ecosystems and habitats (e.g., lowland tropical moist forest, coral reefs, Mediterranean climate heathland). The COP may also wish to note that the "high diversity" may be interpreted globally, regionally or nationally. In global terms, some high-latitude or very arid countries may have no high-diversity ecosystems. However, within each country some ecosystems will be much more diverse than others.

2.1.2 Ecosystems or habitats containing large numbers of endemic or threatened species

13. Identifying such areas requires rather more knowledge of the component species than the above. Identification of endemic species requires that the complete distribution of the species in question be known; the identification of threatened species requires that the status of that species has been assessed. The COP may wish to take note of existing assessments of threatened and endemic species, which may assist in the identification of such areas. The term "large numbers" is not defined within Annex I and is open to a range of interpretations, dependent in large measure on the group or groups of organisms being considered. Thus, BirdLife International has carried out a global analysis of Endemic Bird Areas (EBAs) in which an EBA was defined as an area with at least two restricted-range bird species present, while IUCN classified a Centre of Plant Diversity (CPD) as any area with at least 100 endemic plant species. The COP may wish to request further clarification on realistic interpretations of the term "large numbers" in different contexts.

2.1.3 Ecosystems or habitats containing wilderness

14. The concept of wilderness is that of an extensive area where human impact is minimal or non-existent. The concept is problematic in that there are now probably no significant areas on Earth without human impact, at the very least from air- or water-borne pollutants and greenhouse gases. The definition may therefore be modified to that of an extensive area without visible signs of human impact (roads, dwellings, agricultural land). Wilderness is often equated with naturalness, but again this may often not be the case. Many terrestrial areas that are now largely or entirely uninhabited may have been extensively modified by humankind in the past so that the existing landscape is, at least to some extent, anthropogenic. The COP may like to consider whether it would be desirable to develop a more specific

definition of wilderness that takes these factors into account. It may also like to consider whether it is relevant to regard deep-sea regions as wilderness in this context.

2.14 Ecosystems required by migratory species

15. The COP may wish to adopt the definition of migratory species used by the Convention on Migratory Species (the Bonn Convention or CMS). It may also wish to consider using the appendices to the CMS as the most suitable available starting point for lists of migratory species. Most non-aquatic migratory species are birds, a large proportion of which use wetlands at one or more stages of their migratory cycle. A notable proportion of wetlands of international importance has been identified under the Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (the Ramsar Convention), although many others remain to be identified, most obviously those in states not Party to the Ramsar Convention. The COP may wish to consider using Ramsar sites as a starting point for identifying ecosystems required by migratory species. This would be particularly pertinent in light of the existing Memoranda of Cooperation that exist between the Convention on Biological Diversity and both the CMS and Ramsar Conventions (see documents UNEP/CBD/COP/3/28 and UNEP/CBD/COP/3/29).

2.1.5 Ecosystems and habitats of social, economic, cultural or scientific importance

16. Ecosystems of economic importance may be defined as those that provide goods and services of economic value to humankind. These may be ecosystems of which components are directly exploited through fisheries or other forms of consumptive harvest, that is, which have direct use value, or they may provide services or indirect values (e.g., watershed protection, carbon sequestration). The former are generally easier to quantify and characterise than the latter. The COP may wish to consider identifying the former in some detail, concentrating in particular on ecosystems and habitats that are of importance for fisheries, timber, non-fisheries wild foods, and medicines. The COP may also wish to consider initiating a review of methodologies for the assessment of indirect values or ecosystem services. To date, there has been relatively little success in this field.

17. Many ecosystems and habitats of social and cultural importance are likely also to be of economic importance in the sense outlined above. Others, however, will not. Of particular note are areas of religious or sacred significance (e.g., Kaya forests in East Africa, Tapu forests in Polynesia). Some of these are not only of great cultural importance, but they are often also important for the maintenance of threatened and endemic species. The COP might like to consider initiating a global review of these and assessing their current state of protection. Elsewhere, ecosystems and habitats may be of considerable recreational importance, which may also be considered a form of economic importance. These are often parks or other protected areas. Conflicts may arise in these cases between management priorities for recreation and those for the conservation and maintenance of biological diversity. The COP might like to suggest that existing literature on this be reviewed, with a view to developing guidelines for the resolution of such conflicts. Resolution might involve harnessing some of the value associated with recreational use for the purposes of maintaining biological diversity. Such a review, if widely circulated, would contribute greatly to the sharing of experience among Parties, playing an important role in implementing Articles 6 and 8, as discussed under item 7.1 of the provisional agenda to this meeting.

18. Many ecosystems and habitats of scientific importance will be also of importance under one or more of the other criteria discussed here. That is, they are likely to be unique, or representative, or have important numbers of threatened or endemic species, or have high diversity. In addition, areas of ecosystem or habitat that have been the subject of long-term study are of great scientific value even if they do not necessarily meet the other criteria above. Such areas are capable of providing insights into ecosystem and habitat changes over time and are thus extremely important for monitoring and assessment. The COP might like to consider recommending

the development of a register of such long-term study sites for the global monitoring of biological diversity. The COP will be mindful of initiatives in this regard currently being undertaken by, *inter alia*, the UNESCO Man and the Biosphere Programme and the Smithsonian Institution.

2.1.6 Ecosystems and habitats that are representativ

19. The identification of representative ecosystems and habitats requires a standardised classification system. Problems with this are elaborated on in the Note to item 8.2 on the provisional agenda (document UNEP/CBD/COP/3/13). The COP might wish to seek further advice on the choice of such a standardised system, and also on which components should be considered in determining whether a given ecosystem or habitat is indeed representative. The COP might also wish to consider existing regional or global reviews of ecosystems or habitats that have assessed whether representative samples of ecosystems are being protected, such as the IUCN Reviews of the Protected Areas Systems in Oceania, the Afrotropical and Indomalayan Realms.

2.1.7 Ecosystems and habitats that are uniqu

20. The identification of unique ecosystems or habitats requires careful considerations of scale. This is because the more detailed a classification system (i.e., the more fine-scaled), the more likely a given area of ecosystem or habitat is to be different from any other in its physical and biotic characteristics, and therefore to be classifiable as unique. The COP may wish to seek further advice on what are realistic scales on which to consider the uniqueness of habitats and ecosystems. It may also wish to consider whether a unique habitat or ecosystem may be best defined on the basis of having a significant number of endemic species, therefore qualifying for consideration under the first category of ecosystems and habitats above.

Ecosystems and habitats associated with key evolutionary or other biological processes

21. The association with key evolutionary processes is a very problematic concept. Far too little is known about the mechanisms of long-term evolution to enable particular ecosystems and habitats to be singled out with confidence as being of importance. Any attempts to identify such areas will by their nature take the form of essentially untestable hypotheses. The COP may wish to seek further advice on such hypotheses to determine whether the concept can be made operational. The COP may also wish to seek further elaboration on the concept of key biological processes other than evolutionary ones.

2.1.9 Species and communities that are threatened

22. The term "community" is undefined, but presumably means assemblages of species that commonly occur together. Methodologies for identifying threatened species were reviewed at the first meeting of the SBSTTA, having been discussed at some length in UNEP/CBD/SBSTTA/1/4. Decision II/8 of the COP specifically encouraged Parties to identify priority issues related to those components of biological diversity under threat in preparing their first national report. The COP may wish to recommend to Parties that as much use as possible be made of existing global assessments of threatened species, in particular the IUCN Red List of Threatened Animals and the IUCN Red List of Threatened Plants, as the preliminary basis for identifying threatened species.

2.1.10 Wild relatives of domestic or cultivated species

23. These may be of importance as potential new domesticates, and also because they may have genes of value in improving already existing domesticates. It is important to consider how closely related a wild species or population must be in order to be considered important. The COP may wish to consider the concept of primary, secondary and tertiary gene pools as the most appropriate framework for this. The primary gene pool consists of wild populations of the domesticated species; the secondary gene pool consists of wild species that may be easily hybridised with the domesticated species and are almost always in the same genus; the tertiary gene pool consists of wild species generally in the same family, or section of the family, that may be hybridised with some difficulty. The COP may wish to advise that only primary and secondary gene pools be considered in most cases, if this concept is adopted. The COP may also wish to consider the likely impact that new technologies for gene transfer will have on the whole concept of a gene pool. In its consideration of this issue with regard to the wild relatives of cultivated plants, the COP may wish to take into account the work of the FAO Global System for the Conservation and Utilization of Plant Genetic Resources for Food and Agriculture. This topic is included as item 9.2 on the provisional agenda to this meeting, supported by document UNEP/CBD/COP/3/15.

24. The COP may wish to consider recommending to Parties the use of the tables of wild relatives of domestic stock and wild relatives of domestic crops provided in the *Biodiversity Data Sourcebook* (WCMC, 1994) as a basis for identifying priority species and groups of species.

2.1.11 Species and communities that are of medicinal, agricultural or other economic value

25. This is presumably intended to mean all wild and domesticated species that have a direct economic value. This value may be obtained from consumptive or non-consumptive use. With regard to wild species, the most important aspects of consumptive use in economic terms are fisheries and the use of timber and other woody products from trees. However, a very wide range of other animal and plant species is also used, for a variety of purposes. The most important uses are food and medicine, but clothing, ornaments, pets, recreation, and a host of minor products such as dyes and wax may also be significant. The COP may wish to establish some priorities for identifying and monitoring economically important species. Such priorities should consider both the importance to humankind of the use, and the impact such use has on the target species and the habitats and ecosystems in which it occurs. These two factors are not necessarily correlated. The COP may wish to consider how the assessment of species of economic importance undertaken under the Convention may best be coordinated with the activities of the FAO in reporting on fisheries and forestry and with the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

2.1.12 Species and communities which are of social, scientific or cultural importance

26. Many species of social, scientific or cultural importance may also be expected to have economic importance, and therefore to be included above. However, some may not. Determining the social or cultural importance of a species requires an understanding of prevailing cultural mores, which may change greatly from place to place, even in quite small geographical areas. Gaining such an understanding is usually a laborious, time-consuming process, and relies on the knowledge of indigenous peoples.

27. Species and communities of scientific importance may include those that show unique or unusual biological properties, those that have been or are in the process of being intensively studied, and those that occupy a unique or unusual systematic position (e.g., species with no known close living relatives, or species apparently intermediate between two higher taxa). The COP may wish to consider recommending the drawing up of a set of criteria of scientific importance, with indicative species.

2.1.13 Species and communities that are of importance for research into the conservation and sustainable use of biological diversity, such as indicator species

28. In general, most species of importance for research into the conservation and sustainable use of biological diversity may be expected to be included in one or other of the categories above (notably threatened species and economically important species). Indicator species or communities, which are essentially surrogates for wider measures of biological diversity, may be an exception to this. Although a wide range of species and higher taxa have been proposed as indicators, very few satisfactory indicator species have yet been identified, chiefly because each species responds to changes in its environment in a unique way. The COP may wish to refer to Annex II of document UNEP/CBD/COP/ 3/13 which contains a detailed discussion of the theory and practice of indicators of biological diversity.

2.1.14 Described genomes and genes of social, scientific or economic importance

29. No persuasive paradigms have yet been established for interpreting or assessing the social, scientific or economic importance of genes or genomes. This is largely because of the importance of genes and is effectively only felt when they are phenotypically expressed in some way; attempts may be made to evaluate the latter (i.e., the phenotypic expression), but there is no clear way of relating this directly to the gene or genome itself. The COP may wish to seek further advice on this issue.

3. IDENTIFYING, MONITORING AND ASSESSING PROCESSES AND CATEGORIES OF ACTIVITIES THAT HAVE OR ARE LIKELY TO HAVE SIGNIFICANT ADVERSE IMPACTS ON BIOLOGICAL DIVERSITY

30. The COP may also wish for further guidance as to how Parties might start the process of identifying activities that have or are likely to have an adverse impact on biological diversity in order to fulfil their obligations under Article 7. While recognising that many such activities are dependent upon local conditions, it seems that the Parties would nonetheless benefit from some general guidance as to what types of activities are generally acknowledged as falling within the meaning of Article 7(c), so as to begin the process of identification, monitoring and assessment in a manner that allows them to contribute more effectively to the aims of the Convention.

31. In order to meet the aims of the Convention with limited resources, the Parties will again need to set priorities. For this reason, the Parties will need an understanding of the relative importance of the different activities that have or may have an adverse impact on biological diversity. In this light, the present Note outlines

some well-accepted processes and activities, and some of the issues involved in assessing and monitoring these processes.

32. We use the term "threats" as a shorthand for processes and categories of activities that are or are likely to have significant adverse impacts on biological diversity.

33. Biological diversity losses that are above the background rates are the result of a wide range of proximate causes. Identifying these causes is relatively straightforward, and there is widespread agreement on the major categories, which include conversion of habitat, over-exploitation, pollution and the effects of introduced species. For a range of reasons, assessing the impacts of these different causes is, in contrast, very problematic in the great majority of cases. First, assessment requires monitoring through time of both the presumed stressor and the species or ecosystem that is being affected. Relatively little such monitoring has been carried out to date, particularly for time periods long enough to permit the detection of significant trends. Second, it is often very difficult to disentangle natural variations -- for example, in the population and distribution of species -- from those caused by human activities. Third, virtually all species and ecosystems are affected by a range of human influences that interact in complex and often ill-understood ways.

34. Constructing a taxonomy of threats is similarly problematic. This is because virtually all human activities impinge on biological diversity in one way or another, and also because one activity can have a wide range of different impacts. For example, the harvest of wild trees directly affects populations of the tree species concerned; it also structurally affects the habitat of other species that live in or on the trees; it may affect the water-retaining ability of the land in which the trees grow; it is also likely to have an impact on the local microclimate; and it will have a (slowly cumulative) effect on carbon sequestration with concomitant impacts on global climate. Impacts may be locally and immediately felt, may be long-term, or may be experienced far from their point of origin.

3.1 Factors affecting ecosystems

35. Assessing factors that adversely affect ecosystems is usually more problematic than assessing those that affect individual species. Currently much attention is focused on the concept of ecosystem "health" (resilience), which is defined as the system's ability to maintain its structure (organisation) and function (vigour) over time in the face of external stress. Negative factors are those that adversely affect health. Here, less importance is attached to the maintenance of individual elements of an ecosystem (species and populations) as long as health is not impaired.

36. It is generally admitted that, as is the case with human and societal health, goals and definitions with respect to ecosystem health will be determined socially as much as scientifically. Furthermore, many ecological processes operate over decades or longer, and therefore require long-term data series (i.e., on this time-scale) before it will be possible to begin to understand them. Even then, the analysis of data available will at best generate hypotheses (often several competing ones) which need to be tested, preferably by experimental manipulation, again over time periods of the same order as those of th

processes being studied. However, activities affecting the environment and policy decisions controlling those activities have impacts over far shorter time-scales.

3.2 Factors affecting species

37. Quite simply, any factor that causes a sustained and continuing decline in the population of a species is a threat to that species, as it will eventually lead to its extinction. These factors may operate by causing either increased mortality or decreased reproductive success. Factors are often categorised as either *direct* or *indirect*. The former affect the population of the species directly (e.g., overexploitation, predation by introduced species); the latter affect its habitat (e.g., deforestation, canalisation of rivers).

38. At present, the Convention provides little explicit guidance for identifying activities and processes that have or are believed to have an adverse effect on biological diversity. The COP may wish to consider the following as a useful preliminary framework for categorising these. This framework is based on that provided in the document UNEP/CBD/SBSTTA/2/3, which was reviewed by the SBSTTA at its second meeting and found to be a useful approach. The present document incorporates specific suggestions for modification made at that meeting. The SBSTTA also noted in its recommendation II/1, in the context of this framework, that consumptive use of wild species could be a contribution to conservation.

3.3 Proximate threats

39. The following factors may have a direct effect on biological diversity:

- (a) Overharvest or overkill of wild species;
- (b) Introduced species as competitors, predators, carriers of disease, or habitat disruptors;
- (c) Habitat destruction or deterioration through conversion, fragmentation, or changing habitat quality;
- (d) Pollution by toxins (e.g., heavy metals, radioactive contaminants), changing nutrient balances (e.g., eutrophication, acid rain), or physical contaminants (e.g., sedimentation and/or siltation); and
- (e) Climate change, either locally or globally.

3.4 Categories of activities leading to these threats

40. The following categories of human activity may lead to the proximate threats listed above:

- (a) unmanaged harvest of wild species for consumption;
- (b) killing of wild species as pests or weeds;
- (c) deliberate introduction of exotic species;
- (d) accidental introduction of exotic species;
- (e) conversion of land to settled agriculture;
- (f) improper management of land;
- (g) shifting cultivation on too short a cycle;
- (h) overstocking by domestic livestock;
- (i) accidental or deliberate burning, or change in natural fire regime;
- (j) mining/dredging;

- (k) dam construction;
- (l) canalisation;
- (m) road construction;
- (n) urbanisation;
- (o) overuse for recreational reasons;
- (p) drainage of wetlands;
- (q) burning of fossil fuels;
- (r) use of potentially polluting chemicals in agriculture;
- (s) use of potentially polluting chemicals in industrial processes;
- (t) production of polluting chemicals as a by-product of industrial processes; and
- (u) production of human effluent and other domestic waste products.

3.5 Ultimate causes of these threats

41. Within the context of human society, most of these threats can ultimately be attributed to six main factors:

- (a) land tenure;
- (b) population change
- (c) cost-benefit imbalances;
- (d) cultural factors;
- (e) misdirected economic incentives; and
- (f) national policy failure.

3.6 Monitoring processes and categories of activities that have or may have an adverse effect on biological diversity

42. Monitoring the threats to biological diversity identified above is not a straightforward task, chiefly because many threats operate over a very wide area and because, as described above, impacts may be experienced far distant from the source of the threat, as in the case of air- and water-borne pollutants. The complementary approaches may be adopted to deal with this: extensive monitoring, usually using remote sensing or aerial photography; detailed sampling of particular sites; and the use of pressure indicators to predict areas or ecosystems that may be expected to be under adverse influence.

43. Remote sensing can be used to monitor extensive areas, but at present has limitations in terms of the environmental parameters it can record. It is, for example, extremely useful for monitoring the clearance and fragmentation of forest cover, but is much less useful for monitoring changes in forest quality or in species composition within forests. Similarly, it may be able to give some indication of sediment loads in rivers, but cannot generally register soluble pollutants.

44. Sampling particular sites may give a much more accurate local picture, but extrapolation to a more general picture is often based on questionable assumptions. For example, the intensity of hunting and its effect on wildlife populations has been found to be highly variable over quite short distances among communities in the Amazon basin.

45. The use of pressure indicators -- for example, proximity to urban or industrial centres, or roads

-- may allow broad indications of threat, but because of local variability, these require ground-truthing before they can be used with confidence. The subject of pressure indicators is discussed in some detail in Annex II to document UNEP/CBD/COP/3/13.

46. The COP might like to consider recommending a more detailed review of these methods of monitoring pressures. Such a review might include recommendations of ways in which their use can be integrated.

3.7 Assessing processes and categories of activities that have or may have an adverse effect on biological diversity

47. With some notable exceptions, such as intensive hunting pressure and the influence of a few introduced species on oceanic islands, our understanding of the impacts of the activities outlined above on biological diversity is still limited. There is an urgent need to assemble those case studies that do exist on this and also to develop a programme of further study directly linking pressures to the assessment of the state of biological diversity. The COP might like to recommend a review of existing studies and outline some priorities for further study.

48. Of particular importance is the need to link the ultimate causes of threats to biological diversity outlined above far more closely to the proximate threats. One of the major aspects of this is an understanding of the socio-economic issues surrounding the use of biological diversity. The COP might like to recommend a review of existing methodologies for this.

4. CONCLUSIONS AND RECOMMENDATIONS

49. In implementing Article 7, the COP might like to consider recommending to Parties a step-wise approach, which would begin with implementation of Article 7(a) and the first part of Article 7(c), concerning identification of components of biological diversity and the processes and categories of activities which have or are likely to have significant adverse impact. Such an approach should not, of course, preclude the monitoring and assessment, or implementation of Articles 6 and 8, with respect to those components of biological diversity which have been identified.

50. The COP might like to recommend that Parties undertake the process of identifying the components of biological diversity making use of the elaboration above of the terms in Annex I of the Convention.

51. The COP might additionally like to recommend that the results of such a process should form the basis of national biological diversity strategies, plans or programmes, as required under Article 6, and should be an integral part of national reports as required under Article 26.

52. The COP might also like to suggest that the results of such a process should form the basis of implementation of relevant parts of Article 8, particularly paragraphs (a) to (d) and (k).

53. The COP might wish to be mindful of the role of taxonomy as the basis for identification of the components of biological diversity and might therefore consider endorsing all or part of the recommendation II/2 of the SBSTTA concerning capacity-building for taxonomy.

54. The COP might further wish to consider the financial implications of the capacity-building required to allow all Parties to fulfil their obligations under Article 7.

55. The COP might wish to consider ways and means by which cooperation with other Conventions and international processes concerned with biological diversity might expedite implementation of Article 7.

56. The COP might wish to consider commending the provisional framework outlined in paragraphs 39-41 to Parties in their consideration of Article 7 and Article 8 (l). Alternatively, it might wish to consider requesting the SBSTTA for further advice concerning the elaboration of such a framework.

57. The COP might also wish to consider seeking advice from the SBSTTA on desirable further elaboration of the terms used in Annex I of the Convention.

58. The COP might further wish to consider which parts of recommendation II/1 of the SBSTT concerning, *inter alia*, identification, monitoring and assessment of components of biological diversity and of processes that have adverse impacts, it might wish to endorse.

59. In view of the central importance of Article 7 to the Convention, the COP might like to consider reviewing at its next meeting progress in the implementation of Article 7 and of any specific recommendations it may make concerning this.



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/16
12 September 1996
ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Third meeting
Buenos Aires, Argentina
4 to 15 November 1996
Item 10.2 of the provisional agenda

BIOLOGICAL DIVERSITY AND FORESTS

Note by the Executive Secretar

Summary

The Conference of the Parties (COP), in its decision II/9, requested the Executive Secretar to prepare a background document on the links between forests and biological diversity in order to consider, at its third meeting, whether further input to the Intergovernmental Panel on Forests (IPF) is required. Accordingly, the Secretariat has prepared a background document for review by the COP. This is contained in section II of the present note. The background document was considered by the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) at its second meeting. The recommendations of the SBSTTA on inputs to the IPF and on research and technological priorities with respect to biological diversity and forests are contained in its recommendation II/8 (see document UNEP/CBD/COP/3/3).

Forests are the most biologically diverse terrestrial ecosystems. Forests are of major importance globally, occupying around a third of the world's ice-free land surface; they are diverse, reflecting the combined influences of evolution, biology, the physical environment, and people. The tropical rainforests are recognised as the most complex and species-rich terrestrial ecosystems, but even the simplest forest communities comprise genetically diverse populations of trees and a wealth of associated plants and animals. Human societies have caused great impacts on forest biological diversity throughout history. Whilst the net effect of these impacts has been overwhelming!

/...

negative, not all have been adverse - particularly in the case of forest-dwelling or -dependent peoples. The unprecedented scale and accelerating rate of recent human impacts on forests threaten forest biological diversity through the erosion and loss of ecosystems, of species, of populations within species, and of genetic diversity within populations. Relatively few forest tree species have been domesticated for industrial use, but indigenous and local forest-dwelling communities have both domesticated and conserved many species important in farming or livelihood systems. There are few established national reserve systems likely to conserve forest biological diversity comprehensively or adequately *in situ*, and only a tiny proportion of forest species are conserved satisfactorily *ex situ*. Consequently, conservation of forests, trees and gene pools in managed ecosystems is fundamental to the conservation and sustainable use of forest biological diversity. The benefits of forest biological diversity accrue to individuals, communities, enterprises and societies in and *ex situ*. Benefits range from direct to indirect, and material to spiritual. There are presently few mechanisms which capture or direct the benefits of forest biological diversity to those who have conserved or developed it *in situ*.

The third meeting of the COP will also have before it the Communication of the Secretariat of the IPF on progress on issues relevant to forests and biological diversity (document UNEP/CBD/COP/3/17). Having considered the present background note, together with the report from the IPF, and recalling the Statement on Biological Diversity and Forests from the Convention on Biological Diversity to the Intergovernmental Panel on Forests, the COP may wish to consider whether further input to the IPF is required. It may also wish to consider the need for and modalities of future work under the Convention on forests and biological diversity.

CONTENTS	Paragraphs
I. BACKGROUND	1- 5
II. FORESTS AND BIOLOGICAL DIVERSITY	6-84
2.1 Introduction	6-14
2.2. Forest biological diversity: an overview	15-39
2.2.1 Scientific knowledge	19-25
2.2.2 Traditional knowledge	26
2.2.3 Human impacts on forest biological diversit	27-37
2.2.4 Synthesis	38-39
2.3 Forest biological diversity and the objectives of the Convention on Biological Diversity	40-41
2.4. Realising the objectives of the Convention on Biological Diversit for forest biological diversit	42-85
2.4.1 Institutional structures and functions	43-55
2.4.2 The conservation of forest biological diversit	56-69
2.4.3 Sustainable use of the components of forest biological diversit	70-77
2.4.4 Fair and equitable sharing of the benefits arising out of the utilisation of genetic resources	78-85
2.5. Conclusions	86-87
III. POSSIBLE FUTURE ACTION	88-100
3.1 Further input to the Intergovernmental Panel on Forests	88-95
3.2 Possible Medium-term Programme of Work	96-100

I. BACKGROUND

1. At its first meeting, the SBSTTA noted the establishment by the Commission on Sustainable Development of an Intergovernmental Panel on Forests (IPF), recognised the importance of forests for the conservation and sustainable use of biological diversity, and recommended that the COP consider whether an input into that process would be desirable (recommendation I/3).

2. At its second meeting, the COP requested the Executive Secretary "to commission and carry out work on forests and biological diversity, with a view to producing a background document on the links between forests and biological diversity in order to consider, at its third meeting, whether further input to the Intergovernmental Panel on Forests is required, and to transmit this document to the Intergovernmental Panel on Forests for information." (decision II/9, para.2(b)).

3. Part II of the present Note by the Secretariat constitutes the background document referred to in decision II/9, para.2(b). The document was considered by the SBSTTA at its second meeting. The recommendations of the SBSTTA are contained in its recommendation II/8 (UNEP/CBD/COP/3/3).

4. This document draws upon the guidance provided in the Annex to decision II/9 ('Statement on Biological Diversity and Forests from the Convention on Biological Diversity to the Intergovernmental Panel on Forests). In this Statement, the COP:

- (a) identified provisions of the Convention of particular relevance to forest biological diversity and to the programme of work of the IPF;
- (b) requested the IPF to acknowledge and consider issues identified in the Statement,
- (c) identified issues not explicitly addressed in the terms of reference of the Panel; and
- (d) identified issues of forest biological diversity requiring further action and informed the Panel of its intention to explore these issues in its Medium-term Programme of Work.

5. The COP will recall that in paragraph 2(a) of decision II/9, it requested the Executive Secretary to provide advice and information pertaining to the relationship between indigenous and local communities and forests, as invited by the Inter-Agency Task Force of the Intergovernmental Panel on Forests. The Secretariat prepared and transmitted to the Secretariat of the IPF a background document ('Traditional Forest-related Knowledge and the Convention on Biological Diversity') in accordance with the request of the COP. This document, which was distributed to the second meeting of the SBSTTA for information (UNEP/CBD/SBSTTA/2/Inf.3), formed the basis of the Report of the Secretary-General on Traditional forest-related knowledge (E/CN.17/IPF/1996/16) considered by the IPF at its third session. Under item 10.1 of the provisional agenda of this meeting, the COP will consider the Communication of the Secretariat of the IPF on progress on issues relevant to forests and biological diversity (document UNEP/CBD/COP/3/17).

II. FORESTS AND BIOLOGICAL DIVERSITY

2.1 Introduction

6. The Convention defines biological diversity as 'the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems' (Article 2). In its Statement to the IPF, the COP noted that forests play a 'crucial role [...] in maintaining global biological diversity' and that 'together, tropical, temperate and boreal forests provide the most diverse sets of habitats for plants, animals and micro-organisms, holding the vast majority of the world's terrestrial species'.

7. Forests occupy around a third of the world's ice-free land surface. Their diversity reflects the combined influences of evolution, biology, the physical environment, and people. The tropical rainforests are recognised as the most complex and species-rich terrestrial ecosystems, but even the simplest forest communities comprise genetically diverse populations of trees and associated plants, animals and micro-organisms.

8. In addition to the direct use of forest products in the subsistence activities of forest-dwellers or as goods traded on local, national or international markets, the ecological services provided by forests are crucial to the maintenance of biological diversity far beyond forest boundaries. Such services include climate regulation, carbon sequestration, watershed protection, soil conservation, storage and recycling of organic matter and mineral nutrients, and the provision of migratory, nursery and feeding habitats. The maintenance of ecological processes and the resilience of individual forest ecosystems depend upon the maintenance of biological diversity.

9. Methods for valuing the multiple benefits derived from forests need to take into account the economic benefits (monetized and non-monetized), the environmental services provided by forest ecosystems, and intangible or non-consumptive values. These include the important cultural, religious and recreational values of forests.

10. Human societies have had important impacts on forest biological diversity throughout history. Whilst the net effect of these impacts has been overwhelmingly negative, not all human impact has been adverse - particularly in the case of indigenous and local forest-dwelling communities.[1] The unprecedented scale and accelerating rate of recent human impacts on forests threaten forest biological diversity through the erosion and loss of ecosystems, of species, of populations within species, and of genetic diversity within populations.

11. Of the world's estimated 3.4 billion hectares of forests in 1990, tropical forests accounted for 1.76 billion hectares, boreal and temperate forests in industrialised countries for 1.43 billion hectares and temperate forests in developing countries for 0.2 billion hectares. During the period 1981-90 it is estimated that tropical forests were lost at an annual rate of 0.8 percent (15.4 million hectares).[2]

12. A net increase in forest biomass and area in the temperate zone occurred over the same decade. However there are substantial concerns about forest quality. Forest degradation caused by air pollutants, pests, drought and nutrient loss is occurring in some areas. Little of the old-growth forests in temperate regions is fully protected, and continues to be replaced by plantations or by

new regrowth following clearfelling. Most plantations and heavily managed forests provide fewer environmental benefits and contain less biological diversity than primary forests.

13. Until recently forest quality was considered in terms of criteria related to the production of timber, such as sustainable yield, and measurements of pollution-related forest degradation. Whilst relevant, such approaches are insufficient to construct a concept of forest quality that takes into account the full range of benefits derived from forests. More holistic indicators of forest quality have been proposed, based on criteria of authenticity, forest health, environmental benefits, and social and economic values.[3]

14. Appreciation of the links between forests and biological diversity in the context of the objectives of the Convention requires a synopsis of forest biological diversity, the processes and forces that have shaped it, and those to which it is now subject.

2.2. Forest biological diversity: an overview

15. The biological diversity of forests is apparent at all levels of biological organisation. Forest biological diversity can be catalogued at each of these levels, in terms of ecosystem, species and genomic richness; but what is more important is the appreciation that - even in its poorly-known state - forest biological diversity is high relative to that of other terrestrial ecosystems. Contemporary forest biological diversity reflects the combined influence over evolutionary time of:

- (a) the abiotic physical factors of climate, soil, water, fire, geological and geochemical processes;
- (b) diverse biotic factors, including competition and complementarity between coexisting organisms, host-pathogen interactions; pollination and predation; ecological succession, genetic mutation and other mechanisms;
- (c) the reproductive, habitat, feeding and other patterns of individual species; and
- (d) human modifications of each of these factors.

16. Whilst the abiotic factors are essentially location-specific, each of the other factors varies spatially and temporally. These dynamic, heterogeneous, interacting and variously interdependent factors characterise forest biological diversity in similar terms. Thus, no single parameter can adequately characterise forest biological diversity in all its manifestations, because:

- (a) forest ecosystems are diverse and complex, in terms of composition, function and process;
- (b) forests vary at all scales of organisation, from the molecular to that of landscape;
- (c) the ecological and genetic processes which both maintain and change forests are dynamic, on time scales varying from minutes to millennia;
- (d) populations of constituent species are similarly diverse and dynamic.

17. The resultant complexity of forest biological diversity defies simple description or measurement, and is more realistically represented in terms of the biological, spatial and temporal dimensions which jointly define this wealth of diversity, and the human influences which modify it. For practical purposes, though, we have to approximate such complexity with simpler frameworks that are both biologically meaningful and practically useful.

18. Such a framework comprises three principal foci, two of which are those of the forest community and its constituent populations of species. These two foci - those of ecology and genetics - respectively represent different but complementary perspectives on biological diversity. An ecological perspective emphasises the role of environment and species biology in shaping forest communities; a genetic perspective emphasises the genetic forces that shape populations of a species. Thus, these perspectives inform different levels of biological organisation, with ecology most relevant to ecosystems and habitats, and genetics to the species, population and genome levels. The third perspective essential to appreciating contemporary forest biological diversity and to considering its future is that of human intervention, emphasising how human societies have affected it over time, and are doing so now.

2.2.1 Scientific knowledge

2.2.1.1 Ecological perspectives

19. An ecological perspective emphasises the complexity and interdependencies of biological communities, and the role of environmental variation in shaping forest communities. We use the concept of ecosystems to describe these communities in a landscape. Ecosystems are necessarily defined loosely, and usually at a coarse rather than a fine scale, because forest communities are dynamic and spatially heterogeneous. The vegetation of any given area of forest is a point sample of a continuum of species assemblages grading into each other, reflecting the differential responses of constituent species to variation along environmental gradients, and to disturbance patterns and histories. These gradients may be subtle or strong, and perturbations widespread or very local, defining patterns of community variation on different spatial and temporal scales. As the composition and structure of the forest flora vary, so too do the habitats available for animals - and thus the forest community as a whole. Similarly, as abiotic factors vary, so too do the conditions available for soil micro-organisms, which in turn influence other trophic levels in the ecological web.

20. An ecological perspective stresses the fundamental importance to forest biological diversity of self-regulating natural communities, with their complex co-adaptive balance, and the resulting impact on forest biological diversity caused when these communities are disrupted by human intervention. Our imperfect understanding of forest ecosystems suggests that the converse is also true: maintenance of plant and animal diversity is essential in sustaining structure and function of forest communities. An ecological perspective recognises that forest ecosystems are not merely serendipitous assemblages of independent species and individuals; rather, the diversity of ecosystems and the species which comprise them are shaped, maintained and changed by the complex interactions of organisms and their differential responses to both natural and human influences. In turn, the characteristics of organisms are an expression of their genes and of genetic processes, identifying the need for a genetic perspective. An ecological perspective stresses the need to develop and implement ecosystem management regimes, employing adaptive management principles, designed to maintain in perpetuity the basic ecological integrity of the system.

2.2.1.2 Genetic perspectives

21. Within forest ecosystems, populations of individual species fluctuate according to ecosystem and genetic processes. Each species exists as a series of populations, genetically linked

by varying degrees of gene flow. Although our knowledge for forest species is sparse and biased towards those of the temperate ecosystems, there is some consistency emerging from the recent proliferation of studies based on assaying variation in the enzymes or DNA of organisms. This information describes levels and patterns of genetic diversity, which together characterise the biological diversity within a species - that is, in more utilitarian terms, its genetic resources.

22. Tree species, the most characteristic life form of forest ecosystems, are with few exceptions much more genetically diverse than other plant species, a consequence of their mating systems, life histories, relatively extensive geographic distributions and typically limited history of domestication. In contrast to many non-woody plant species, and particularly those which have been domesticated as crops, tree populations maintain these high levels of genetic diversity through strong outbreeding reproductive strategies, through extensive gene flow within and between sub-populations, and through the longevity and fecundity of individuals. Their reproductive biology also implies that geographically isolated trees in agroecosystems, and those in remnant forest fragments, may not be reproductively isolated, and indeed may play a critical role in maintaining gene flow within and between populations.

23. These mating system and life history differences also determine that the spatial patterns of genetic diversity in tree populations differ greatly from those of most non-woody plants. In general, most genes found in a tree species are present in most of the populations across a species range, a testament to the effectiveness of gene flow between populations and the biological mechanisms which maintain genetic diversity within populations. Other forest plants with similar mating systems will exhibit similar patterns of genetic diversity, in marked contrast to those of inbreeding plants, for which there is strong genetic divergence between populations. Although the magnitude of genetic differences between populations of trees is small relative to that of inbreeding plant species, it is nevertheless responsible for variation of major consequence in traits of value to people and production systems.

24. Knowledge of the population biology of other forest species is variable but, overwhelmingly, limited. Whilst that of some forest animals and birds is relatively good, most species of forest invertebrates, fungi and micro-organisms are probably not yet known to science: there is no site on earth - even in the relatively simple and intensively studied temperate forests - for which a full inventory of these forest species has been completed. The enormity of current gaps in cataloguing species and in fully understanding their roles in maintaining critical ecosystem processes and functions calls for a precautionary approach to their conservation. Few generalisations are possible from those species of which we have some knowledge, in part because of the profound but particular influence on them of human activities.

25. A genetic perspective on forest biological diversity emphasises the fundamental role of the population, and of genetic processes at the population level. It describes the rich and diverse genetic resources of forests, and stresses the importance of maintaining viable populations of individual species. There is concordance with the ecological perspective on two fundamental points: first, because most forest species differ greatly in their genetic composition and population structure, generalisations are helpful only at a coarse level; second, the genetic divergence evident between populations highlights the role of environmental variation in shaping and sustaining genetic diversity.

2.2.2 Traditional knowledge

26. Forest biological diversity is paralleled by a diversity of indigenous or traditional societies, who have inhabited and manipulated forests - sometimes for millennia, sometimes only recently or transiently. The knowledge of these societies includes a wealth of traditional ecological knowledge, relating to management and conservation of the environment; it includes systems of classification, sets of empirical observations about the local environment, and local management systems governing resource use. In the case of forest biological diversity, such traditional knowledge also describes that of rural communities with respect to the management and use of forest genetic resources - especially those of trees - in farming systems. Traditional knowledge of forest biological diversity both contributes to and complements modern scientific knowledge. Indigenous knowledge of forest ecology and forest biological diversity is increasingly being used to define sustainable management regimes and identify genetic resources of value to other societies. However the conversion and degradation of forests world-wide has led to a dramatic loss of cultural diversity, and with it a corresponding loss of traditional forest-related knowledge. An appreciation of the importance of traditional knowledge emphasises both the history and importance of human influences on forest biological diversity, and the critical role of indigenous and rural peoples in its conservation and sustainable use.[4]

2.2.3 Human impacts on forest biological diversity

2.2.3.1 Human impacts throughout history

27. The history of humankind is one of modification of the forested environment: by the degradation, conversion and fragmentation of forest ecosystems; by their alteration through the harvesting of forest products, use of fire, or more general environmental alteration; by the introduction of pests, pathogens and exotic species; and by the domestication of plant and animal species. These processes have exerted profound but poorly quantified impacts on forest biological diversity, demonstrated most spectacularly by examples of species extinction, but more common resulting in the erosion of biological diversity, that is to say, in the impoverishment of ecosystems and gene pools. However, it is important to recognise that not all human intervention has impacted adversely on forest biological diversity, and that many traditional forest management and farming systems were consciously designed to sustain or enhance diversity, especially that which was beneficial to people. Examples of such systems can be found world-wide, and include the home and forest gardens of Asia, the forest patches of the Brazilian and Guinean Savannah, and the Leucaena agroforestry systems of Mexico.

28. The conversion of forests to other land uses results in the loss of locally-adapted forest ecosystems and their constituent populations. The resultant fragmentation of ecosystems and populations is likely to reduce species richness and densities within remaining forests, as fewer species are represented in fragments of smaller size than in those of larger area. Depending on the barriers that fragmentation imposes on migration between residual populations, and population size and structure within fragments, within-population genetic diversity may also be eroded. Consequently, fragmentation may also lead, ultimately, to the extinction of locally-adapted populations. Specific effects will depend on the scale and pattern of forest conversion, the dynamics of particular ecosystems, and the population structure and reproductive biology of particular species.

29. The effects of the harvesting of forest products will also vary with ecosystem, species and harvesting regime. Where harvesting of forest products is regulated effectively, either by the state, by communities or jointly, sustainable use regimes will be based on modern and/or traditional understanding of ecosystem processes. Thus, for example, foresters will apply timber harvesting regimes which vary with ecosystem type and the species extracted; similarly, indigenous peoples' knowledge is manifested in management practices which, for example, favour the regeneration and development of particular species. The effects of harvesting on forest biological diversity are greatest where forest harvesting been little regulated according to scientific or traditional knowledge, and has been most rapid and extensive. Because such harvesting is likely to have major adverse impact on ecosystem function and process, or on the population size of particular species, forest biological diversity is likely to suffer at all levels of organisation, with consequences similar to those of fragmentation. Where the impacts of harvesting are below this poorly-defined threshold, there may still be effects on species gene pools, though these may be transient and relatively ephemeral. However, our empirical knowledge of the genetic effects of ecologically appropriate harvesting regimes remains poor, with inconsistent results from the few studies so far reported. What is apparent is the fundamental importance of management regimes which recognise the reproductive ecology of the species harvested, so that viable populations are maintained over time, and of the need to include measures to minimise adverse impacts on non-harvested species.

30. Fire regimes are among the most pervasive human influences on forest ecosystems, with major implications for ecosystem structure, composition, function and distribution. As well as being a natural phenomenon, fire is one of the technologically simplest management tools, used with discrimination by almost all forest-dwelling and dependent peoples, and - sometimes with less discrimination or as a means of protecting timber resources without taking into account impacts on biological diversity - by agriculturalists, foresters, and land managers. The modification of Australian and North American forest ecosystems by altered fire regimes following both Native and European occupation are two relatively well-documented examples. The consequences of forest fire for forest biological diversity are substantial but variable, with ecosystems and populations responding differentially according to their adaptation to particular fire regimes. Similarly general but imprecise conclusions apply to the consequences of more general environmental modification, such as those resulting from industrial pollution or climate change.

31. Another major impact of humans on forest biological diversity is that realised through the translocation to exotic environments of plants, animals and micro-organisms. Species introduced by humans may affect indigenous communities and populations by displacing native species and genotypes, or by becoming pests or pathogens of species with which they did not co-evolve. Within species groups, the anthropogenically expanded range of economically important or useful species has both reduced genetic diversity by contamination of local gene pools and homogenisation of population structure, and expanded it through exposure to new environmental pressures and intra- and inter-specific hybridisation.

32. The processes of domestication, frequently but not invariably associated with translocation, typically reduce within-population genetic diversity, although total diversity within a species may be sustained through the maintenance of divergent populations. Although relatively few forest tree species have been domesticated for industrial use, indigenous communities have both domesticated and conserved species important in farming systems. The domesticated crop plants and animals of high-input agricultural systems illustrate the ultimate consequence of lengthy and intensive

domestication, exhibiting low levels of genetic diversity; in contrast, most forest trees, even those most domesticated, still retain high levels of genetic diversity.

2.2.3.2 Contemporary human impacts

33. This century has seen enormous human impact on forest biological diversity, at a rate which continues to accelerate. For example, half the world's croplands were forested 90 years ago; in the tropics, change of this magnitude has been effected in only 50 years. Whilst the recent effects of humans on forest ecosystems have been greatest in the tropics, with rates of forest loss and degradation continuing to rise by between 4-9% annually, industrialised societies are also impacting adversely on temperate and boreal forest ecosystems. Although the current rate of forest loss appears unprecedented in human history, its scale is reminiscent of that of European settlement on the forest ecosystems of the New World, and of earlier civilisations on the forests of Europe and the Middle East.

34. The major agents of the loss and erosion of forest biological diversity are relatively easily identified. The principal agent of forest ecosystem loss and fragmentation is the conversion of forests to agricultural systems. Among other important agents, albeit on more localised scales, are the expansion of human settlements, extractive industries, and associated infrastructure. Individual agents of conversion and fragmentation range from large scale agricultural enterprises, including those establishing industrial plantation forests on forest sites, to the small-scale farmers whose individual impact may be tiny, but whose cumulative impact is not. Other important agents of forest biodiversity loss include:

- (a) forest ecosystem degradation (for example, through industrial pollution);
- (b) introduction of pests, pathogens and exotic species (by agriculturalists, plantation foresters or horticulturalists)
- (c) unsustainable levels of harvesting forest products - wood and non-timber forest products, including wildlife and plants, of commercial or subsistence value. Such harvesting regimes can have adverse impacts on genepool diversity, population viability, the ecological balance of natural communities, and ecosystem processes and functions. The scale and purpose of harvesting activities vary from industrial to subsistence, and their impacts are similarly variable.

35. The underlying causes of the loss and erosion of forest ecosystems, populations and genepools are less easily generalised. Many analyses have been made of the underlying causes and studies have identified as factors, inter alia:

- (a) the inequitable distribution and allocation of resources in human societies, at scales varying from global to local;
- (b) the operation of both market and subsistence economies, and the interactions between these systems;
- (c) accounting mechanisms which do not accord appropriate value to natural capital, and the resultant misvaluation of both market and non-market goods and services;
- (d) public policies which, perhaps as a consequence of the above, recognise little value in forest ecosystems or the biological diversity they represent;

- (e) inappropriate policies and programmes of international financial institutions and aid donors;
- (f) unsustainable patterns of consumption, production and trade;
- (g) demographic pressures;
- (h) cultural mores and social attitudes;
- (i) lack of integration of the conservation and sustainable use of forest biological diversity into relevant sectoral or cross- sectoral plans, programmes and policies;
- (j) ignorance of or disdain for the long-term consequences of our actions.

36. The comprehensive and effective implementation of the Convention will require Parties to identify and address the underlying causes of the loss and erosion of forest biological diversity. This entails consideration of the social, economic, ethical and political dimensions, in addition to the scientific, technical and managerial issues.

2.2.3.2.1 New technologies

37. The new biotechnologies have been employed in forest science, as in plant and animal science more generally. Those of most relevance to the conservation and sustainable use of forest biological diversity in the foreseeable future are molecular markers, genetic engineering, and technologies for in vitro storage and micropropagation. Their major impacts to date have been to inform us of genetic diversity at the molecular level, and to offer propagation options which themselves represent the gateway to the application of many biotechnologies. Genetic engineering of forest species remains at the early experimental stage. With the exception of a very few advanced conservation or domestication programmes, the new biotechnologies have yet to impact substantially on either the conservation or sustainable use of forest biological diversity; the most profound impacts would arise from advances in genetic engineering and storage technologies.

2.2.4 Synthesis

38. Although we have quantitative data for only a tiny proportion of the complement of forest biological diversity, there is widespread agreement - based on our understanding of history, ecology and genetics - that the overall impact of human societies on forest biological diversity has been adverse, with rates of loss and erosion varying from rapid to slight, depending on circumstance. In the worst cases, the effects have been overwhelming and enduring, as the now depauperate state of many island flora and fauna demonstrate most strikingly. Although abundant biological diversity remains in many forest ecosystems and their constituent populations, the accelerating rate and scale of human impacts demand urgent action, including identifying and correcting the underlying causes of forest biodiversity loss, including identifying and removing the underlying causes, if the objectives of the Convention are to be realised.

39. The complexity, heterogeneity and dynamism of forest biological diversity, and of the forces that have shaped and are changing it, define the context of the Convention in relation to forests. We are required to draw upon our admittedly imperfect understanding of ecological, genetic and human perspectives on forest biological diversity in order to implement the objectives and specific provisions of the Convention.

2.3 Forest biological diversity and the objectives of the Convention on Biological Diversity

40. The characteristics of forest biological diversity define the way in which the threefold objectives of the Convention can be applied to forests. Broadly, in the context of forest biological diversity:

- (a) conservation of biological diversity implies that the communities represented by forest ecosystems, their constituent populations of species, and the genetic diversity of those species, be maintained at levels and in conditions sufficient to preclude their loss or erosion - whilst recognising the dynamic state of each of these levels of organisation;
- (b) sustainable use of the components of biological diversity implies that harvesting regimes must operate within the constraints defined by conservation goals;
- (c) fair and equitable sharing of the benefits arising out of the utilisation of genetic resources implies both a recognition of the roles of people - individuals, communities and societies - in sustaining, shaping and harnessing forest biological diversity, and a distribution of benefits consistent with such recognition. Benefit sharing regimes must acknowledge the spectrum of benefits and variety of roles which, together, conserve forest biological diversity and make its components available for use.

41. The interaction of ecological, genetic and anthropogenic forces which have shaped, and which will continue to shape, forest biological diversity determines that the conservation and sustainable use of biological diversity, and the fair and equitable sharing of benefits arising from its use, are not separable activities; rather, they represent complementary, interdependent and associated perspectives on the spectrum of possible outcomes of human intervention in biological systems. This principle, of the mutually reinforcing roles of the Convention's objectives in relation to forest biological diversity, underpins the discussion which follows.

2.4. Realising the objectives of the Convention on Biological Diversity for forest biological diversity

42. Our understanding of forest biological diversity, and of prevailing institutional structures and functions relevant to it, suggest issues and priorities relevant to realisation of the Convention's objectives for the particular case of forests. The following discussion considers such issues and priorities, and notes their correspondence with the provisions of the Convention.

2.4.1 Institutional structures and functions

43. The Articles of the Convention which restate the principle of sovereignty and responsibilities of nation states (Articles 3 and 4) reinforce the institutional framework long-established for the stewardship of forests. A brief synopsis of the history and scope of forest policies illustrates both this concordance and the limitations of traditional forest-related policy frameworks in terms of the objectives of the Convention.

2.4.1.1 A brief history of policies about forests

44. Most nations or their constituent administrative regions (eg states or provinces) have formally declared forest policies to express the principles by which the forests under their control-

at least those in public ownership - should be managed. Such formal forest policies have a long history, originating in the 18th century in Europe and in the next century in India, and they have almost universally been founded on the dual principles of the sustainable harvesting of forest products and management for multiple products and benefits. Thus, whilst principles of conservation and sustainable use have formed the basis for forest policies since their inception, these objectives have usually been expressed in terms of a relatively limited range of forest products and services, typically with a focus on those with a direct or commercial value. More recent forest policy statements have recognised explicitly the broader range of forest values, including biological diversity, and some have recognised the principles of benefit sharing with local communities and of co-management. Correspondingly, forest policy formulation has acknowledged that many other public policies affect forests, and may be of more consequence for the conservation and sustainable use of forests than are forest policies per se. Furthermore, with so much of the overall forest estate in private ownership, there is a growing recognition that more attention needs to be paid to policies promoting the sustainable management of forest biological diversity by private owners.

45. The substantial, often overwhelming, influences of policies directed at non-forest issues (eg those concerned with agriculture, land tenure, regional or industrial development, or trade) have been long acknowledged as of fundamental importance to the success or otherwise of "forest" policies. However, public policy priorities which have favoured conversion rather than conservation of forests, and associated institutional constraints, have frequently restricted this acknowledgement to the level of rhetoric. As the rate of forest ecosystem loss and genetic erosion has accelerated over the past few decades, the obvious limitations of "forest policies" isolated from "policies about forests" are shifting the terms of discussion and action to the latter. This will thus entail identifying ways to address the underlying causes of the loss of forest biological diversity.

46. As the objectives of the Convention are broadly consistent with those already declared by governments for forests under their control, the Convention offers a compatible, integrating and holistic framework, within which hitherto disparate policies can be co-ordinated to better realise the objectives of the Convention (Article 6). Two of the policy arenas for which closer integration with "forest policies" would be of immediate and enduring value to the achievement of the objectives of the Convention are first, those concerned with conservation through reserves and second, those which affect the management of forests in private ownership. Other aspects of public policy likely to be important in the formulation of the national strategies called for in Article 6 are those identified in 2.2.3.2 (above).

47. Policies directed at the conservation of forests through the establishment of reserve systems have usually been formulated and implemented by agencies other than those responsible for conserving and managing forests for production. Typically, conservation strategies have focused on establishment and maintenance of a reserve system to fulfil ecosystem, species or landscape conservation objectives. Allocation of forests to meet these conservation objectives has been competitive with, and often subsidiary to, allocation to other uses. In the absence of policies integrating conservation strategies across forests managed by different agencies, there has often been poor co-ordination in the realisation of conservation objectives inside and outside reserves, and consequent sub-optimal achievement of conservation objectives. Such integration is called for in Article 6 of the Convention.

48. A limitation of major consequence to the scope of most public policies about forests is their restricted jurisdiction over forests under private ownership or control, with consequences for the

conservation of forest biological diversity similar to those described above. Although a range of incentives and regulations may be employed to promote conservation and sustainable use, the effectiveness of these measures varies widely and to date relatively few countries have put in place effective measures. Indeed, some have acted as perverse incentives for the conversion or unsustainable management of forests. National strategies which recognised that forest ecosystems and populations transcend tenurial boundaries would advance considerably the cause of the conservation of forest biological diversity. Articles 8(l) and 11 of the Convention provide the basis for effective regulations and incentive measures to promote the conservation and sustainable use of forest biological diversity on land in private ownership. There are, however, encouraging examples of initiatives within the private sector, and of partnerships between the private, government and non-governmental sectors, which illustrate the potential of private ownership and enterprise to contribute to the conservation and sustainable use of forest biological diversity.

2.4.1.2 Institutional structures for co-operation in research, training, education and the exchange of information

49. The history of national (and sub-national) responsibility for forest management and forest genetic resources has fostered the development of various institutional structures to promote co-operation and information exchange between agencies and individuals, in support of national programmes. These structures comprise both institutions and co-operative mechanisms, which operate on bilateral and multilateral bases, within and without governments. Some are mandated with specific responsibilities in relation to forest biological diversity, whereas for others this role is more implicit within a broader charter. An indicative but not exhaustive classification of these institutional structures for the case of forest biological diversity might be:

Mode of operation	Example [5]
Multilateral government	CIFOR, FAO, ICRAF, IPGRI, ITTO
Multilateral non-government	IUCN, TNC, WWF, FSC
Multilateral informal	IUFRO
Multilateral indigenous	IATIPTF, IPBN
Bilateral government	National ODA agencies
Global centres	WCMC
National institutions with assumed international responsibilities	CSIRO ATSC, DANIDA TSC, OFI

50. These institutional structures already promote, facilitate and support co-operation in research, training, education and the exchange of information relevant to forest biological diversity (Articles 12, 13, 17 and 18). However, the low status historically accorded forest genetic resources relative to that of crop plants has placed much of the onus for strategic development, co-ordination and action on those national institutions which have been able to assume international responsibilities, on informal collaborative structures, and more recently on non-governmental

organisations. Few of these are well-resourced. While some countries do still lack the necessary institutional structures, generally it is not a lack of structures, but of adequate and effective support for those which already exist, which most limits co-operation in research, training, education and the exchange of information relevant to the conservation and sustainable use of forest biological diversity.

2.4.1.3 Identification and monitoring

51. Given the complexity and dynamism of forest biological diversity, the identification of those components important for its conservation and sustainable use, and the monitoring of both these components and the effects of interventions (Article 7) (in terms which are both biologically meaningful and operationally feasible) are far from simple tasks. Because complete inventories of biological diversity are impractical, we are forced to approximate the totality of forest biological diversity with a series of surrogate measures, each of which has its own utility, but none of which is adequate in its own right. Such surrogate measures are useful for measuring quantitative and qualitative progress towards specific objectives and for assessing the effectiveness of specific interventions.

52. At the landscape level, three categories of surrogate are feasible - a subset of species or taxa, ecological assemblages, and environmental parameters:

(a) *Subsets of species* Although some species or species groups appear to act, at some sites, as indicators or predictors of overall biological diversity, there is little evidence that any such subset can reasonably represent biological diversity in toto with any generality. Nevertheless, in ecosystems where many species are unknown or undescribed, as is the case for many tropical forest systems, the comparatively well-known and easily assessed tree flora may provide useful indicators for monitoring the biodiversity of forest ecosystems. Keystone species may also constitute useful indicators.

(b) *Ecological assemblages* Ecological assemblages, inevitably defined more loosely than a species, incorporate a level of ecological complexity which species cannot, but correspondingly mask finer-scale variation. At this ecosystem level, ecological measures of community characteristics (eg indices of species richness, endemism and abundance) are most relevant, but nevertheless still individually weak. In this case, and that of environmental parameter surrogates, multivariate methods of characterisation are the most promising.

(c) *Environmental parameters* Given the seminal influence of environmental variation in defining forest biological diversity, there is a strong theoretical basis for the use of environments as surrogates for biological diversity. Examples of classification systems which characterise variation in the physical environment at this landscape scale are the Australian "environmental domain analysis" and Canadian "ecological land classification"; each has been used as "coarse filter" to identify patterns on a broad (national and regional) scale. They have the advantage of drawing on environmental data (which tend to be more widely available and reliable) than biological data, but suffer similar limitations as do ecological assemblages with respect to fine-scale variation in forest biological diversity.[6]

53. At the level of variation within species and populations, various measures of allelic richness and evenness derived from assessment of the proteins or DNA of individuals inform us of levels

and patterns of diversity. The different characteristics of these systems, and the different levels of technology, costs, and information associated with each, lends them to different purposes. For example, isozyme and RAPD markers are relatively simple and cheap to use, suggesting a primary role in extensive screening and characterisation of broad patterns of variation; the differential inheritance of organellar DNA, variation in which can be assessed using (currently) more laborious and expensive RFLP [7] technology, suggest a role for this information in the identification of distinctive populations meriting priority for conservation.

54. Consequently, various combination of surrogates representing the different levels of biological organisation will be required to inform the conservation and sustainable use of forest biological diversity. The obvious limitations of our current knowledge should not restrain us from acting upon it,[8] but do emphasise the importance of directing resources to the development of better measures for identification and monitoring of forest biological diversity. Support for the continuing development of technologies for the assessment of genetic diversity (eg molecular markers) and the manipulation and interpretation of information (eg Geographical Information, Database, and decision Support Systems) would promote realisation of Articles 7(a) to (d). Similarly, further development of methodologies of population viability analyses, and of those for assessing potential impacts and levels of risk and uncertainty associated with both human interventions and conservation strategies, would contribute greatly to decision-making more informed in terms of Articles 7(b) and 7(c). The direction of support for such work, in fulfilment of Articles 7(a), 7(b) and 14, to those institutions engaged in co-operative research and training (2.4.1.2 above) would be consistent with Articles 12, 16, 17 and 18.

55. Subject to the caveats above, we are already aware in general terms of the processes and categories of activities with significant adverse impacts on the conservation and sustainable use of forest biological diversity (2.2.3 above). The identification of these processes and activities, and the monitoring of their effects (Article 7(c)) is simplest for those which impact at the landscape scale, i.e. conversion and fragmentation; national, regional and global data sets describing these impacts already exist from remotely sensed images, and are held by national conservation agencies and centres such as WCMC. Advances in information technology are increasing the accessibility and value of such data. Where impacts on ecosystems and populations are more specific, eg the effects of extractive use or of translocation, existing knowledge and technologies to acquire it in sufficient quantity are poorer. Here, we are likely to continue to rely on extrapolation from detailed studies. Therefore, resources should be used to support studies designed to provide results of general applicability on issues of highest priority, for a range of ecosystems and interventions.

2.4.2 The conservation of forest biological diversity

56. The conservation of forest biological diversity entails conservation in and *ex sit* (Articles 8 and 9), demands effective identification and monitoring (Article 7), incentive measures (Article 11), research and training (Article 12) and public education and awareness (Article 13), and is supported by both the sustainable use of forest biological diversity (see 2.4.3 below) and the fair and equitable sharing of benefits arising from the utilisation of forest genetic resources (see 2.4.4 below).

2.4.2.1 Conservatio *in situ*

57. The complexity of forest ecosystems, the dominant role of tree species in them, the environmental and economic value of forests and trees, and the poor conservation status of most tree populations *ex sit*, have all led to forest trees being regarded as a paradigm of the need for *in sit* conservation. The provisions of the Convention entail a comprehensive approach to *in sit* conservation going beyond simply creating protected areas. Effective *in sit* conservation (Article 8) demands that both ecosystem functions and processes, and intra-specific population genetic processes, are maintained in a network of sites which are comprehensive and representative in terms of all levels of genetic organisation.

58. Conservation strategies have envisaged a reserve system of protected areas, the ultimate expression and focus of *in sit* conservation, buffered by land uses which operate in support of *in sit* conservation objectives. Reserve models based on population genetic principles, using various measures of population viability, imply that very large areas may be required for the conservation *in sit* of many forest tree and animal species. For example, some tree species occur at densities of less than one per hectare, or have reproductive systems which promote mating between geographically disparate individuals, implying minimum area estimates for viable populations in the hundreds of hectares; estimates on the same basis for predatory forest animal species can be in the millions of hectares. These ideal reserve models demonstrate two major characteristics of for *in sit* conservation of forest biological diversity. The first relates to the location of reserves, and the second to their size.

59. The provisions of the Convention however entail a more holistic, ecosystem approach to protected areas than has generally been the case. The history of establishment of protected areas, typically on sites less favoured for agriculture or production forestry, reveals i) that choice of sites has been made on criteria other than the maintenance of biodiversity, and ii) that national reserve systems almost invariably represent a biased and inadequate sample of ecosystems and populations, with an over-representation of uplands and slopes, sites of lower fertility, and stands of lesser economic value. Similarly, because few have been established or managed according to population genetic principles, they do not necessarily comprise viable populations of forest species.

60. While ideal reserve models emphasise the importance of large contiguous areas for *in sit* conservation, they also demonstrate that systems of fully protected areas are insufficient, by themselves, for the conservation of forest biological diversity. The mobility of many forest animal species, the extensive geographic distribution of most tree species, the reproductive biology of tree species and the high levels of gene flow between populations, and the large areas associated with minimum viable populations of many tree and animal species, emphasise the essential contribution of forests outside reserves to the conservation of populations within protected forest ecosystems. In reality, it is through the sustainable management of forests and trees outside reserves that most *in sit* conservation of forest biological diversity will be realised, though the likelihood of achieving this is greater when protected areas themselves are also well-managed.[9]

61. This conclusion highlights the roles of indigenous and local communities, and those of the managers of forests and trees outside reserves, in the conservation and sustainable use of forest biological diversity (Articles 8 (j) and 10(c)). It similarly emphasises the importance of the rehabilitation and restoration of degraded ecosystems and the recovery of threatened species (Article 8(f)) in the conservation of forest biological diversity, and suggests the use of

metapopulation models of population structure and function to design and implement *in situ* conservation strategies.

62. A metapopulation perspective on the demographic and genetic dynamics of individual species recognises that populations of a species wax and wane over time, within and across forest ecosystems or reserve boundaries; individuals and populations, variously linked by gene flow to form the overall metapopulation, play a dynamic role in the conservation of genetic diversity. Whilst the fate of specific populations depends on their particular population biology, the decline or demise of individual populations does not threaten the stability of metapopulation or conservation of its genepool, so long as other populations arise. A metapopulation perspective also emphasises the challenges inherent in the identification and monitoring of those components of forest biological diversity important for its conservation and sustainable use.

2.4.2.2 Conservatio *ex situ*

63. The *ex situ* conservation status (Article 9) of forest species is generally correlated with the extent of their domestication, and is therefore either poor or non-existent for most. Only a tiny proportion of forest species (eg around 100 tree species) are conserved adequately *ex situ*. These species are almost exclusively those whose genetic resources have been assembled for domestication programmes, with which almost all substantive *ex situ* forest conservation activities are associated.

64. In the case of forest trees, national and sub-national seed centres or forestry agencies, and a few institutions with international mandate, hold the majority of forest genetic resources in store or in field trials. Consistent with Article 9(e), support for these activities has focused increasingly on the country of origin of the genetic resources. The majority of *ex situ* resources, though, are represented by trees established in the forest or farm production systems. The majority of these trees represent a limited and poorly known sample of species gene pools, of limited value to *ex situ* conservation. For forest species, the value of *ex situ* seed storage is further limited by the relatively large number of species, many of economic importance, whose seed is not amenable to storage. Some progress has been made with other storage technologies, consequent to that with crop species, but none is currently operationally feasible for trees. Whilst research to develop these technologies has merit, their technical limitations and cost will continue to preclude their use in other than exceptional cases - emphasising the primary and overwhelming importance of conservation *in situ*.

65. Although crop plants of economic importance and a few animal species have been subject to more concerted *ex situ* conservation programmes than have most tree species, the general conclusions which apply to trees are also relevant to the vast majority of other forest species - the majority of which are not yet described by science.

2.4.2.4 Introductions of species and genetically-modified organisms

66. The potentially adverse consequences for forest biological diversity of introductions of exotic species have historically received little attention from those associated with their translocation. The introduction of exotic species (including micro-organisms, fungi, insects as well as higher orders of animals and plants) have given rise to adverse impacts in the form of pests, pathogens, parasites and displacers of native species, often leading to the disruption of ecological

processes and relationships. The risks associated with such introductions, and those potential associated with the use or release of genetically modified organisms, have now generated sufficient concern to prompt the formulation of guidelines. In the case of species or germplasm introductions, though, these remain voluntary and untested. A strategy which addressed all aspects of the introduction and management of species, germplasm or modified organisms originating from or which could disrupt forest ecosystems, including protocols for testing and control, would support the conservation of forest biological diversity (Articles 8(g) and (h)).[10]

2.4.2.4 The conservation of forest biological diversity: summary

67. *in situ* conservation will continue to play a pre-eminent role in the conservation of forest biological diversity, implying priority to those activities which support it. These may be classified into research issues and those measures which act as incentives for conservation. Although incentive measure for conservation do exist, most investigation of incentive structures has been conducted in the context of sustainable use, and this is discussed below (2.4.3).

68. In terms of research, our currently inadequate knowledge of forest metapopulation attributes and processes, and of associated issues (particularly the effects of ecosystem and population fragmentation) demand urgent attention. Without such information, the knowledge base necessary to integrate conservation inside and outside reserves will remain limiting. However, our current understanding of both forest metapopulations and surrogate approximations of forest biological diversity is sufficient for us to review the adequacy of existing reserve systems and, where feasible, enhance them.

69. A fuller appreciation of indigenous and local peoples' knowledge would complement that of metapopulation dynamics. It would better inform us of the consequences for forest biological diversity conservation of both traditional and modern forest and agro - ecosystem management practices, enabling more appropriate management for conservation both within and outside reserves. Research on both these fronts is underway, but remains on a tiny scale relative to both the apparent level of traditional knowledge, on the one hand, and the evident limits of scientific knowledge, on the other. However, the limits of current knowledge do not preclude action now; because of the profound, pervasive and accelerating impacts of contemporary societies on forest biological diversity, the effective *in situ* conservation of forest biological diversity depends more fundamentally on political choices about resource use, allocation, ownership and benefit sharing than on the refinement of such knowledge as we do have.

2.4.3 Sustainable use of the components of forest biological diversity

70. As is apparent from the preceding discussion, issues of the sustainable use of the components of forest biological diversity (Article 10) are embedded within and inseparable from those relevant to its conservation. Thus, the discussion here focuses on those issues which, whilst of importance to both objectives, are priorities for the sustainable use of the components of forest biological diversity: the products and services of forest ecosystems, and the genetic resources represented by forest populations and organisms.

71. Both traditional and modern management regimes for forests have been based on the principle of sustainable use, manifested by regulation of the level of harvest to within the productive capacity of the forest. Whilst "scientific forestry" since the 18th century has focused

principally on the "sustained yield" of wood products, traditional management regimes have applied to a much broader range of (primarily) non-timber forest products. More recently, modern forestry has acknowledged explicitly the importance of maintaining ecosystem function and process to maintaining productivity, and has sought to develop a more holistic approach to ecosystem management, a philosophy encapsulated by the so-called "new forestry". Ecological perspectives, and therefore ecological principles, have been dominant in the formulation of these management regimes. Information on levels and patterns of genetic variation within species has been only sparsely available, and therefore little used to date. The major challenge to sustainable use of the components of forest biological diversity is the incorporation into these ecologically-based management regimes of the principles and practices arising from our emerging knowledge of the genetic structure and dynamics of forest populations. This conclusion applies equally to the scope of methodologies used to assess the impact of proposed projects on forest ecosystems (Article 14), for which the assessment of associated risk and uncertainty (2.4.1.3 above) is similarly relevant.

72. In the case of forests managed for both conservation and production, there are examples from Scandinavia, the Americas and Asia which demonstrate how forest managers have incorporated genetic criteria into forest management strategies and regimes. Experience with forest harvesting operations more generally suggests that, although some income may be foregone in the short term as a result of implementing conservation criteria, such opportunity costs are relatively small: in the short term, because they promote better planning and management of harvesting operations, and in the longer term, because of the magnitude of benefits realised or maintained. The major technical obstacle to the more widespread application of conservation genetic principles to forest management is the difficulty of defining criteria and indicators for the conservation and sustainable use of forest biological diversity which satisfy the dual criteria of conservation merit and operational feasibility. This conclusion emphasises the importance and urgency of advancing our knowledge of those components of forest biological diversity important for its conservation and sustainable use (Article 7), i.e. those surrogate measures which will act as criteria for and indicators of forest biological diversity in toto.

73. In the interim, a precautionary approach based on current knowledge of forest ecology and forest genetics favours harvesting regimes whose impact at both landscape and local scales is the minimum consistent with the reproductive ecology of the species and the maintenance of ecosystem structure, function and process. This implies that appropriate harvesting regimes will vary with both the ecosystem and the species harvested; for many of these, a precautionary approach is likely to imply harvesting operations more conservative of ecosystem structure than those to which large-scale industrial forestry has become accustomed. Article 10(c) calls for Parties to encourage co-operation between its governmental authorities and its private sector in developing methods for sustainable use of biological resources

74. Our embryonic knowledge of the metapopulation structure and dynamics of forest species also suggests that we accord priority to gaining a better understanding of how farmers' and other land managers' practices affect the genetic resources of forest species. Their practices of forest and tree retention, establishment, management and regeneration, including the processes by which they acquire and distribute germplasm of forest species, will affect the sustainability of use of those components of forest biological diversity represented in agroecosystems. Such information will allow us to realise sustainable use by embedding production within a conservation context.

75. Improving the knowledge base of forest population dynamics, of surrogate measures of forest biological diversity, and of the impacts on forest biological diversity of traditional and

modern farming and forest management practices, will promote the development of sustainable use regimes. Such regimes need to recognise and correctly value inter alia timber and non-timber forest products, subsistence uses of forest products and non-consumptive uses of forest ecosystems. However, their implementation will depend more on the economic, political and cultural regimes which determine the balance between the conservation and conversion of forest ecosystems, reservation and production within retained forests, and forest and farm management practices within production systems. The forest policy literature is rich in both theory and example of regulatory frameworks, incentive mechanisms and institutional structures intended to promote the conservation and sustainable use of forests (Article 11). Synthesis of this literature, and of contemporary political thought, suggest an increasing emphasis on market-mediated and innovative institutional mechanisms acting as incentives for sustainable use, partly in response to the obvious limitations and perceived failures of approaches based on the regulatory mechanisms and institutional structures which have typified forest management and conservation agencies in the past.

76. For forest products entering the market place, the prospect of independent certification of the quality of management of the forests from which they originate has emerged as a promising incentive mechanism. Such certification relies upon the definition and implementation of forest management standards consistent with the conservation and sustainable use of forest biological diversity. This prospect reinforces the critical importance of identifying criteria for and indicators of sustainable forest management consistent with both ecological and genetic principles.

77. The advantages of institutional structures which recognise traditional resource rights, and which accommodate and promote participatory modes of forest management, emerge from theory and experience as a second principle of management likely to sustain the benefits and values of forests. Participatory processes are as diverse as the societies and environments in which they have been developed, though emphasis on local knowledge, custom and benefits is a common theme to those which have achieved some measure of success. Resource allocation mechanisms which acknowledge local as well as more distant demands, and direct benefits accordingly, and which recognise the long time horizons inherent in the management of forest ecosystems, are a third principle of policies which foster the sustainable use of forests and, with appropriate management in ecological and genetic terms, that of the components of forest biological diversity. The promotion of policies which incorporate and build from these principles is a priority in advancing the objective of sustainable use of the components of forest biological diversity.

2.4.4 Fair and equitable sharing of the benefits arising out of the utilisation of genetic resources

78. The genetic resources of forests are rich and diverse, comprising the genes and gene complexes of forest trees, plants and animals. Historically, we have exploited these genetic resources at the level of populations or individual organisms; new biotechnologies have the potential to make these resources available at the level of the gene or gene complex. The benefits arising from the utilisation of forest genetic resources accrue variously to individuals, communities, enterprises and societies both in and *ex situ*, but there are as yet few mechanisms which capture or direct these benefits to those who have conserved or developed forest biological diversity.

2.4.4.1 Access to and benefit-sharing from forest genetic resources

79. Typically, forest genetic resources have been sampled and tested for research and development purposes without restriction, and at nominal or no charge to the collector (Article 15). Where forest genetic resources have been assembled on a large scale, for example the collection of tree seed for operational establishment or of plant material for pharmaceutical screening, some market price reflecting primarily short-run supply and demand has prevailed. The income generated has typically accrued principally to the collecting enterprise, variously a state agency or individual entrepreneur. In the latter case, some level of fee is usually levied by the state or the forest owner. In neither case has it been common for benefits to be shared with indigenous or local communities, except where their resource or property rights have been recognised explicitly.

80. However, the entry into force of the Convention creates a new framework under which, as provided for by its Article 15, access to forest genetic resources will increasingly be subject to the negotiation of formal agreements with a range of stakeholders, offering a mechanism for more equitable benefit sharing. Similarly, it is only recently that, in a few cases, pricing mechanisms have acknowledged the potential future value of forest genetic resources, and sought to establish mechanisms to direct substantive benefits, in some form, to indigenous and local communities, in recognition of their roles as both contributors to and custodians of forest biological diversity. The "biodiversity prospecting" agreement between the pharmaceutical company Merck and the Costa Rican National Institute of Biological Diversity remains the best-known example.

81. A number of challenges present themselves in the development of regimes which better share benefits arising from the utilisation of forest biological diversity amongst those who have contributed to its development and conservation. These include:

- (a) the diversity of interests at a sub-national level, with national and sub-national governments and management agencies, indigenous peoples and local communities, and individual owners of forest and agro-ecosystems variously responsible for ownership of and access to forest genetic resources (Article 15);
- (b) the consequent difficulties, both practical and political, of obtaining prior informed consent to access forest genetic resources (Article 15);
- (c) the limited acknowledgement of traditional resource rights by many modern societies, and the consequent difficulties experienced both by groups wishing to exercise such rights and those wishing to recognise them (Article 15);
- (d) the divergence in intellectual property rights regimes between Western legal systems, which require individual and identifiable innovation, and most traditional cultures, which do not assign such rights (Article 16). In the case of forest biological diversity, issues of intellectual property assignment are further complicated by the dynamic nature and evolutionary timescale of biological diversity itself;
- (e) divergent opinions as to the inherent value of forest genetic resources relative to that of the research and development activities which translate genetic resources into marketable products, particularly for the case of biotechnologies (Articles 16 and 19).

82. Overcoming the barriers these issues pose to the fair and equitable sharing of benefits arising from the utilisation of forest genetic resources will require the development of access agreements and property rights regimes which recognise the respective roles of individuals,

/...

communities (including indigenous peoples and farmers), and enterprises and agencies, in conserving and developing forest biological diversity. The emerging experience of collaborative resource management, which has its genesis in the rural communities of developing countries but growing applicability in industrialised countries, offers a platform for the development of benefit sharing regimes which are locally appropriate.

2.4.4.2 Applications of biotechnologies

83. The potential of biotechnologies to exploit forest genetic resources has focused attention on the relative magnitudes of the inherent and developed values of forest genetic resources. The wild relatives of crop plants or of the few intensively domesticated tree species have potential value as a source of genes for incorporation, whether by classical breeding or genetic engineering, into domesticated populations. Similarly, those forest organisms with potential pharmaceutical value are recognised as of sufficient potential value to justify substantial expenditure. In these cases, genetic engineering does offer the prospect of substantial financial returns, but its application is dependent on highly-domesticated populations, high levels of genetic information, and high levels of technology, all of which imply high costs.

84. In other, more typical, cases however, the financial benefits arising from the application of biotechnologies to forest genetic resources seem limited in the foreseeable future. This is because the biotechnologies of most application to the undomesticated populations which typify forest biological diversity are the molecular markers which, whilst of great value in assessing genetic diversity, deliver no financial gain in themselves. Their value lies instead in the provision of information to enable development of more effective strategies for the conservation and sustainable use of forest biological diversity. Existing co-operative institutional structures (2.4.1.2 above) have an important role in maximising the benefits derived from the application of these technologies.

2.4.4.3 Fair and equitable sharing of benefits: summary

85. As with the conservation of forest biological diversity and the sustainable use of its components, realising the objective of the fair and equitable sharing of the benefits arising out of the use of forest genetic resources depends fundamentally on political choice; in this case, about relative responsibilities, rights and values. The terms of discussion about these political choices reflect the diversity of opinions about:

- (a) the relative responsibilities and rights of various stakeholder groups, in the development and conservation of forest biological diversity, and;
- (b) the relative values of forest genetic resources, the products developed from them, and the technologies which effect that development.

2.5. Conclusions

86. Forest biological diversity is complex, heterogeneous and dynamic. Although still rich in both absolute and relative terms, it has been much diminished by the impacts of human societies. Those impacts are greater now than at any time in human history, and they are still accelerating. They are eroding contemporary forest biological diversity, and challenging the processes which maintain it in forest communities and their constituent populations.

87. Forest biological diversity is shaped by complex interactions between the physical environment, the biology of forest systems and populations, and the influences of individuals and societies. Our response to its loss must recognise these forces and their interdependencies. The Convention provides the framework for addressing the loss of forest biological diversity, the scale of which demands urgent action at all levels. Priority action on forest biological diversity includes:

- (a) recognising that the three fold objectives of the Convention are inseparable and mutually supportive goals, and effectively integrating these into plans, programmes and policies at the international, regional, national and local levels;
- (b) providing more effective support for those institutions already active in research, training, education and the exchange of information relevant to the conservation and sustainable use of forest biological diversity, and support for new institutions if required;
- (c) undertaking policy, legal and other reforms and action that acknowledge the fundamental importance of forests and trees outside reserves to *In situ* conservation of forest biological diversity, and therefore of the roles of indigenous and local communities, and of the managers of forests and trees outside reserves, in the conservation and sustainable use of forest biological diversity;
- (d) carrying out research to better define forest metapopulation structure and dynamics, useful surrogates of forest biological diversity, and the impacts of harvesting regimes;
- (e) carrying out research to better understand the underlying causes of the loss of forest biological diversity and their impacts;
- (f) developing innovative methods for achieving sustainable forest management, including appropriate financial mechanisms, and ways and means to transfer and develop appropriate technologies;
- (g) carrying out research to better describe indigenous and local communities' knowledge of, and practices which impact on, forest biological diversity;
- (h) effectively integrating modern and traditional knowledge of forest biological diversity into sectoral and cross-sectoral plans, programmes and policies; and
- (i) developing access agreements and property rights regimes which recognise the respective roles of diverse stakeholders in conserving and developing forest biological diversity.

III. POSSIBLE FUTURE ACTION

3.1 Further input to the Intergovernmental Panel on Forests

88. The second session of the IPF was held in Geneva from 11 to 22 March 1996. As requested by the COP (decision II/9, para.2(a)), the Executive Secretary provided advice and information pertaining to the relationship between indigenous and local communities and forests. In consultation with the Secretariat of the IPF, the Secretariat prepared the document *Traditional forest-related knowledge: Report of the Secretary-General* (document E/CN.17/IPF/1996/9) for

the initial discussion of Programme element 1.3 of the Panel's programme of work. A report of the second session of the Panel is contained in document E/CN.17/1996/24.

89. The third session of the Panel was held in Geneva from 9 to 20 September 1996. Substantive discussion of Programme element 1.3 'Traditional forest-related knowledge' took place at this meeting. The Report of the Secretary-General on Traditional-forest related knowledge (document E/CN.17/IPF/1996/16) was prepared to assist the IPF in its consideration of this Programme element. In accordance with decision II/9, paragraph 2(a), the Executive Secretary transmitted to the Secretariat of the IPF a background document as a contribution to the preparation of the Report of the Secretary-General. This background document was submitted to the Subsidiary Body for Scientific, Technical and Technological Advice at its second meeting, for information (UNEP/CBD/SBSTTA/2/Inf.3).

90. In accordance with paragraph 4 of decision II/9, the Secretariat of the IPF will communicate progress on issues relevant to forests and biological diversity under item 10.1 of the provisional agenda of the present meeting. This submission is contained in document (UNEP/CBD/COP/3/17).

91. The COP will recall that the SBSTTA, at its first meeting, recommended that, when considering an input to the IPF, the COP "[should consider] the following main elements ...:

- (i) There is an urgent need to identify the main causes that lead to the decline of forest biological diversity, develop and promote the use of methods for the management, conservation and sustainable use of forests, based on the identification and targeting of ecological processes and the multiple roles and functions of forest ecosystems, including ecological landscape planning and environmental impact assessment;
- (ii) Urgent development and application of ways and means to ensure fair and equitable sharing of benefits derived from the use of forest genetic resources would provide a major incentive for efforts to maintain forest biological diversity;
- (iii) The protection of the knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles, and compensation through the equitable sharing of the benefits arising from the use of such knowledge, innovations and practices, in accordance with Article 8(j) of the Convention, should be promoted in order to improve conservation and sustainable use of forest biological diversity." (Recommendation I/3, paragraph 8).

92. In respect of sub-paragraph 8(i) of recommendation I/3, the COP may wish to note the substantive discussions at the second and third sessions of the IPF on Programme element I.1 ("..national strategies...")[14], Programme element 1.2 ("..underlying causes of deforestation..")[11], Programme element III.1(a) ("..assessment of multiple benefits..")[12], Programme element III.1(b) ("..valuation of the multiple benefits..")[13], and Programme element III.2 ("..criteria and indicators..")[15]. It may wish to further consider: i) the programme of work of the Panel and its relevance to the three-fold objectives of the Convention; ii) identifiable gaps in the Panel's work programme from the point of view of the Convention; and iii) the extent to which the work of the Panel might assist Parties in fulfilling the objectives of the Convention.

93. In respect of sub-paragraph 8(ii) of recommendation I/3, the COP may wish to consider how issues related to the fair and equitable sharing of benefits derived from the use of forest

genetic resources might be included in the consideration, at its fourth meeting, of matters related to benefit-sharing (Annex to decision II/18).

94. In respect of sub-paragraph 8(iii) of recommendation I/3, the COP will, under item 11.1 of the agenda of this meeting, consider "knowledge, innovations and practices of indigenous and local communities: implementation of Article 8(j)". The Secretariat has prepared document UNEP/CBD/COP/3/19 to assist the COP in its consideration of this topic.

95. In considering the need for further input to the IPF, the COP will recall paragraph 17 of the "Statement on Biological Diversity and Forests from the Convention on Biological Diversity to the Intergovernmental Panel on Forests" (decision II/9, Annex). This states:

"The Intergovernmental Panel on Forests may also receive substantive inputs from the Convention following the third meeting of the Conference of the Parties on, *inter alia*, the underlying causes of biological diversity loss in forest ecosystems, components and dynamics of biological diversity, and ways and means for the effective protection and use of traditional forest related knowledge, innovations and practices of forest dwellers, indigenous and local communities, as well as fair and equitable sharing of benefits arising from such knowledge, innovations and practices."

96. At its second meeting, the SBSTTA suggested that further additional inputs be sent to the IPF (recommendation II/8), which the COP may wish to consider:

- (a) Biodiversity considerations should be integrated more fully into IPF recommendations and proposals for action. IPF should also consider ways to deal with identified gaps in forest biodiversity knowledge;
- (b) In relation to programme element I.1 of the IPF on national forest and land use plans, strategies for sustainable forest management should be based on an ecosystem approach, which will integrate conservation measures (*eg* protected areas) and sustainable use of biological diversity. Methodologies need to be developed to assist countries in identifying sites of high interest for biodiversity. These recommendations should take into account national financial circumstances, laws and regulations;
- (c) In relation to the programme element of the IPF dealing with criteria and indicators, conservation of biological diversity and the sustainable use of its components, as well as the maintenance of forest quality, as part of sustainable forest management, should be substantively included in the deliberations of the IPF.

3.2 Possible Medium-term Programme of Work

97 In its "Statement on Biological Diversity and Forests from the Convention on Biological Diversity to the Intergovernmental Panel on Forests" the COP identified criteria for sustainable forest management as related to the Convention (paragraph 12). It also informed the IPF that it "intends to explore how the conservation and sustainable use of forest biological diversity could be assisted by the establishment of specific environmental goals in the forest and other sectors" (paragraph 10). In addition to the aspects of forests and biological diversity referred to in paragraph

17 of the Statement, paragraphs 8 to 15 identify further links in terms of the specific provisions of the Convention.

98. The COP may wish to consider the advantages of establishing a process and programme of work to develop and implement methods for sustainable forest management which combine production goals, socio-economic goals of forest-dependent local communities, and environmental goals, particularly those related to biological diversity, and which take an ecosystem approach and are aimed at securing forest quality as related to the Convention (paragraph 12 of the Statement).

99. Such a programme might consist of those matters identified by the COP in the Statement to the IPF, including:

- (a) the underlying causes of the loss of forest biological diversity;
- (b) specific environmental goals in the forest sector, including:
 - (i) appropriate Environmental Impact Assessments;
- (c) valuation of the multiple benefits derived from forests, including:
 - (i) economic benefits
 - (1) monetarized
 - (2) non-monetarized
 - (ii) environmental services
 - (iii) non-consumptive values
 - (1) cultural, religious, recreational values
 - (2) existence, bequest, vicarious use values
- (d) methods for sustainable forest management, including:
 - (i) indicators of forest quality
 - (ii) incentive measures
 - (iii) methodologies and technologies
 - (iv) criteria and indicators
 - (v) impact of utilisation of components of biological diversity, particularly those under threat, on ecological processes
 - (vi) remedial action in degraded forest areas
 - (vii) co-operation between governmental authorities and its private sector
- (e) *In situ* conservation, including:
 - (i) establishment and management of protected areas
 - (ii) conservation of primary/old growth and ecologically mature secondary forest ecosystems
 - (iii) criteria and methodologies for participatory decision-making, planning and management processes

- (f) access to forest genetic resources and equitable sharing of benefits, including:
 - (i) prior informed consent
 - (ii) traditional forest-related knowledge, innovations and practices
- (g) public education and awareness
 - (i) local communities
 - (ii) local and national policy-makers
 - (iii) forest managers
 - (iv) users of forests and forest products
- (h.) research, training and capacity-building
 - (i) scientific and technical co-operation
 - (ii) transfer and development of technologies
 - (iii) financial resources

100. In this regard, the COP may wish to note the research and technological priorities identified by the SBSTTA at its second meeting (recommendation II/8).

Notes

1/ Some commentators argue, on the basis of research on specific historical cases, that human impact on forests in pre-industrial societies can best be described as cyclical, with periods of very heavy influence followed by periods of recovery. It may be that the net historical human impact, prior to the advent of industrial societies, was to increase forest biological diversity.

2/ See World Resources Institute/UNEP/UNDP *World Resources 1994-95*, chapters 7 and 19 and UNEP *Global Biodiversity Assessment*, section 11.2.2.2.5.

3/ See inter alia Dudley, N. (1992) *Forests in Trouble: A Review of the Status of Temperate Forests Worldwide*. World Wide Fund for Nature (Gland, Switzerland) and subsequent statements from WWF.

4/ See documents UNEP/CBD/SBSTTA/2/7 ('Knowledge, innovations and practices of indigenous and local communities: implementation of Article 8(j)') and UNEP/CBD/SBSTTA/2/Inf.3 ('Traditional forest-related knowledge').

5/ CIFOR - Center for International Forestry Research; CSIRO ATSC - CSIRO Australia, Australian Tree Seed Centre; DANIDA TSC - Danish International Development Agency, Tree Seed Centre; FAO - Food and Agriculture Organisation of the United Nations; FSC - Forest Stewardship Council; IATIPIF - International Alliance of Tribal and Indigenous Peoples of the Tropical Forests; ICRAF - Centre for International Research in Agroforestry; IPBN - Indigenous Peoples Biodiversity Network; IPGRI - International Plant Genetic Resources Institute; ITTO - International Tropical Timber Organisation; IUCN - The World Conservation Union; IUFRO - International Union of Forest Research Organisations; ODA - Official Development Assistance;

OFI - Oxford Forestry Institute; TNC - The Nature Conservancy; WCMC - World Conservation Monitoring Centre; WWF - World Wide Fund for Nature.

6/ See for example: World Conservation Monitoring Centre. 1996. *Assessing Biodiversity and Sustainability*. Groombridge, B. and Jenkins, M.D. (eds), World Conservation Press, Cambridge, UK, which contains an expanded list of biodiversity assessment techniques.

7/ Restriction fragment length polymorphism

8/ The Preamble of the Convention states that 'where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimise such a threat'.

9/ This is not to imply that protected areas are not important, but rather that the conservation of forest biodiversity implies a wide range of different approaches, carried out by different management agencies - public, private and non-governmental. Protected areas are a critical element in this mix in virtually every country.

10/ In this context, see document UNEP/CBD/BSWG/1/3 (Elaboration of the Terms of Reference for the Open-ended *Ad hoc* Working Group on Biosafety, submitted to the meeting of the Open-ended Ad Hoc Working Group (Aarhus, Denmark, 22-26 July 1996))

11/ See documents E/CN.17/IPF/1996/8 and E/CN.17/IPF/1996/14

12/ See documents E/CN.17/IPF/1996/2 and E/CN.17/IPF/1996/15

13/ See documents E/CN.17/IPF/1996/6 and E/CN.17/IPF/1996/20

14/ See documents E/CN.17/IPF/1996/7 and E/CN.17/IPF/1996/25

15/ See documents E/CN.17/IPF/1996/10 and E/CN.17/IPF/1996/21

Major sources

TJB Boyle & B Boontawee. 1995. *Measuring and monitoring biodiversity in tropical and temperate forests*. CIFOR.

OH Frankel, AHD Brown and JJ Burdon. 1995. *The conservation of plant biodiversity*. Cambridge.

RJ Haines. 1994. *Biotechnology in forest tree improvement*. FAO Forestry Paper 118.

PJ Kanowski & DH Boshier. 1995. In: N Maxted et al (eds). *Plant conservation: the in situ approach*. Chapman & Hall.

K ten Kate. 1995. *Traditional resource rights and indigenous people: challenges and opportunities for the Royal Botanic Gardens*, Kew. Green College, Oxford.

FT Ledig. 1992. *Human impacts on genetic diversity in forest trees*. *Oikos* 63:87-108.

National Research Council (USA). 1991. *Managing global genetic resources: forest trees*. National Academy Press.

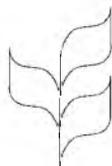
DA Posey. 1995. *Indigenous peoples and traditional resource rights: a basis for equitable relationships?* Green College, Oxford.

NP Sharma (ed). 1992. *Managing the world's forests*. Kendall/Hunt.

EO Wilson. 1992. *The diversity of life*. Allen Lane.



CBD



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/17/Add.1
28 October 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY

Third meeting

Buenos Aires, Argentina

4 to 15 November 1996

Item 10.1 of the provisional agenda

**COMMUNICATION OF THE SECRETARIAT OF THE INTERGOVERNMENTAL PANEL ON
FORESTS ON PROGRESS ON ISSUES RELEVANT TO FORESTS AND BIOLOGICAL
DIVERSITY**

Note by the Executive Secretary

1. The annex to the present Note contains an Information Note from the Secretariat of the Intergovernmental Panel on Forest to the Convention on Biological Diversity on the progress made by the IPF.
2. The Executive Secretary has been informed by the IPF Secretariat that the report of the Third Session of the IPF is not yet available for distribution.

/...

Annex

Information Note from the IPF Secretariat to the third Conference of the Parties to the Convention on Biological Diversity on the progress made by the IPF.

Buenos Aires, Argentina, 4-15 November 1996.

At its Second session held in Geneva, 11-22 March 1996, the Panel took note of the "Statement on Biological Diversity and Forests from the Convention on Biological Diversity to the Intergovernmental on Forests" annexed to the Decision II/9: "Forests and Biological Diversity", adopted at COP II in Jakarta, Indonesia, November 1995.

At its Third session, Geneva, 9-20 September 1996, the Panel welcomed the contribution of the Convention on Biological Diversity to its discussion. It requested the Secretariat of the Panel to provide information on progress made by the IPF to the Third Meeting of the Conference of the Parties to the CBD, so as to continue the exchange of information between the Panel and the COP". This note is prepared in response to this request. Additionally, if the Report of the Third session of the IPF, in its final version in all languages, is available in time for the III Meeting of the Conference of the Parties to the CBD, arrangements will be made for its prompt distribution to the CBD Secretariat.

The progress made in integrating relevant biodiversity issues in IPF programme of work was duly reflected in the Secretary General's Reports presented to the Third Session of the IPF. Consistent with COP Decision III/9, the IPF paid particular attention to the incorporation of biological diversity components in all of the following Programme Elements:

Category I: Implementation of UNCED Decisions related to forests at the national and International level including an examination of sectoral and cross-sectoral linkages:

- I.1 National Forest and Land Use Programmes;
- I.2 Underlying Causes of Deforestation and Forest Degradation;
- I.3 Traditional Forest Related Knowledge;
- I.4 Fragile Ecosystems Affected by Desertification and the Impact of Air-borne Pollution on Forests;
- I.5 Needs and Requirements of Countries of Low Forest Cover;

Category II: International Cooperation on Financial Assistance and Technology Transfer ;

Category III: Scientific Research, forest assessment and development of criteria and indicators for sustainable forest management

- III. a) Assessment of the Multiple benefits of All Types of Forests;
- III. b) Methodologies for proper Valuation of the Multiple Benefits of Forests;
- III.2 Criteria and Indicators for Sustainable Forest Management;

Category IV: Trade and Environment Relating to Forest Products and Services;

Category V: International Organizations and Instruments.

- V.1 International Organizations and Multilateral Institutions and Instruments.
- V.2 Consensus Building Towards the Further Implementation of the Forest Principles, Including Appropriate Legal Arrangements and Mechanisms Covering All Types of Forests.

Furthermore, consistent with its mandate and taking into account the above mentioned decision of the COP II, as well as the "Inputs to the Intergovernmental Panel of Forests" elaborated by the 2nd Meeting of SBSTTA, held in Montreal, 2-6 September 1996 and contained in its recommendation II/8, the Panel in the Reports of its Second and Third sessions made explicit references to the Convention on Biological Diversity as well as to biodiversity issues, in particular:

In Programme Element I.1, the Panel asked for the "integration of conservation measures and sustainable use of biological diversity within national forest and land-use plans";

In Programme Element I.2, the Panel referred to the need for "national policy frameworks for the management, conservation and sustainable use of all types of forests that encompasses and harmonizes elements pertaining to social and economic development programmes, environment plans, land-use plans, and national biodiversity strategies and action plans";

In Programme Element I.3, the Panel emphasized that its discussions should focus on the terms of reference determined by the CSD which include considerations on "how traditional knowledge and practices in their broadest sense could be applied to sustainable forest management"; noted that "international cooperation on traditional forest-related knowledge and rights related to it must be consistent with obligations under the CBD", and other relevant instruments; and "also noted that at its fourth session, it would need to take into account, as appropriate, the outcome of the Third Conference of the Parties of the Convention on Biological Diversity in relation to indigenous knowledge";

In Programme Element I.4, the Panel felt that work "should be carried forward in close relationship with existing international conventions such as the CBD...";

In Programme Element I.5, the Panel recognised that "the restricted area of forests in countries with low forest cover results in reduced capacity for....the provision of goods and services, including....the maintenance of biological diversity. Moreover, many types of the forests in these countries are distinctive or even rare and require national as well as international protective measures.."; "special attention should be made to establish networks of protected areas and ecological corridors in order to conserve biodiversity"; "A close liaison with CBD should be encouraged";

In Programme Element II, the Panel recognised that forest-related projects to be supported through GEF programmes relevant to biodiversity, climate change and international waters, are done under the guidance provided by the COPs of international instruments on these subjects”; the Panel also noted that priority in technology transfer and capacity building should be established and continuously reviewed and could include.....species research, including biotechnology, for tree improvement...and native species research; technology and methods for retaining forest values, including biological diversity...”;

In Programme Element III.1 (a), the Panel noted that much attention is still given to timber and forest cover, whereas other goods and services provided by forests such as....biological diversity. ..protection functions...are rarely covered and will need more attention”; the Panel was informed of the recommendations made by the II SBSTTA on priorities for scientific research on biological diversity and forests. The Panel instructed its Secretariat to liaise with the Secretariat of the CBD to ensure that any such work undertaken by the CBD addresses gaps in existing knowledge identified by the Panel as effectively as possible”;

In Programme Element III.1 (b), the Panel stressed that the costs associated with deforestation and forest degradation and changes in forest quality with respect to biological diversity, biological functions, social consideration and environmental impacts, are not adequately covered by present (valuation) methodologies”; it also recognised the importance of the services provided by forests relating to, for example, biological diversity and climate regulation, and the potential for developing mechanisms to translate these values into monetary terms.....”.. However, it also noted that further discussion on these issues should take place...in the COP to the CBD and FCCC”; the Panel also noted the input received from the COP to the CBD with respect to the need to develop methodologies for valuing forest biodiversity” and welcomed further input from the COP to the CBD to be considered at IPF IV, in particular with respect to providing technical advice to the appropriate valuation of forest biodiversity”;

In Programme Element III.2, the Panel encouraged countries, international organizations and research organizations to consider ways to promote research relating to indicators for sustainable forest management in the following priority areas:....approaches to measuring biological diversity; approaches to measuring and valuing the production of non-wood forest products”; urged the COP to the CBD to take note of existing criteria and indicators frameworks with a view to ensuring that work done by the CBD on developing and implementing biodiversity indicators is consistent with and complementary to these frameworks”;

In Programme Element IV, the Panel recognised the need to promote the marketability of lesser-used species through increased investment and research and development (R&D); methodologies.... should reflect a balance among economic, environmental (including biological diversity) and social considerations”; the Panel also noted the need to intensify efforts to promote lesser-used species from all types of forests, including non-timber forest products”; and

In Programme Element V, consideration of the CBD programme of work was included among the several existing instruments whose work was analysed in order to identify work carried out ... in forest-related issues...in order to identify any gaps, areas requiring enhancement, as well as any areas of duplication”.

At the Third session of the IPF several proposals were also put forward relevant to Programme Elements V.1 and V.2 on international institutional and legal arrangements. Some of these indicated support for the elaboration of a legally-binding instrument dealing with sustainable management of all types of forests, whether through initiating the preparation of a global convention or supplementing and coordinating existing instruments. There were also proposals on the establishment of an institutional follow-up process with a view of elaborating, in a limited time frame, recommendations to the CSD on possible legally-binding instrument and other programme priority work dealing with conservation, management and sustainable development of all types of forests.

The Panel felt that "further information and study of the international organizations, multilateral institutions and legal instruments relevant to forests and of their mandates, as well as their progress in and capacity for implementing the forest-related outcomes of UNCED would be needed in order to achieve a more accurate diagnosis and to formulate proposals for action". The Panel also agreed that "more specific conclusions and proposals for action will be elaborated during the Fourth session of the IPF after, inter alia, consideration of relevant proposals to be prepared by the informal high level Inter-Agency Task Force on Forest and the results by other relevant initiatives".

It should be noted that Draft Conclusions and Proposals for Action in the Report of the Third session of the IPF includes all these points together with many other as "Elements for negotiations" at the Fourth session of the Panel, to be held in New York in February 1997, which will result in Panel's Final report to the Fifth session of the CSD, New York, 7-25 April 1997.

The Panel agreed that at its Fourth session it will also take into account additional proposals and inputs, including the results of the COP III to the CBD relevant to IPF mandates as well as of other inter-sessional activities that will take place during the period between the IPF III and IPF IV.

The IPF Secretariat would like to take this opportunity to acknowledge all the valuable substantive input and cooperation provided by the COP and the CBD Secretariat in connection with the various Programme Elements of its programme of work as well as for the important contributions made by the CBD Secretariat as member of the informal high level Inter-Agency Task Force on Forest. It is hoped that this cooperation will continue and be mutually beneficial to the activities of both intergovernmental bodies towards the full implementation of UNCED Decisions and Agenda 21.



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/19
18 September 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Third meeting
Buenos Aires, Argentina
4 to 15 November 1996

**KNOWLEDGE, INNOVATIONS AND PRACTICES OF INDIGENOUS
AND LOCAL COMMUNITIES: IMPLEMENTATION OF ARTICLE 8(j)**

Note by the Executive Secretar

1. INTRODUCTION

1. In its decision II/18, the Conference of the Parties (COP) decided to consider at its third meeting the agenda item "Knowledge, innovations and practices of indigenous and local communities: implementation of Article 8(j)".

2. The present note has been prepared by the Secretariat to assist the COP in its consideration of this item. The note draws upon a previous note prepared by the Interim Secretariat for the second session of the Intergovernmental Committee on the Convention on Biological Diversity entitled *Farmers' Rights and Rights of Similar Groups - The rights of indigenous and local communities embodying traditional lifestyles: experience and potential for implementation of Article 8(j) of the Convention on Biological Diversity* (UNEP/CBD/IC/2/14).

3. The present note updates the information contained in section 2 of the previous note ("Existing Mechanisms: Insights for Implementation?"), discusses further the provisions of Article 8(j), and suggests ways by which Contracting Parties could implement those provisions.

4. The note recalls that the provisions of Article 8(j) are closely linked to those of Articles 10(c), 17.2 and 18.4, and suggests that the COP may wish to consider the merits of a coordinated

consideration of these Articles and an appropriate process for this, recognizing that further work on this issue will be required.

5. An earlier version of this note was considered by the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) at its second meeting. The recommendations of the SBSTTA are contained in document UNEP/CBD/COP/3/3.

6. The COP will also recall that paragraph 2(a) of decision II/9 requested the Executive Secretary to provide advice and information pertaining to the relationship between indigenous and local communities and forests, as invited by the Inter-Agency Task Force of the Intergovernmental Panel on Forests (IPF).

7. The background document prepared by the Secretariat in accordance with paragraph 2(a) of decision II/9 was transmitted to the Secretariat of the IPF as a contribution to the preparation of the Report of the Secretary-General on "Traditional forest-related knowledge" to be submitted to the third session of the IPR. The background document was considered by the SBSTTA at its second meeting (UNEP/CBD/SBSTTA/2/Inf.3, reissued as UNEP/CBD/COP/3/Inf.33). The report of the Secretary-General on "Traditional forest-related knowledge" as submitted to the third session of the IPF is contained in document E/CN.17/IPF/1996/16.

2. THE CONVENTION'S PROVISIONS ON INDIGENOUS AND LOCAL COMMUNITIES EMBODYING TRADITIONAL LIFESTYLES.

8. Indigenous and local communities have been developing, conserving and sustainably using the biological resources on their lands and territories for millennia. Indigenous and local communities have a close knowledge of the flora and fauna and of the ecological processes of the ecosystems they inhabit and have developed a wide variety of plants and animals for food, medicine and other purposes. Traditional knowledge has and will continue to give critical clues to scientists in the agricultural, medicinal and industrial fields. In addition, traditional knowledge provides important directions for natural resource use and ecosystem management. Indigenous and local communities not only have extensive knowledge of their surrounding environment, but they also have an important role in implementing any conservation policy on the ground.

9. The Convention recognizes the importance of indigenous and local communities to the conservation and sustainable use of biological diversity. It also recognizes that indigenous and local communities should share in the benefits derived from ideas and innovations they have developed that prove useful to others. Indeed, these communities need incentives to conserve, if they are to resist pressure from other economic interests which may have adverse impacts on biological diversity.

10. In the Preamble to the Convention, the Parties recognize:

"the close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components".

11. Implicit in the recognition of the desirability of sharing benefits with these communities is the notion that communities should receive benefits when techniques or knowledge from their traditional practices become more widely used and valued. The paragraph recognizes the links between the conservation of biological diversity and of cultural diversity, and the dependence of such communities on the continuation of their traditional access to biological resources. In addition, it recognizes that their knowledge of biological resources and techniques for use may have value outside the communities themselves.

12. Article 8(j) casts the recognition of the Preamble as a legal obligation as follows:

"Each Contracting Party shall, as far as possible, and as appropriate ...:

"(j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of benefits arising from the utilization of such knowledge, innovations and practices".

13. The obligations of Article 8(j) can be described as containing several requirements. They are that each Party, subject to its national legislation, shall:

- (i) respect, preserve and maintain the knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity;
- (ii) promote the wider application of such knowledge, innovations and practices with the approval and involvement of the holders;
- (iii) encourage the equitable sharing of the benefits arising from the use of such knowledge, innovations and practices.

14. In keeping with the general orientation of the Convention, this provision leaves it up to individual countries to determine how it will be implemented. In addition, Article 8(j) subjects its obligations to national legislation implying that existing national legislation will take precedence.

15. Several other articles contain references to indigenous and local communities. Article 10(c) states that each Contracting Party shall "protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements". Article 17.2 includes indigenous and traditional knowledge among the categories of information that are to be exchanged among Parties. Finally, Article 18.4 commits countries to "encourage and develop methods of cooperation for the development and use of technologies, including indigenous and traditional technologies, in pursuance of the objectives of this Convention". These provisions overlap with Article 8(j) and thereby mutually reinforce each other and further elucidate the requirements of Article 8(j). The closely related nature of all these

provisions points to the advantages of dealing with them together in any consideration of the rights of local and indigenous communities which arise from provisions of the Convention.

3. RECENT DEVELOPMENTS

16. This section will briefly update the information contained in section 2 ("Existing Mechanisms: Insights for Implementation?") of UNEP/CBD/IC/2/14. The order in which this information is presented reflects the structure of that note and does not imply any order of priority.

3.1 ILO Convention No.169: Convention on Indigenous and Tribal Peoples in Independent Countries

17. ILO Convention No.169 addresses in Parts I ("General Policy") and II ("Land") issues relevant to the implementation of Article 8(j) of the Convention. Article 2, paragraph 2 (b), provides for action to protect the rights of indigenous peoples, including measures "promoting the full realisation of the social, economic and cultural rights of these peoples with respect for their social and cultural identity, their customs and traditions and their institutions". Article 4 provides that "special measures shall be adopted as appropriate for safeguarding the persons, institutions, property, labour, cultures and environment of the peoples concerned" in accordance with their own "freely expressed wishes".

18. Article 13 obligates governments to "respect the special importance for the cultures and spiritual values of the peoples concerned of their relationship with the land or territories [...] which they occupy or otherwise use, and in particular the collective aspects of this relationship". Article 14 provides that "the rights of ownership and possession of the peoples concerned over the lands which they traditionally occupy shall be recognized" and Article 15 provides that "the rights of peoples concerned to the natural resources pertaining to their lands shall be specially safeguarded. These rights include the right of these peoples to participate in the use, management and conservation of these resources." Intellectual property rights of indigenous and tribal peoples are not dealt with as such in ILO Convention No.169.

19. A further three countries (Denmark, Guatemala and Honduras) have ratified ILO Convention No.169, bringing the total to ten countries, and ratification is under serious consideration in a number of other countries. Germany has enacted legislation linking its development assistance to ILO Convention No.169 and several countries, including the Netherlands, are examining ratification with a view to orienting their development assistance programmes to the provisions of that Convention.

3.2 Commission on Human Rights

3.2.1 Draft United Nations Declaration on the Rights of Indigenous Peoples

20. In its resolution 1995/32 of 3 March 1995, the Commission on Human Rights decided to establish an open-ended inter-sessional working group to elaborate a draft United Nations Declaration on the Rights of Indigenous Peoples, considering the draft agreed upon by the members of the Working Group on Indigenous Populations and contained in the Annex to resolution 1994/45 of the Sub-Commission on Prevention of Discrimination and Protection of Minorities.

21. The background to the draft declaration and the relevance to the Convention on Biological Diversity of various provisions in the draft adopted by the Sub-Commission were discussed in the previous Note (UNEP/CBD/IC/2/14) and will not be repeated in the present Note.

22. The working group established by the Commission on Human Rights held its first session in Geneva from 20 November to 1 December 1995 and will hold its second session in October 1996.

23. In its resolution 1995/32, the Commission on Human Rights requested the Secretary-General to invite Governments, intergovernmental organizations, non-governmental organizations in consultative status with the Economic and Social Council and organizations of indigenous people authorized to participate to submit, for consideration by the working group, comments on the draft declaration.

3.2.2 Protection of the heritage of indigenous people

24. At its forty-seventh session in 1995, the Sub-Commission on the Prevention of Discrimination and Protection of Minorities considered the final report submitted by the Special Rapporteur on the protection of the heritage of indigenous people (E/CN.4/Sub.2/1995/26) and the Annex containing draft principles and guidelines for the protection of the heritage of indigenous people. This report represents an expansion of the Special Rapporteur's earlier study on the protection of the cultural and intellectual heritage of indigenous peoples (E/CN.4/Sub.2/1993/28).

25. The report contains, in its Annex "Principles and Guidelines for the Protection of the Heritage of Indigenous Peoples" provisions of relevance to the issues raised by Article 8(j) of the Convention. Of particular relevance are paragraphs 6 (Principles) and 12, 36, 41, 56 and 58 (Guidelines). The report also recommends "the convening of a United Nations technical meeting [...] to propose mainly practical modalities for the co-operation of relevant United Nations bodies and specialized agencies in protecting the heritage of indigenous peoples" (para.33).

26. Resolution 1995/40 of the Sub-Commission requested the Special Rapporteur to prepare a supplementary report on the basis of comments and information received from Governments, indigenous communities and intergovernmental and non-governmental organizations concerned, and to submit it to the Sub-Commission at its fortieth session in 1996. In response to a request from the Special Rapporteur, the Secretariat has provided relevant information concerning the Convention for inclusion in the supplementary report.

3.2.3 Treaties, agreements and other constructive arrangements between States and indigenous populations

27. In its resolution 1989/77 of 24 May 1989, the Economic and Social Council approved the recommendation of the Commission on Human Rights that a study be conducted on the potential utility of treaties, agreements and other constructive arrangements between indigenous populations and Governments for the purpose of ensuring the promotion and protection of the human rights and fundamental freedoms of indigenous populations.

28. A first progress report was submitted to the Working Group on Indigenous Populations and to the Sub-Commission by the Special Rapporteur in 1992. A second progress report was submitted in 1995 and a third progress report will be considered by the Sub-Commission at its forty-eighth session in 1996.

3.2.4 Evolution of standards concerning the rights of indigenous people

29. At its forty-seventh session in 1995, the Sub-Commission requested (in resolution 1995/38) that the Chairperson-Rapporteur of the Working Group on Indigenous Populations prepare a working paper on the concept of "indigenous people". This working paper (E/CN.4/Sub.2/AC.4/1996/2) was considered by the Working Group at its fourteenth session (29 July to 2 August 1996) and will be considered by the Sub-Commission at its forty-eighth session. It contains an historical review of international practice and critical legal analysis, with conclusions and recommendations.

3.2.5 Consideration of a permanent forum for indigenous people

30. In the Vienna Declaration and Programme of Action, the World Conference on Human Rights recommended that the establishment of a permanent forum for indigenous people in the United Nations system be considered. Following consideration of this recommendation by the General Assembly and by the Commission on Human Rights, the Centre for Human Rights organized a workshop on the possible establishment of a permanent forum in the United Nations system. This workshop was held in Copenhagen in June 1995 at the invitation of the Government of Denmark and the Greenland Home Rule Government.

31. The report of this workshop (E/CN.4/Sub.2/AC.4/1995/7) was considered by the Working Group on Indigenous Populations which supported the idea that a permanent forum be established in the course of the International Decade of the World's Indigenous People. The Working Group felt that such a forum: should report to the Economic and Social Council; should be open to all indigenous people; and that its mandate should cover issues such as human rights, health, development, environment, education and culture (E/CN.4/Sub.2/1995/24).

32. The Sub-Commission endorsed the Working Group's recommendations in its resolution 1995/39 of 24 August 1995. The General Assembly, in its resolution 50/157, recommended that the Secretary-General undertake a review of the existing mechanisms, procedures and programmes within the United Nations concerning indigenous people, and report to the General Assembly at its

fifty-first session. The Secretariat, in response to a request from the Centre for Human Rights, has provided relevant information on the Convention on Biological Diversity for the preparation of the Secretar -General's review.

3.3 United Nations Conference on Environment and Development and the Commission on Sustainable Development

33. The previous note (UNEP/CBD/IC/2/14, paras.49 and 50) considers instruments containing provisions on indigenous and local communities and biological diversity adopted at the United Nations Conference on Environment and Development and the Commission on Sustainable Development. These include Principle 22 of the Rio Declaration, chapter 26 of Agenda 21, and principles 5(a) and 12(d) of the Forest Principles.

34. At its third session in 1995, the Commission on Sustainable Development established an open-ended ad hoc Intergovernmental Panel on Forests (IPF). Programme element 1.3 of the Programme of Work of the Panel requires the Panel to make recommendations on how "consistent with the terms of the Convention on Biological Diversity, [to] encourage countries to consider ways and means for the effective protection and use of traditional forest-related knowledge, innovations and practices of forest-dwellers, indigenous people and other local communities, as well as fair and equitable sharing of benefits arising from such knowledge, innovations and practices."

35. The contribution to the preparation of the Report of the Secretar -General for the substantive discussion of this programme element at the third session of the Panel, prepared by the Secretariat in accordance with decision II/9 of the Conference of the Parties, is contained in document UNEP/CBD/SBSTTA/2/Inf.3 (reissued as UNEP/CBD/COP/3/Inf.33). The report of the Secretar -General on "Traditional forest-related knowledge" as submitted to the third session of the IPF is contained in document E/CN.17/IPF/1996/16.

3.4 Policies of Multilateral Development Banks and International Agencies

3.4.1 The World Bank

36. Operational Directive (OD) 4.20 ("Indigenous Peoples") is the principal policy statement of the World Bank on the relationship between its operations and indigenous people. Paragraph 8 of OD 4.20 states:

"the Bank's policy is that the strategy for addressing the issues pertaining to indigenous peoples must be based on the informed participation of the indigenous people themselves. Thus, identifying local preferences through direct consultation, incorporation of indigenous knowledge into project approaches, and appropriate early use of experienced specialists are core activities for any project that affects indigenous peoples and their rights to natural and economic resources."

37. The World Bank is currently preparing an Operational Directive on social assessment, following which a revision of OD 4.20 will take place. The Bank's Operational Policies, Bank Procedures and Good Practices for Natural Habitats (OP/BP/GP 4.04) and for Forestry (OP/BP/GP 4.36) are also relevant.

3.4.2 The Inter-American Development Bank (IDB)

38. In 1990 the IDB issued guidelines for dealing with environmental and social impacts in its operations. These guidelines are contained in *Strategies and Procedures on Socio-Cultural Issues as Related to the Environment*, and include:

"the recognition that indigenous people have a unique socio-cultural heritage that should be preserved for future generations; that they are part of the biological diversity of the ecosystems they inhabit and are very valuable sources of knowledge on tropical species and on proven technologies for management of fragile ecosystems; that this body of knowledge should be preserved, understood and utilised; and that indigenous populations should be recognized as natural allies in the solutions to safeguard the environment."

39. In 1995 the IDB established an Indigenous Peoples and Community Development Unit and is currently in the process of drafting a strategy on indigenous people for submission to its Policy Committee in late 1996 or early 1997.

3.4.3 The Asian Development Bank (ADB)

40. In 1994 the ADB began drafting its first policy on indigenous people. Following agreement between indigenous peoples' organizations and the ADB on a consultative process, a revised draft of the policy paper has been prepared and will form the basis for national-level consultations with indigenous representatives, expected to take place in August and September 1996. Based on these consultations, another draft will be prepared for presentation to the ADB Board of Executive Directors in October 1996 and it is hoped that a final policy statement on indigenous people will be approved by the Board by the end of the year.

3.4.4 The African Development Bank (AfDB)

41. The AfDB has no specific policies on indigenous or local communities. In June 1996 the president of the AfDB stated that the Bank "is committed to ensure that the development process promotes indigenous people's participation and encourages full consideration for their dignity, human rights and cultural uniqueness.[.] The Bank recognizes that indigenous and forest-dwelling populations are important social actors in forest-related programmes [possessing] forest-relevant knowledge and skills".

3.4.5 The European Bank for Reconstruction and Development

42. The EBRD has no policy on indigenous and local communities. Its guidelines on "political aspects of the mandate of the European Bank in relation to ethnic minorities" support the principles contained in the Final Act of the Helsinki Agreement and in the European Convention on Human Rights.

3.4.6 The United Nations Development Programme (UNDP)

43. The UNDP has prepared draft "Guidelines for support to indigenous peoples". The operational part of these guidelines is mainly adapted from ILO Convention No.169 and the Draft Declaration on the Rights of Indigenous Peoples agreed upon by the Working Group on Indigenous Populations. It is anticipated that the draft guidelines will be submitted to the Executive Board of UNDP in late 1996.

44. Paragraph 22 of the draft guidelines states:

"Projects that gather, use and/or are based upon indigenous customary knowledge should include measures that promote the recognition of this knowledge as "intellectual property", as well as measures that prevent the dissemination of this knowledge without prior consent of the "proprietors" or without an acknowledgement or compensation to the indigenous custodians of this knowledge."

45. The UNDP is supporting the Indigenous Knowledge Programme to be implemented through the Indigenous Peoples Biodiversity Network (IPBN) and the International Development Research Centre (IDRC) of Canada. In the Programme Justification, UNDP states:

(i) "For several reasons, the discussion on the need to preserve indigenous knowledge systems has taken place in a 'policy vacuum'. At the global level, indigenous peoples' organizations and representatives have hardly been allowed to participate in the discussion. [...] At the national level, few countries have begun to discuss national policies and strategies with regard to bioprospecting and the preservation of indigenous knowledge. At the local level, communities and local authorities are usually unaware of the value and importance of the innovation system. This 'vacuum' has allowed scientists and industries to conduct research on indigenous knowledge without paying attention to some important broader, longer-term concerns and doubts. For example, with regard to the integrity of innovation systems, it is seriously doubted that it is possible to commodify and commercialize knowledge without destroying the continuation of the social structures that have generated this knowledge and on which the livelihoods of many indigenous communities depend. [...] Similarly, but at another level of abstraction, how do intellectual property rights over products based on biological resources relate to the sovereign rights - as reaffirmed in the Convention on Biological Diversity - of States over biological resources?" (draft project proposal, 31 August 1995, section B, para.I.8);

- (ii) "[It] is of the utmost importance that indigenous people get the opportunity to voice and put forth their concerns, that they be able to ensure the continuation of indigenous innovation systems, and that they initiate their own programmes to protect their knowledge from being lost and appropriated without fair compensation" (para.I.9);
- (iii) "The overall question is how to preserve the social structures that have generated and continue to generate knowledge within indigenous communities. The basic issues to be tackled by this programme are how to strengthen the capacity of indigenous peoples to defend and advocate for their own interests in this area and to prepare and implement activities that ensure the continuation of their innovation systems" (para.I.10).
46. The UNDP expects that at the end of this programme:
- (i) the overall awareness of governments, scientists, environmentalists, indigenous communities, and others as to the importance of conserving indigenous knowledge systems as an integral part of the social structures of indigenous peoples' and farmers' communities will have been raised;
- (ii) the capacity of key indigenous peoples' organizations to advocate the positions and interests of indigenous peoples, to conduct research on matters related to the conservation of their knowledge, and to conduct policy analysis and formulation will have been enhanced;
- (iii) studies will have been conducted on, for example, the relation between biodiversity conservation and indigenous knowledge, bioprospecting agreements, intellectual property rights and customary laws, and the relations between indigenous knowledge and the emancipation of indigenous peoples; and
- (iv) pilot projects will have been implemented in indigenous communities aimed at the revitalisation [and] strengthening of indigenous knowledge systems (draft project proposal, 31 August 1995, Summary, page 2).
47. The project steering committee is constituted entirely by indigenous members. UNDP and donor agencies make up an advisory group. A secretariat is being established and two small-grants funds for participatory research and for community development projects are being set up.

3.5 Declarations of indigenous peoples

48. The previous note considered the Charter of the Indigenous-Tribal Peoples of the Tropical Forests, the Kari-Oca Declaration of Indigenous Peoples on Environment and Development, and the Mataatua Declaration on Cultural and Intellectual Property Rights of Indigenous Peoples (UNEP/CBD/IC/2/14, paragraphs 51 to 56).
49. As part of the preparatory process for the Indigenous Knowledge Project referred to above, three regional meetings of representatives of indigenous peoples were held:
- (i) the Regional Meeting on Intellectual Property Rights and Biodiversity, organized by the Coordinadora de las Organizaciones Indígenas de la Cuenca Amazónica (COICA), Santa Cruz de la Sierra, Bolivia, 28-30 September 1994;

- (ii) the Asian Consultation Workshop on the Protection and Conservation of Indigenous Knowledge, organized by Partners of Community Organizations in Sabah (PACOS) and the Southeast Asia Regional Institute for Community Education (SEARICE), TVRC Tambunan, Sabah, Malaysia, 24-27 February 1995;
 - (iii) the Consultation of Indigenous Peoples' Knowledge and Intellectual Property Rights, organized by the Pacific Concerns Resource Centre (PCRC), Suva, Fiji, April 1995.
50. The final statements of these meetings address issues raised by the provisions of Article 8(j).

3.6 Traditional Knowledge Networks

51. The increasing interest in, and preoccupation with, questions related to the knowledge, innovations and practices of traditional and local communities is demonstrated by the growing number of traditional knowledge networks established by scientific, indigenous and non-governmental organizations. A list of access points to those networks currently identified by the Secretariat is contained in document UNEP/CBD/SBSTTA/2/Inf.3, Annex 3.

52. Further sources can be found in *The People and Plants Handbook: sources for Applying Ethnobotany to Conservation and Community Development* being produced under the People and Plants Initiative of WWF, UNESCO and the Royal Botanic Gardens, Kew (UK).

3.7 Codes of conduct of professional/academic/research organizations, private sector arrangements, and public sector arrangements

53. The previous note considered examples of such arrangements known to the Secretariat at the time (UNEP/CBD/IC/2/14, paragraphs 61 to 75).

4. PREVIOUS CONSIDERATION OF THE KNOWLEDGE, INNOVATIONS AND PRACTICES OF INDIGENOUS AND TRADITIONAL COMMUNITIES UNDER THE CONVENTION

54. The Open-ended Intergovernmental Meeting of Scientific Experts on Biological Diversity (Mexico City, 11-15 April 1994) considered under item 3(c) of its agenda ("Identification of innovative, efficient and state-of-the-art technologies and know-how relating to the conservation and sustainable use of biological diversity and the ways and means of promoting development and/or transferring such technologies") the sub-item "Ways to integrate, in modern management practices, knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles".

55. The Meeting adopted the paper prepared by the open-ended sub-group established to address this sub-item. The paper is reproduced as Annex VII to the Report of the Meeting (UNEP/CBD/IC/2/11). Relevant traditional knowledge and technologies are also identified in:

- (a) Annex II: Indicative list of technologies and know-how relevant to the identification, characterization and monitoring of ecosystems, species and genetic resources:
- (i) traditional knowledge about local ecosystems (I.(e));
 - (ii) traditional knowledge about ecosystem function (II.(g));
 - (iii) traditional knowledge of territories and habitats (III.(f));
 - (iv) traditional and advanced taxonomies (IV.(a));
 - (v) uses, both traditional and current (IV.(b));
 - (vi) traditional knowledge of [technologies to determine species and genetic resource status] and of population norms over time (V.(e));
 - (vii) traditional techniques for communication and information transmittal (VI.(d));
- (b) Annex III: Indicative list of technologies appropriate for the *in-sit* conservation of components of biological diversity:
- (i) traditional knowledge and technologies for *in-sit* conservation (I.(h));
- (c) Annex V: Indicative list of technologies for sustainable use of biological diversity and its components:
- (i) spiritual and cultural uses (I.(b));
 - (ii) traditional medicine production techniques (II.1.(e));
 - (iii) natural resource management with the use of indigenous knowledge and technologies (II.2.(b)); and
 - (iv) methodologies for evaluation of biological diversity, including non-economic values such as existence, religious, ethical and cultural values (III.(a));
- (d) Annex VI: Indicative list of ways and means of promoting development and/or transferring of innovative, efficient and state-of-the-art technologies relevant to the conservation and sustainable use of biological diversity:
- (i) both traditional and modern technologies are necessary to implement the Convention on Biological Diversity (III.(a));
- (e) Annex VIII: Indicative list of scientific and technical programmes for training in conservation of biological diversity and sustainable use of its components (at regional, national and local levels):
- (i) traditional culture knowledge transmittal (II.a.(ii));
- (f) Annex IX: Data collection, management and transfer
- (i) ethnobiological [data collection] techniques (I.(g));

- (ii) traditional information management systems (II.(e)); and
- (iii) traditional transmittal techniques, e.g., puppetry, songs, dance, plays (III.(e)).

56. The Interim Secretariat prepared a note for the second meeting of the Intergovernmental Committee on the Convention on Biological Diversity containing a suggested Agenda for Scientific and Technological Research (UNEP/CBD/IC/2/Inf.2). Item 9 of this proposed agenda related to "studies on ethnobiology and adaptation [sic] of traditional knowledge and skills (Articles 8(j) and 10(c))". The objectives would be to: (a) identify traditional knowledge; (b) develop means to maintain traditional knowledge; and (c) identify means to apply traditional knowledge to conservation of biological diversity and sustainable use of its resources. Eight examples of facilitating research activities were offered.

57. Details of the consideration by the second meeting of the Intergovernmental Committee on the Convention on Biological Diversity of the report of the Open-ended Intergovernmental Meeting of Scientific Experts on Biological Diversity, of the suggested Agenda for Scientific and Technological Research, and of "The rights of indigenous and local communities embodying traditional lifestyles: experience and potential for implementation of Article 8(j) of the Convention on Biological Diversity" are contained in document UNEP/CBD/COP/1/4 (*Report of the Intergovernmental Committee on the Convention on Biological Diversity*), paragraphs 211-221 and 235.

5. ARTICLE 8(j) OF THE CONVENTION ON BIOLOGICAL DIVERSITY

58. As noted before, Article 8(j) can be interpreted as requiring Parties subject to their national legislation (both current and, by implication, future legislation) to:

- (i) respect, preserve and maintain the knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant to the conservation and sustainable use of biological diversity;
- (ii) promote the wider application of such knowledge, innovations and practices with the approval and involvement of the holders;
- (iii) encourage the equitable sharing of the benefits arising from the use of such knowledge, innovations and practices.

5.1 Respect, preserve and maintain the knowledge, innovations and practices of indigenous and local communities

59. This requirement of Article 8(j) is echoed in Article 10(c), which requires Parties to "protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements". Such customary uses can be considered to be synonymous with the "practices" referred to in Article 8(j),

when both are relevant to or compatible with the conservation and sustainable use of biological resources.

60. Taken together, these provisions therefore require Parties to recognize that biological diversity is maintained, and very often enhanced, by the knowledge, innovations and practices of indigenous and local communities and that the preservation and maintenance of biological diversity goes hand-in-hand with the preservation and maintenance of cultural diversity. In order that indigenous and local communities may continue to maintain and develop their knowledge, innovations and practices (in other words, are able to ensure their cultural survival), they need secure access to the basis of such biological diversity and its components - their traditional lands.

61. The need for Governments to recognize and guarantee rights to land for indigenous and traditional communities is thus a prerequisite both for the preservation and maintenance of the knowledge, innovations and practices referred to in Article 8(j), and for the protection of customary use of biological resources referred to in Article 10(c). In the absence of such rights, cultural diversity will be lost and this loss is likely to be accompanied by a corresponding loss of biological diversity and of traditional ecological knowledge. The Parties have recognized this in the first section of preambular paragraph 12 of the Convention.

62. The "respect" referred to in Article 8(j) can thus be taken to include the requirement for Parties to respect the entitlement of indigenous and traditional communities to secure tenure of their traditional lands. In order to fulfill their requirements under this Article, Parties are thus obligated to enact a legal framework and to take the necessary administrative measures to ensure that the rights to land of indigenous and local communities are safeguarded.

63. There is (as noted above and in the previous note, UNEP/CBD/IC/2/14) a growing body of principles and guidelines concerning the recognition of land rights of indigenous and local communities in addition to ILO Convention No.169 and those which exist in national legislation and policies.

64. A second aspect of the "respect" Parties are required to show with regard to the knowledge, innovations and practices of indigenous and local communities can be understood as the requirement to accord such knowledge, innovations and practices a status comparable to that shown to other types of knowledge, innovations and practices. Relevant "traditional" knowledge should thus be accorded a status in national life comparable to that shown to "scientific" knowledge¹. Relevant innovations carried out by indigenous and local communities should be given a status similar to innovations arising from the scientific and technological communities. Relevant

¹ The Convention refers variously to the 'knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles' (Art. 8(j)), to the 'customary use of biological resources in accordance with traditional cultural practices' (Art. 10(c)), to 'indigenous and traditional knowledge' (Art.17.2), and to 'indigenous and traditional technologies' (Art. 18.4). In doing so the Convention clearly seeks to distinguish these from systems of knowledge, innovations and practices pertaining to social groups that it considers as neither indigenous nor embodying traditional lifestyles. The reductions "traditional" and "scientific" are here employed, reluctantly and recognizing the epistemological poverty of such usage, as a convenient means of representing the distinctions the Convention seeks to make. The use of such shorthand contains no value judgements or hierarchical assumptions, and neither should a failure to recognize the multiplicity of extant knowledge systems be imputed to such usage.

practices and customary uses should be recognized as comparable, when not superior, to "modern" land-use management, agricultural, fishing, medicinal and other activities using biological resources.

65. The manifestation of such respect need not necessarily take a monetary form. It could take the form of: incorporating relevant traditional knowledge into educational syllabuses and vocational training; of engaging the holders of such knowledge as teachers, researchers, extension agents, policy analysts, public administrators, health workers, environmental managers and in other relevant roles; of publicly recognizing the benefits to society arising from traditional knowledge, for example by granting to holders, individual or collective, honorary degrees, titles, medals or other honours; or of including holders of traditional knowledge in national delegations to relevant intergovernmental fora and international meetings.

66. In order to meet their obligations to respect, preserve, maintain, protect and encourage, Parties will be required to identify knowledge, innovations and practices that are relevant for the conservation and sustainable use of biological diversity and to identify customary use compatible with conservation or sustainable use requirements. The indicative lists prepared by the Open-ended Intergovernmental Meeting of Scientific Experts on Biological Diversity and the proposed Agenda for Scientific and Technological Research considered by the Intergovernmental Committee represent a preliminary attempt to assist Parties with this identification.

67. Respecting the knowledge, innovations and practices of indigenous and local communities will in many cases entail attitudinal change on the part of government agencies, scientific institutions and the national society in general. Measures that Parties will need to take to promote and enhance the respect referred to by Article 8(j) are likely to be a part of the wider measures for public education and awareness that Parties have undertaken to enact under Article 13.

68. Measures that act as incentives for the preservation and maintenance of the knowledge, innovations and practices of indigenous and local communities should be included in the incentive measures Parties are required to adopt in accordance with Article 11. Incentive measures will be considered under item 15.1 of the provisional agenda of this meeting and the COP may wish to refer to document UNEP/CBD/COP/3/24.

5.2 Promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices

69. The realization of this provision of Article 8(j) is dependent on the fulfillment by Parties of the preceding provision. In other words, if Parties fail to respect, preserve and maintain the knowledge, innovations and practices of indigenous and local communities in the ways suggested above, cultural diversity will be lost and with it the traditional knowledge in question. There will thus be ever fewer examples of knowledge, innovations and practices for wider application.

70. In its contribution on traditional forest-related knowledge (TFRK) to the Intergovernmental Panel on Forests, the Secretariat noted that TFRK is made up of the following linked features:

- (i) information about the various physical, biological and social components of a particular forested landscape;
- (ii) rules for using them without damaging them irreparably;
- (iii) relationships among their users;
- (iv) technologies for using them to meet the subsistence, health, trade and ritual needs of local people; and
- (v) a view of the world that incorporates and makes sense of all the above in the context of a long-term and holistic perspective in decision-making (UNEP/CBD/SBSTTA/2/Inf.3, para.1).

71. It noted that these aspects of TFRK have various kinds of meaning and potential usefulness to global society, but most of the knowledge concerned cannot, and the rest should not, be taken from its owners without their consent. It must therefore be accessed through negotiation and partnership. Much TFRK will mean little outside the environment where it arose, however, and is likely to be most valuable only as a means to achieve on-site sustainable forest management. To do this the owners of TFRK must be involved in:

- (i) ownership partnerships, in which local people and the state agree ownership regimes for forest land;
- (ii) planning partnerships, in which traditional and other forms of knowledge are used together in making decisions on the use of forests; and
- (iii) management partnerships, in which the partners collaborate to put their plans into effect (UNEP/CBD/SBSTTA/2/Inf.3, para.2).

72. The arguments presented here with regard to traditional forest-related knowledge apply equally to the knowledge, innovations and practices of indigenous and local communities within other ecosystems. It thus follows that in order to implement this requirement of Article 8(j), Parties should first examine the potential for the wider application of traditional knowledge at the local or ecosystem level.

73. Such application would need to be through the planning and management partnerships referred to above. There is a growing body of experience, and corresponding literature, on stakeholder identification and participatory planning methodologies. Examples are referred to in the earlier sections of the present note and in the list of sources contained in UNEP/CBD/SBSTTA/2/Inf.3, Annex 1.

74. Article 8(j) requires that such wider application should be with the approval and involvement of the holders of such knowledge, innovations and practices. The provisions of the Convention on access to genetic resources similarly require that this be on the basis of prior informed consent and mutually agreed terms. The provisions of the Convention on technology transfer require this to be on mutually agreed terms. The transmission of knowledge necessary for its wider application requires mutual respect and understanding, and cannot occur when feelings of inequality persist. For indigenous and local communities to participate fully in such partnerships and to offer their knowledge for the benefit of other stakeholders, certain conditions will need to be met. Holders of traditional knowledge will need to feel secure in their land tenure arrangements,

reassured that they have been accorded equal status to other members of the partnerships, and convinced of a common purpose compatible with their cultural and ecological values. Furthermore any special needs regarding participation should be catered for. These may include the need for capacity-building (e.g. negotiation skills, understanding of the environmental management issues under review and of the reasons behind the outside interest in their knowledge, legal support) and mechanisms for compensating the real costs of participation (foregone labour or social investments as well as out of pocket expenses).

75. Document UNEP/CBD/SBSTTA/2/Inf.3 offers examples of how such partnerships can work in the case of forests (paragraphs 50-59). Once a settlement of the ownership partnership has been achieved, planning partnerships can be established. Here, stakeholders collaborate to understand the landscape using both traditional and global approaches to the discovery and use of knowledge. Such procedures also involve adopting guidelines for managing the landscape's ecosystems sustainably for various purposes, and adapting them to local conditions in the light of traditional and other knowledge. Detailed rules for operating a management partnership should emerge from this process, helping to guide the use of the landscape in practice. The details cannot be prescribed, and must emerge from dialogue between knowledgeable people in the context of planning and management partnerships. The evidence is strong that once governments have recognized the nature and value of traditional knowledge and have accepted the need to manage resources through local partnerships, then such arrangements are both feasible and effective.

76. All this suggests that traditional knowledge can provide a strong basis for sustainable ecosystem management for two main reasons. The first is the quality of the information and the interpretative systems possessed by local people after living in an ecosystem many generations, while the second draws on the strength of their commitment to sympathetic ecosystem management that results from having such knowledge. In other words, they know much and because of this the care greatly.

77. Indigenous and local communities do not know everything, however, nor are they able to regulate every use of every component of an ecosystem. Gaps in knowledge and control mean that they are unable to manage an ecosystem to the limit of its productive capabilities in every dimension. Broad margins for error are built into traditional systems, and depend on social measures to limit the number of users, for example by defending group territories, limiting fertility, and regulating the timing and extent of access to certain areas. These margins buffer the managed ecosystem against the effects of human error and of unexpected events.

78. These measures are able to achieve sustainable use provided the underlying conditions remain fairly constant. A management system based on traditional knowledge can however unravel quickly if population density increases, if access controls break down, or if new technologies are introduced that allow goods to be sold on external markets. Conversely, there are ways for a stable, traditional knowledge-based system to be maintained while selectively importing new ideas and investments to increase the range of materials harvested and the revenues obtained. These ways require that the holders of the traditional knowledge concerned retain their authority to decide how the ecosystem is used, and are able to decide for themselves which ideas to import and which investments to undertake, and when.

79. It is important to understand that traditional knowledge systems are dynamic:

/...

"What is 'traditional' about traditional knowledge is not its antiquity, but the way it is acquired and used. In other words, the social process of learning and sharing knowledge, which is unique to each indigenous culture, lies at the very heart of its 'traditionality'. Much of this knowledge is actually quite new, but it has a social meaning, and legal character, entirely unlike the knowledge indigenous peoples acquire from settlers and industrialized societies. This is why we believe that protecting indigenous knowledge necessarily involves the recognition of each peoples' own laws, and their own processes of discovery and teaching" (Submission to the Executive Secretary from the Four Directions Council, Canada, 15 Januar 1996).

80. The contribution from the Four Directions Council provides an example of the speed b which new knowledge can be tested and taught in a traditional context.

"Diabetes appeared among Blackfoot people only within the last 75 years, although it has now reached epidemic proportions. Within the past generation, a herbal tea has gradually come into widespread use by Blackfoot traditional healers, which is effective in controlling the metabolic symptoms of diabetes. The same plant had unrelated medicinal uses at least a century ago, so it appears that healers have been experimenting with the applications of their existing pharmacopoeia to diabetes and other 'new' and introduced diseases. It is important to recognize that Blackfoot healers generally agree today on a single herbal remedy as the most effective. Hence they have not only been experimenting, but sharing the results with each other."

81. It is thus the combination of accumulated knowledge and the potential for innovation and adaptation of traditional systems, and the equivalent knowledge base and innovative capacity of 'modern' or 'scientific' systems which, if encouraged, offers unquantifiable, but probably substantial, opportunities for identifying improved techniques for conservation and sustainable use of biological diversity.

82. Article 17.2 obliges Parties to facilitate the exchange of information on, *inter alia*, indigenous and traditional knowledge as such and in combination with the technologies referred to in Article 16, paragraph 1. Article 18.4 provides that Parties shall encourage and develop methods of cooperation for the development and use of technologies, including indigenous and traditional technologies, in pursuance of the objectives of the Convention. Notwithstanding the view expressed above that much traditional knowledge will mean little outside the environment where it arises and is likely to be most valuable as a means to achieve on-site sustainable ecosystem management, it follows that, for Parties to have arrived at an identification of such information meriting exchange between Parties, or of indigenous and traditional technologies to be developed and used in co-operation, they must have fulfilled these provisions of Article 8(j) through the establishment of the requisite ownership, planning and management partnerships.

83. The indicative lists prepared by the Open-ended Intergovernmental Meeting of Scientific Experts on Biological Diversity and the proposed Agenda for Scientific and Technological Research considered by the Intergovernmental Committee identify some of the elements to be

addressed by Parties for their fulfillment of this provision of Article 8(j). In this respect the COP may wish to consider carefully the views contained in Annex VII of the report of the Mexico meeting (UNEP/CBD/IC/2/11) and in particular the view expressed that:

"The question itself has to be rephrased. The challenge is not to find the ways to integrate, in modern management practices, knowledge, innovations and practices of indigenous and local communities. Rather, it is to define, in collaboration with indigenous and local communities, which modern tools may be of help to them, and how these tools might be used, to strengthen and develop their own strategy for conservation and sustainable use of biological diversity, fully respecting their intellectual and cultural integrity and their own vision of development."

5.3 Encourage the equitable sharing of the benefits arising out of the utilization of such knowledge, innovations and practices

84. This requirement of Article 8(j) embodies the recognition expressed by Parties in preambular paragraph 12 of the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components.

85. Equitable sharing of the benefits arising from the use of the knowledge, innovations and practices of local and indigenous communities would be significantly advanced through implementing many of the aforementioned measures, since they would assist in creating an environment which enabled such communities to negotiate with users from the wider community, or users from other countries, on a more equitable basis.

86. However these techniques do not of themselves provide a basis by which these communities could share in the intangible value that these practices represent. As suggested above, such intangible benefits are significant and perhaps represent economically the most important use by the wider community of such knowledge, innovations and practices. (Their economic value is indicated in the Note prepared by the Secretariat for the second meeting of the SBSTTA on the economic valuation of biological diversity (document UNEP/CBD/SBSTTA/2/13)). Controlling such use therefore represents an important way that local and indigenous communities could be compensated for the use of their knowledge, innovations and practices. From the perspective of local and indigenous communities control of such intangible goods largely relies upon using either intellectual property rights or contractual licensing arrangements.

87. Reliance upon contractual methods to capture benefit for local and indigenous peoples is widely thought of as the most practical approach to benefit-sharing. It is considered attractive because the contractual concept is one with which most societies are familiar and because it is a relatively private bargain involving minimal governmental intervention. However, the contractual approach presents severe limitations. Factors such as contracts not being binding on third parties, high transaction costs for the parties, the unfamiliarity of indigenous and local communities with formal national legal systems and the disparity in bargaining power, limit significantly the extent to

which this approach can be used by local and indigenous peoples to capture the true value or benefit.

88. The identification of holistic approaches to intellectual property which allocate to the holders of traditional knowledge, innovations and practices rights and protection comparable to those offered under existing intellectual property regimes is the subject of much debate. Different options for the development of contractual methods and *sui generis* intellectual property right regimes have been proposed.

89. A previous note by the Secretariat (UNEP/CBD/IC/2/14) reviewed the utility of intellectual property rights in this respect and concluded that there were "no international legal instruments or standards which adequately recognize indigenous and local communities' rights over their knowledge, innovations or practices", let alone gave them ownership of their genetic resources. It went on to observe that "[c]urrent systems of intellectual property rights alone are not sufficient to ensure that benefits flow back to indigenous and local communities. It is difficult to classify indigenous knowledge, innovations and practices into categories of intellectual property developed for use in industrialized countries. Some sort of intellectual property protection for indigenous and local communities may be valuable"... but that "even if the system is effectively adapted, or a *sui generis* system created, most indigenous communities lack the financial, technical and legal means to claim such rights or ensure their effective implementation. Also, it is unclear what mechanisms would need to be in place so that the form or type of benefits returning to the community support the conservation and sustainable use of biological diversity". The Secretariat concluded that "[a]t present, any protection afforded the knowledge, innovations and practices of indigenous and local communities seems to depend on contractual agreements and the guidelines used or recommended by intergovernmental, academic, and public and private sector institutions in their dealings with these communities. Reliance on the goodwill of these companies and institutions is unlikely to be sufficient to implement the relevant provisions of the Convention. Positive action by Governments is apt to be necessary."

90. An alternative *sui generis* intellectual property rights system which has been proposed is the Traditional Resource Rights (TRR) concept:

"The term Traditional Resource Rights (TRR) has emerged to define the many "bundles of rights" that can be used for protection, compensation, and conservation. [...] TRR is an integrated rights concept which recognizes the inextricable link between cultural and biological diversity, and is guided by human rights principles including: basic human rights; the right to self-determination; collective rights; land and territorial rights; religious freedom; the right to development; the right to privacy and prior informed consent; environmental integrity; intellectual property rights; neighbouring rights; the right to enter into legal agreements; rights to protection of cultural property, folklore and cultural heritage; the recognition of cultural landscapes; recognition of customary law and practice; and farmers' rights. [...] These rights are mutually supportive and entirely consistent with the Convention on Biological Diversity since the destiny of traditional peoples largely determines and is determined by, the state of the world's biological diversity. Significantly, they are not inconsistent with the requirements of GATT/WTO and FAO/IUPGR."
(Posey, D.A. *Provisions and Mechanisms of the Convention on Biological*

Diversity for Access to Traditional Technologies and Benefit Sharing for Indigenous and Local Communities Embodying Traditional Lifestyles OCEES Research Paper, Oxford Centre for the Environment, Ethics and Society, April 1996).

91. A number of overlapping areas of international law provide not only the ideological basis for TRR but also the legal basis for these rights. Despite the considerable number of instruments referred to, TRR cannot be considered self-executing rights and require implementation by national law-making bodies. Posey observes with regard to the relationship between the Convention and Intellectual Property Rights in general, and TRR in particular, that "[d]evelopment of Intellectual Property Rights is necessary because the [Convention] treats traditional knowledge as technology, thereby requiring adequate protection as for industrial technologies. Unfortunately, existing Intellectual Property Rights regimes are not adequate or appropriate for protection of indigenous and traditional peoples. Alternative regimes (or *sui generis* systems) are urgently needed that will be guided by a bundle of rights approaches such as TRRs [sic]. This integrated rights approach offers mechanisms for "harmonizing" the CBD with other international agreements and conventions by recognizing that human rights have over-riding precedence in ordering global priorities."

92. Other suggested framework *sui generis* regimes include an Intellectual Integrity Framework (Rural Advancement Foundation International *Conserving Indigenous Knowledge: Integrating Two Systems of Innovation: An independent study for the United Nations Development Programme*, n/d) and a Conceptual Framework and Essential Elements of a Rights Regime (Nijar, G.S. *In Defence of Indigenous Knowledge and Biodiversity* Third World Network, Penang, Malaysia, 1995).

93. Despite the need for new forms of intellectual property rights to enable local and indigenous communities to benefit properly from the use of their knowledge, innovations and practices, much may still be gained from carefully considering how existing intellectual property rights can be adapted to meet the specific needs of these communities. Although existing intellectual property rights require change before they can properly meet these needs, it may be possible to use and adapt existing systems so that they could better meet the needs of local and indigenous communities. For example, altering the scope of any intellectual property rights is simply a matter of changing the legislation which establishes such rights. Benefit sharing can be encouraged by making the validity of intellectual property rights dependent upon the applicant providing full and frank disclosure as to the sources of the material used to develop the product. It can be encouraged further by requiring the applicant to warrant that they have adhered to the access regulations of the relevant countries or that they have observed an industry code of conduct such as the FAO's International Code of Conduct for Plant Germplasm Collecting and Transfer. This could also help to overcome monitoring and enforcement problems. Enforcement and administration costs could be defrayed by establishing regional patent offices which have a fast track quasi-judicial review procedure, such as the dispute resolution mechanism adopted by the World Intellectual Property Organization in 1994.

94. It has been suggested that Parties could improve benefit-sharing by creating a positive link between their patent legislation and their legislation governing access to genetic resources (Yamin,

F. *The Biodiversity Convention and Intellectual Property Rights* World Wide Fund for Nature, Gland, October 1995). Specific suggestions made include requiring:

- (i) patent applicants to disclose the country of origin of biological samples used in research leading to the invention in the normal invention description to be submitted to the patent office;
- (ii) applicants to state what part, if any, existing rural, local and indigenous knowledge, innovations or techniques played in identifying the properties and location of relevant samples, including samples that were helpful in the research even though these do not form the basis of the final product or process;
- (iii) applicants to enclose an undertaking confirming that to the best of their knowledge, all national laws relating to access to genetic resources, conservation and use of natural resources, customary laws of rural and indigenous peoples and any biodiversity prospecting arrangements entered into by the prospective patentee have been complied with;
- (iv) that if no such laws exist, applicants should be required to give an undertaking that any collection was done in compliance with an internationally recognized code, such as the FAO's Code of Conduct for Plant Germplasm Collecting and Transfer or its Code of Conduct on Biotechnology;
- (v) that failure to fulfill these requirements should bar the grant of a valid patent and subsequent discovery of false or negligent information should invalidate a patent and lead to appropriate legal proceedings against the patent-holder; and
- (vi) that upon receiving adequate documentation, and as a normal part of their scrutiny of patent applications, patent offices should inform designated authorities in the country of origin and any local communities of the pending application concerning them. Countries of origin and local communities should have an opportunity to oppose the grant of a patent and to undertake investigations into whether or not a patentee has fulfilled any relevant code of conduct or biodiversity prospecting arrangements.

95. The possibilities of adapting existing intellectual property rights are difficult to estimate. On the one hand, Intellectual Property Rights have in the past been flexible enough to cope with new technologies and developments. A case in point is the way that Intellectual Property Rights regimes have adapted to allow for protection of computer software programmes. Some nineteen countries have enacted a *sui generis* system of Intellectual Property Rights for the integrated circuits (or semi-conductor "chips") industry. These laws are a hybrid between standard patent law and copyright protection, offering inventors more flexibility than patents but less control than is normally granted by copyright. Another *sui generis* system is currently being proposed to protect databases. A further example, second tier protection, has been introduced in some Intellectual Property Rights regimes in order to allow small traders and businesses daunted by their experiences of the patent system to have a cheap and quick quasi-intellectual property right protection. This flexibility can also be seen in the way that plant breeders rights were developed to meet the needs of the agricultural industry in protecting the intellectual property associated with "modern" techniques of crop development.

96. On the other hand inertia and the uncertainty that change brings may work against adapting existing intellectual property rights quickly enough for local and indigenous communities.

97. Adapting existing intellectual property rights and/or developing new types of intellectual property rights requires an examination of the existing legal, social and economic conditions prevailing in the particular country or region as well as consideration of the beneficiaries and markets which rely upon the rights. Owing to these sensitivities, it is not possible to develop a universally applicable right which will meet the needs of all local and indigenous communities, nor is it likely that such a right exists.

98. Most discussion of benefit-sharing has concentrated on access to the knowledge, innovations and practices of indigenous and local communities with meaning outside the local context and potential commercial value. Another scenario under which the provisions of Article 8(j) would come into play should be considered. This involves the free sharing of knowledge b indigenous and local communities with others, most likely at the local level.

99. Such a scenario could involve an indigenous or local community sharing site-specific techniques and best practice with fellow occupants. An example could be an indigenous community sharing information on its agricultural or extractive practices with newcomers to the region, such as settlers in rural colonization projects. If such sharing resulted in benefits to the wider community, such as successful installation of the colonists and rising incomes, it would be incumbent upon the government, whether local or national, to ensure through fiscal and polic measures that the indigenous community benefited from the increase in local prosperity. Such benefits could take the form of an improved and equitable provision of public services (health, education, water, transport) or of social security benefits. Decisions on the nature and specific for of such benefits would need to be arrived at through a participatory process involving the community that contributed the knowledge and would need to conform to the perceived needs and cultural and social values of the community.

100. Consideration of this issue directly impinges on other aspects of the work programme of the COP. At the present meeting the COP will also consider the following related issues:

- (i) the compilation of views of Parties on possible options for developing national legislative, administrative or policy measures, as appropriate to implement Article 15 (ite 12.1 of the provisional agenda, document UNEP/CBD/COP/3/20);
- (ii) the impact of intellectual property rights systems on the conservation and sustainable use of biological diversity and the equitable sharing of benefits derived from its use in order to gain a better understanding of the implications of Article 16.5 (item 14.1 of the provisional agenda, document UNEP/CBD/COP/3/22);
- (iii) ways to promote and facilitate access to and transfer and development of technology, as envisaged by Articles 16 and 18 of the Convention (item 13.1 of the provisional agenda, document UNEP/CBD/COP/3/21).

101. Action with regard to any of these items will also develop the ability of local and indigenous communities to benefit more fully from the use of their knowledge, innovations and practices. For example, Article 15 provides for prior informed consent and mutually agreed terms.

In a Note prepared by the Secretariat (UNEP/CBD/COP/2/13) drawing on experience to date in order to describe possible meanings of "mutually agreed terms" it was observed that the "Convention's provisions calling for access to genetic resources "on mutually agreed terms" strongly suggest that negotiated agreements will be the primary vehicle for obtaining access to genetic resources and for sharing the resulting benefits including technologies." It also observed that the types of actors and beneficiaries of such arrangements might include, "private sector firms, universities, conservation groups, government agencies and local and indigenous communities". Finally the note observed that on experience to date in controlling access and seeking to capture benefit, any agreement based on mutually agreed terms which reflect equitable sharing might include terms on:-

- (i) providing a range of monetary benefits for various types of access, such as standard fees for samples or royalty rates, etc.;
- (ii) providing for standard types of technology transfer or training, or providing circumstances under which joint research ventures should be undertaken, such as leaving not only duplicate samples from a collecting mission but also the technology to maintain these samples properly;
- (iii) minimum reporting requirements to the provider on results of future research or development involving the genetic resources;
- (iv) agreement on respective IPR over the genetic resources and the technologies developed to use them;
- (v) standard practices on agreeing to cite or acknowledge sources of genetic resources; and
- (vi) providing benchmarks for providing benefits to local and indigenous peoples.

102. Despite the complexity of the issue, the local sensitivities of control mechanisms and its overlap and dependence with other issues on the agenda, the COP may wish to consider the following propositions for general guidance:

- (i) Much traditional knowledge will mean little outside the environment where it arises and is likely to be most valuable as a means to achieve on-site sustainable ecosystem management;
- (ii) Much of this knowledge cannot, and the rest should not, be taken from its holders without their consent and participation;
- (iii) Of those forms of traditional knowledge that do have meaning outside their place and culture of origin and potential usefulness to global society, some have no potential for commercial application, but are nevertheless the intellectual property of their holders;
- (iv) Forms of traditional knowledge that have both meaning outside their local context and potential commercial value require the establishment of holistic approaches to intellectual property which allocate to the holders of traditional knowledge, innovations and practices rights and protection comparable to those offered under existing Intellectual Property Rights regimes. Such holistic regimes should, *inter alia*, establish the right to

collective ownership of such knowledge, protect the holders' rights and permit the equitable sharing of benefits;

(v) Such intellectual property protection for traditional knowledge would need to include:

(a) the recognition of groups possessing traditional knowledge as legal entities for the purposes of entering into access agreements concerning traditional knowledge;

(b) the acknowledgement of the right of any such group not to reveal such traditional knowledge;

(c) the recognition in law of the traditional knowledge concerned as the common property of the group entering into the access agreement;

(d) the need for all access to traditional knowledge to be through an access agreement with its holders, where these can be identified; and

(e) the definition of the terms of access agreements for the three main circumstances in which access to traditional knowledge might be sought: where the aim is to manage an ecosystem by partnership between the people who live there and the government; where the aim is to invent patentable products for commercial use; and where the aim is to share knowledge freely with others.

6. CONCLUSIONS AND RECOMMENDATIONS

103. The fulfillment by Parties of the provisions of Article 8(j) is fundamental to their wider fulfillment of the three-fold objectives of the Convention. Recognizing the importance and complexity of the issues surrounding the identification of options for the implementation of Article 8(j) and the need to provide appropriate guidance to Parties, the COP may wish to consider ways by which these issues could be explored in depth. It may wish to include the consideration of the relevant provisions of Articles 10(c), 17.2 and 18.4 in such a process.

104. In this regard the COP may wish to recall the relevant discussions and recommendations of the Open-ended Intergovernmental Meeting of Scientific Experts on Biological Diversity, the second meeting of the Intergovernmental Committee for the Convention on Biological Diversity and the second meeting of the SBSTTA. The COP may also wish to take note of relevant proceedings of other fora, including those under the Commission on Human Rights, in particular those under the Working Group on Indigenous Populations, and of the Intergovernmental Panel on Forests.

105. Given the complexity of the issues raised by Article 8(j), the COP may wish, as a first step in considering options for its implementation, to identify ways of obtaining further information and advice on the elements contained in the Article.

106. To assist Parties in identifying ways and means to respect, preserve and maintain the knowledge, innovations and practices of indigenous and local communities, the COP may wish to

consider how information on existing mechanisms, practices and experiences can be shared amongst Parties. To this end it may wish to determine a process by which this information could be collected and disseminated. It may wish, for example, to invite Governments to provide the Executive Secretary with information on relevant constitutional provisions, national laws, administrative arrangements and procedures. Governments could similarly be asked to provide their views on how this aspect of Article 8(j), and the provisions of Article 10(c), might be realized. The COP may wish to invite the views of organizations with expertise in this matter, in particular organizations representing indigenous and local communities, UN programmes and specialized agencies, the multilateral development banks and bilateral cooperation agencies, and specialist research and non-governmental organizations.

107. On the basis of the information gathered and the views expressed, the COP may wish to identify a process for preparing guidelines for Parties on how they could establish the multi-stakeholder partnerships for the conservation and sustainable use of biological diversity at the local or ecosystem level referred to in paragraphs 70-71 above. Such guidelines could draw upon the experience of Governments, donors, non-governmental and others in the elaboration and application of participatory planning and management methodologies. It could also draw upon the body of declarations and guidelines concerning the protection of the rights and heritage of indigenous and local communities, and procedures for project identification, appraisal, implementation and evaluation. A compilation of relevant statements and guidelines is contained in document UNEP/CBD/COP/3/Inf.24. The COP may also wish to recommend that Parties meanwhile proceed with initiatives aimed at establishing such partnerships.

108. When considering the implementation of Articles 11, 12 and 13 under its medium-term programme of work, the COP may wish to pay special attention to measures under these provisions of the Convention that will contribute to respecting, preserving and maintaining the knowledge, innovations and practices of indigenous and local communities and to promoting their wider application with the approval and involvement of the holders.

109. The COP may wish to establish a process for compiling case studies, on the basis of information provided by Governments, international agencies, research institutions and organizations representing indigenous and local communities, of successful interaction between "traditional" and "modern" knowledge systems in activities relevant to the objectives of the Convention. In this regard, it may wish to request the SBSTTA to provide further advice on how to integrate in modern management practices, knowledge, innovations and practices of indigenous and local communities, on the basis of the indicative lists identified by the Open-ended Intergovernmental Meeting of Scientific Experts on Biological Diversity (paragraphs 54 -56 above refer).

110. The COP may wish to request the Executive Secretary to maintain an overview of relevant international processes, in particular those under the aegis of the Commission on Human Rights and the Commission on Sustainable Development, and provide periodic reports.

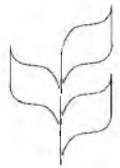
111. The COP may wish to consider further the particular issues relating to the implementation of Article 8(j), in its work on access to genetic resources, intellectual property rights and issues related to the transfer and development of technology, and in its consideration, at the fourth meeting, of issues related to benefit sharing. It may wish to consider the advantages of establishing a process for the elaboration of guidance to Parties on the protection and wider application of

traditional knowledge in support of the objectives of the Convention. In this regard, it may wish to examine the example of the provision of advice, training and documentation to developing countries on intellectual property regimes by WIPO (as previously described in UNEP/CBD/COP/2/17, paras. 46-50), in order to assess whether such arrangements for providing guidance and capacity-building to Governments might be a suitable model for assistance to be provided to Parties under the Convention.

112. The COP may also wish to consider the trade-related aspects of the implementation of Article 8(j) when addressing the relationship between the Convention and the TRIPs Agreement, including any input by the Convention to the negotiations that are taking place in the Committee on Trade and Environment of the WTO. This matter will be considered under item 14.2 of the provisional agenda of this meeting.

113. The COP may wish to request Parties to provide information relevant to the implementation of Article 8(j) in the reports to be presented in accordance with Article 26.

114. In the light of the number of potential activities arising out of its consideration of this item, the COP may wish to consider whether it would be advantageous to bring such activities together into a single process and, if so, what modalities might be appropriate.



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/22
22 September 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Third meeting
Buenos Aires, Argentina
4 to 15 November 1996
Item 14.1 of the provisional agenda

**THE IMPACT OF INTELLECTUAL PROPERTY RIGHTS SYSTEMS
ON THE CONSERVATION AND SUSTAINABLE USE OF BIOLOGICAL DIVERSITY
AND ON THE EQUITABLE SHARING OF BENEFITS FROM ITS USE**

A Preliminary Study

Note by the Executive Secretary

Contents

1. INTRODUCTION AND BACKGROUND

- 1.1 Conference of the Parties Decision II/12
- 1.2 Relevant Provisions of the Convention
- 1.3 Related Work
- 1.4 Background on IPR Systems

**2. THE IMPACT OF INTELLECTUAL PROPERTY RIGHTS (IPR) SYSTEMS ON THE
ACHIEVEMENT OF THE CONVENTION'S OBJECTIVES**

- 2.1 Impact of IPR Systems on Traditional Knowledge and Practices of Indigenous and Local Communities

- 2.2 Impact of IPR Systems as Indirect Incentives Affecting Conservation and Sustainable Use
- 2.3 Impact of IPR Systems on Benefit -Sharing Through Development of Technologies Using Genetic Resources
- 2.4 Impact of IPR Systems on Transfer of or Access to Technology and Scientific Information
- 2.5 Relationships Between IPR Systems and the Clearing -House Mechanis

3. OPTIONS FOR FUTURE WORK UNDER THE CONVENTION

REFERENCES

NOTES

I. INTRODUCTION AND BACKGROUND

1. As background for Provisional Agenda Item 14.1, the consideration of the impact of intellectual property rights (IPR), this paper provides a preliminary review of the impact of intellectual property rights systems (IPR systems) on the conservation and sustainable use of biological diversity and on the equitable sharing of benefits from its uses, as requested by the second Conference of the Parties (COP). As a preliminary study of an area that is complex, technical and controversial, this paper cannot possibly be exhaustive. Instead, it reviews the range of viewpoints that have been expressed on the issue and provides examples of recent policy proposals. The Secretariat, by describing viewpoints or proposals, is not endorsing but simply reporting on this issue area. Based on this preliminary review, the paper also describes some options for future work under the Convention on Biological Diversity.

1.2 Conference of the Parties Decision II/12

2. Decision II/12 of the second COP asks the Secretariat, *inter alia*, to:

□u]ndertake a preliminary study which analyses the impact of intellectual property rights systems on the conservation and sustainable use of biological diversity and the equitable sharing of benefits derived from its use in order to gain a better understanding of the implications of Article 16(5). The study may focus on:

- (i) exploring the relationship between intellectual property rights and the preservation and maintenance of traditional knowledge and practices of indigenous and local communities and the possible role of intellectual property rights in encouraging the equitable sharing of benefits arising from the use of such knowledge and practices; and

- (ii) inviting Governments and other relevant stakeholders to submit case studies that address the role of intellectual property rights in the technology transfer process, in particular the role of intellectual property rights in the transfer of biotechnology".¹

1.2 Relevant Provisions of the Convention

3. Decision II/12 asks the Secretariat to review the impact of IPR systems on the achievement of the Convention's objectives, with a focus on the relationship to knowledge and practices of indigenous and local communities. The COP indicated that the study should help to gain a "better understanding of the implications of Article 16(5)".

4. Article 16(5) provides that the Parties, "recognizing that patents and other intellectual property rights may have an influence on the implementation of this Convention, shall cooperate in this regard subject to national legislation and international law in order to ensure that such rights are supportive of and do not run counter to its objectives".² The use of the term "may" implies that the negotiators could not agree on whether IPR have a positive effect, a negative effect, or a negligible effect on technology transfer or on the achievement of the Convention's objectives generally. This, in fact, can be seen as a textual basis for the present study.

5. The placement of paragraph 5 in Article 16 implies that if IPR have an impact on the Convention's objectives, this is most likely to occur in the context of technology transfer, rather than in the context of conservation and sustainable use. The paragraph's language is, however, quite broad, implying the potential for influence on any of the Convention's objectives or provisions. It also implies the possibility that Parties will need to take steps cooperatively to manage the influence of IPR to ensure that it is positive rather than negative.

6. Another instance in which IPR may relate to the Convention's implementation is Article 8(j), which requires each Party, as far as possible and as appropriate and subject to its national legislation, to "respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices". The relationship of existing or modified IPR to the implementation of Article 8(j) is integrally related with the subject of this paper.

7. Also relevant is Article 11, which requires Parties to create economically and socially sound incentives for the conservation and sustainable use of the components of biological diversity, as far as possible and as appropriate. Existing or modified IPR, in the appropriate legal and institutional context, could provide such incentives.

8. Article 12(c) requires that Parties promote and cooperate in the use of scientific advances in biological-diversity research in developing methods for the conservation and sustainable use of

biological resources, taking into account the special needs of developing countries and in keeping with the provisions of Articles 16, 18 and 20. These activities could raise concerns regarding IPR protection of information provided to or accumulated by researchers.

9. Another example is Article 15, which establishes principles for the access to and sharing of the benefits of genetic resources. Identifying and allocating IPR will be an important part of controlling access to genetic resources and facilitating the fair and equitable sharing of benefits.

10. Intellectual property rights are likely to be relevant to the implementation of Article 17, which requires Parties to facilitate the exchange of relevant technical and scientific information, including indigenous and traditional knowledge both as such and in combination with technologies transferred under Article 16. This Article implicitly acknowledges that indigenous and traditional knowledge and practices are valuable for implementing the Convention, as are the biotechnologies and other high technologies contemplated in Article 16.

11. Article 18, requiring that Parties promote international scientific and technical cooperation, is relevant in that information exchanged or developed through such cooperation may be the subject of IPR. In particular, paragraph 4 states that Parties shall develop methods of cooperation for the development and use of technologies, including indigenous and traditional technologies, in pursuance of the Convention's objectives. Questions regarding the application of existing IPR or modifications to IPR could also arise in the work of the clearing-house mechanism on technical and scientific cooperation provided for under paragraph 3 of this Article.

12. Article 19 requires Parties to take measures to provide for the effective participation in biotechnological research of other Parties providing genetic resources that are used in such research, especially developing-country Parties. It also requires them to take all practicable measures to promote priority access for Parties, especially those that are developing countries, to the results and benefits from biotechnologies based upon genetic resources provided by those Parties. Intellectual property rights will play a fundamental role in the implementation of this requirement.

13. Finally, Article 20 requires each Party to provide according to its capabilities financial support and incentives for national implementation. To the extent that IPR create or can create financial incentives for implementation measures, they can contribute to implementation of this obligation.

1.3 Related Work

14. Intellectual property rights are linked in important ways to many provisions of the Convention. In part this stems from the underlying fact that much of the Convention focuses on the value of biological diversity as a source of genetic resources. Genetic resources are valuable as sources of information, genetic and chemical, that is valuable to humanity in many ways (Downes 1996; Swanson 1996a; Swanson 1996b). For example, this biological diversity information, when combined with research and development, can serve as a source of new products. In addition, the Convention places a heavy emphasis on the transfer, exchange, protection and use of other kinds of valuable information relating to conservation, sustainable use and benefit sharing, including information about technologies

ranging from biotechnology to indigenous technologies, traditional knowledge and innovations of indigenous and local communities, and scientific and technical information. Intellectual property rights systems are perhaps the principal legal mechanisms used in many societies to encourage the creation and dissemination of valuable new information. Thus, it is almost inevitable that IPR will play a role in the Convention's implementation. This paper can cover only a limited part of the many important and complex interconnections.

1.3.1 Provisional agenda of the third meeting of the COP

15. A number of other items on the provisional agenda of the third meeting of the COP relate to the subject of this paper. Foremost is the consideration of a possible input into the discussions that are taking place in the Committee on Trade and Environment of the World Trade Organization (WTO) regarding the relationship between the Convention on Biological Diversity and the 1994 Agreement on Trade-Related Intellectual Property Rights (TRIPs Agreement) signed at the close of the Uruguay Round of negotiations under the General Agreement on Tariffs and Trade (GATT) (Item 14.2 on the provisional agenda).

16. There are also many important links with the implementation of Article 8(j) regarding the knowledge, innovations and practices of indigenous and local communities (Item 11.1 of the provisional agenda). Another closely related agenda item is the consideration of the compilation of information and experiences shared on the implementation of Article 11 (Item 15.1). The issue of IPR and their impact on the Convention's objectives also arises in the context of other agenda items, such as the consideration of agricultural biological diversity (Item 9.1) and the future work programme for terrestrial biological diversity (Item 10.3).

17. Also relevant is Item 12.1 on the provisional agenda, providing for consideration of the compilation of views of the Parties on possible options for implementing Article 15 b – developing national legislative, administrative or policy measures. Item 13.1, the consideration of ways to promote and facilitate the access to and transfer of technology pursuant to Articles 16 and 18 is also relevant. Finally, Item 5, the report on the assessment and review of the operation of the clearing-house mechanism (CHM) may involve discussing IPR issues that arise in the collection, organisation and distribution of data in and through the CHM.

1.3.2 Proposed agenda of the fourth meeting of the COP

18. It is also worth noting that the medium-term programme of work approved by COP II proposes that benefit-sharing be an item on the agenda for the fourth meeting of the COP. Item 7.4 on the work programme, "consideration of matters related to benefit-sharing", includes two sub-items: (a) "to consider measures to promote and advance the distribution of benefits from biotechnology in accordance with Article 19"; and (b) "to consider benefit-sharing in light of the outcome of discussions at the third meeting of the COP on ways to promote and facilitate access to and transfer and development of technology, as envisaged by Articles 16 and 18 of the Convention". Intellectual property rights will clearly be an important part of that discussion, and the COP may find it useful to make connections between this agenda item and that future discussion.

1.3.3 Other background papers and resources

19. Aside from the papers prepared by the Secretariat for the agenda items mentioned above, other papers of particular relevance include: *Traditional Related Knowledge and the Convention on Biological Diversity*, prepared by the Secretariat for the Inter-Governmental Panel on Forests established by the UN Commission on Sustainable Development (UNEP/CBD/SBSTTA/2Inf. 3); *Farmers' Rights and Rights of Similar Groups: The rights of indigenous and local communities embodying traditional lifestyles: experience and potential for implementation of Article 8(j) of the Convention on Biological Diversity* (UNEP/CBD/IC/2/14), prepared by the Interim Secretariat for the second meeting of the Inter-Governmental Committee on the Convention on Biological Diversity; and *Intellectual Property Rights and Transfer of Technologies Which Make Use of Genetic Resources* (UNEP/CBD/COP/2/17), which was prepared by the Secretariat for the second meeting of the COP at the request of the first meeting of the COP.

20. To assist the Convention on Biological Diversity Secretariat in the preparation of its study of the relationship between the TRIPs Agreement and the Convention, the WTO Secretariat released two previously restricted background papers that it prepared for meetings of the WTO Committee on Trade and Environment. These WTO documents are being made available to the COP as UNEP/CBD/COP/3/Inf.9 (*Environment and TRIPs*) and UNEP/CBD/COP/3/Inf.10 (*Factors Affecting Transfer of Environmentally-Sound Technology*).

1.4 Background on IPR Systems³

21. Intellectual property rights consist of special kinds of property rights. Like other property rights IPR award the owner the right to exclusive use—that is, the right to exclude others from access to the resource. Intellectual property rights are distinctive, however, in that they create property rights over an *intangible* resource, consisting of certain types of information created by human beings. They are also distinctive in that they are limited in important ways. For example, most IPR are limited in duration, by definition—patents, for example, typically expire after twenty years. In essence, IPR award an individual a limited right of exclusivity as a reward (and thus an incentive) for his or her contribution to society through innovation and creativity, and as an incentive for the open distribution of information.

22. Basic categories of IPR found in many systems include patents, plant breeders' rights (PBRs), trade secrets, copyrights, and trademarks. IPR systems have evolved over time; for example, a special category of IPR was developed in recent years to protect the design of integrated circuits. The most relevant IPR categories for the purposes of this discussion are patents and PBRs, although trademarks and trade secrets also have some relevance.

23. Patents provide the inventor of a useful technology — such as a mechanical or chemical product or process — with the exclusive right to reproduce or use the patented invention for a limited period, typically twenty years from the date the patent application is filed. Patents traditionally give the inventor rights only over a specific, incremental invention. The patent-holder has no rights over the use

of previous related but distinct inventions, or over the use of biological materials or other materials as they occur naturally that are used in the invention. The patent-holder can control subsequent related but distinct inventions only to the extent that they make use of or develop the patented invention.⁴ It is important to recognise that a patent does not give the holder absolute rights to control the information needed to apply the invention. On the contrary, the holder must disclose that information to the public in order to obtain the patent, and the public is free to exchange and use that information except for the purpose of applying the invention. Additionally, many IPR systems provide for a "research exemption" that allows use of the patent for certain experimental purposes (WIPO 1990:4).

24. Plant breeders' rights are a system of patent-like rights specifically designed to provide breeders with the exclusive right to sell commercially a new variety that is novel, uniform and distinctive. PBRs frequently provide for certain exceptions to exclusive rights: the farmer's privilege, and the research exemption or breeders' privilege. Under the farmer's privilege, a farmer has the right to keep a part of the crop grown from PBR-protected seed and use it as seed for the next crop. The breeder's privilege authorises others to use a protected variety freely in research on or the development of new varieties.

25. A trade secret consists of information that is commercially valuable and whose holder makes reasonable efforts to keep it secret. In a number of jurisdictions, the holder may recover damages from another who wrongfully appropriates and uses the secret. There is no limit on the duration of a trade secret, as long as the other requirements are met. Trademarks are discussed in paragraph 51.

26. The principal underlying rationale for IPR systems is that they serve an important function by creating incentives for investment in the development of innovations. Intellectual property rights such as patents and copyrights also create incentives for the open disclosure of valuable information about inventions and artistic creations.

27. Intellectual property rights are limited in scope because of the recognised need to balance the scope of such rights of exclusivity with the principle of free exchange and use of information in order to achieve a mix of social goals. Such goals include encouraging useful innovation; strengthening technological infrastructure and the capacity for technological research and development; freedom of discourse on social, cultural, scientific and political matters; and the equitable distribution of economic benefits.⁵

28. This balance is struck in a number of specific ways. For example, IPR systems generally allow for the protection of technological and artistic innovation, but not of scientific knowledge about natural phenomena; this distinction applies to both formal and informal knowledge. Another example is that the duration of IPR tends to be strictly limited (trademarks and trade secrets are exceptions), as already noted. Inventors, creators or plant breeders must relinquish their exclusive rights at the end of a period of time defined by law.

29. The preferred balance among these principles changes over time for each society, and may differ from one society to another. For example, national IPR systems differ in whether they recognise patents on genetically modified animals or plants. Early international agreements on IPR, such as the

1883 Paris Convention on Industrial Property, created relatively few international standards. With the growth of international trade, including trade in products subject to IPR, has come pressure for harmonising and strengthening IPR systems, especially from some developed countries with strong high-technology sectors. A number of countries have adopted more detailed standards for protecting plant varieties pursuant to the International Union for the Protection of New Varieties (UPOV). Most recently, the Uruguay Round of negotiations under the GATT produced the TRIPs Agreement, which commits all members of the WTO to adopting and enforcing minimum levels of protection for IPR.⁶

2. THE IMPACTS OF IPR SYSTEMS ON THE ACHIEVEMENT OF THE CONVENTION'S OBJECTIVES

30. This paper reviews examples of interactions between IPR systems and the Convention's objectives within five general categories of issues.⁷ They are:

- (a) impacts on the traditional knowledge and practices of indigenous and local communities, which the COP identified as a focus for this study;
- (b) impacts of IPR systems as indirect incentives affecting conservation and sustainable use;
- (c) impacts of IPR systems on benefit-sharing through the development of technologies using genetic resources;
- (d) impacts of IPR systems on the transfer of or access to technology and scientific information; and
- (e) relationships between IPR systems and the clearing-house mechanism (CHM).

2.1 Impacts of IPR Systems on the Traditional Knowledge and Practices of Indigenous and Local Communities

31. The Convention on Biological Diversity recognises that the knowledge and practices of indigenous and local communities that embody traditional lifestyles relevant for conservation and sustainable use are important for achieving its objectives. This is because such knowledge and practices contain insights into biological resources and ecosystems, which can and should be a base for sustainable management and conservation systems for biological diversity and associated biological resources, along with scientific research (Berkes, Folke and Gadgil 1995). Communities' knowledge and practices are also potentially valuable as sources for the development of products in pharmaceutical, agricultural, industrial, food and other sectors (Balick 1994; Cox 1994; Farnsworth 1994; King 1996). It is important to note that such knowledge and practices are not themselves static, although they are based in traditional ways of life: thus, the Convention speaks of indigenous and local communities' "innovations" as well as their "knowledge" and "practices".

32. Some commentators argue that existing IPR systems can create direct or indirect incentives for

continued investment by indigenous and local communities in maintaining traditional knowledge and practices, at least if they are combined with benefit-sharing arrangements entered into under the Convention. On the other hand, there are assertions that "existing protection mechanisms are insufficient for the protection of Indigenous Peoples Intellectual and Cultural Property Rights" (Mataatua Declaration 1993). There are claims that existing IPR systems encourage the erosion of such knowledge and practices, in part on the ground that there are inherent conflicts between IPR systems and knowledge systems that are "collective and intergenerational" (COICA 1994; see also Four Directions Council 1996). There is concern that IPR systems encourage the appropriation of such knowledge for commercial use without the fair sharing of benefits, or that they violate indigenous cultural precepts by encouraging the commodification of such knowledge (Ibid.).

33. A related concern is that the scope of IPR over some types of inventions in the formal sector, such as over biotechnology and plant varieties, has expanded in recent years. There are fears that this trend exacerbates an imbalance between the protection of formal knowledge developed by corporate researchers as against informal knowledge developed in indigenous and local communities. Examples include a grant of a patent on all forms of genetically engineered cotton, and a similar patent on genetically engineered soybeans, as well as patent applications for applications of human gene fragments (The Crucible Group 1994: 9-10, 20). Such trends toward more expansive IPR claims have raised controversy among researchers in these fields as well as concerns among the public and also citizens' groups in many countries (e.g., Plowman 1993; see also Bellagio Declaration 1993).

34. It appears, however, that there has been little objective analysis of specific instances involving actual or potential impacts of IPR on the traditional knowledge or practices of indigenous or local communities. Nevertheless, there appears to be preliminary agreement on a few basic factual points. First, IPR systems do not generally confer rights to countries or indigenous and local communities, or any other juridical or natural person, over naturally occurring genetic resources that originate within their territory or jurisdiction. Rather, such systems will confer protection over genetic resources altered by humans only to the extent that they have been altered by a sufficiently inventive and novel step within the terms of IPR systems.⁸ Similarly, IPR systems are not likely to confer rights on indigenous and local communities for their knowledge of natural attributes or conditions, just as they do not generally confer proprietary rights to scientists or researchers in industrialised countries or elsewhere for knowledge, whether existing or new, of natural phenomena (see, e.g., Mays, et al. 1996).

35. There are a range of perspectives regarding future approaches. Many indigenous organisations oppose *per se* the commodification of knowledge or biological resources developed or maintained by their cultures and advocate curtailment of IPR on inventions derived in part from traditional knowledge or biological materials found in their territories (see COICA 1994). In contrast, other groups argue that IPR systems need to be modified to enable indigenous and local communities or individuals within them to claim IPR over their knowledge, or over innovations and practices, that relate to the sustainable use of biological diversity.

36. Some commentators, rather than argue for systematic reforms, proposed that indigenous and local communities and/or individuals within those communities can and should apply for and obtain control under existing IPR over use of their innovations (Gupta 1992). Support for this approach might

include increased financial and technical support from governments or international agencies for indigenous and local communities to work within the existing system. Similarly, there have been proposals to use measures under existing IPR systems to ensure that inventions derived from traditional knowledge remain in the public domain where they are essentially the same as existing products or processes already known in indigenous or local communities.

37. Some commentators have stressed that consideration must be given to other mechanisms in addition to IPR systems, because IPR measures may not prove the most effective mechanism available for protecting traditional knowledge. For example, there have been calls for new standards of practice for academic and commercial citation. These might involve, for instance, disclosure in academic and other publications of the names of the individual and community from which a researcher obtained information about informal knowledge, innovations or practices. They could also involve ethical standards that require procedures to ensure prior informed consent before gaining access to or publishing such knowledge; this could entail measures to ensure respect for concerns found in many cultures about keeping certain types of knowledge secret.

38. Other proposals involve the creation of new IPR, sometimes termed *sui generis* systems, for traditional knowledge of indigenous or local communities (UNEP/CBD/COP/3/19, Posey and Dutfield 1996). Such proposals raise numerous issues, such as the duration of rights and the legal identity of rights-holders. Perhaps because of the complexity of such issues, no proposal has advanced beyond a preliminary stage. Similar complexities arise regarding the curtailment or limitation of IPR over inventions derived in part from traditional knowledge or genetic resources held by local or indigenous communities.

2.2 Impacts of IPR Systems as Indirect Incentives Affecting Conservation and Sustainable Use

39. Another set of issues revolve around whether IPR on innovations derived in part from genetic resources, biochemicals and related biological resources can create indirect incentives for the conservation and sustainable use of those resources. Genetic resources contained in traditional varieties of domesticated crops, naturally occurring relatives of domesticated crops, and modern "improved" varieties, serve as resources for crop breeding and for agricultural and other biotechnology. A significant proportion of genetic resources, including traditional crop varieties as well as modern varieties, are not natural raw material, but result from human efforts in innovation and conservation. For traditional varieties, this often represents a long-term investment over many generations of informal innovation and stewardship, an investment that continues today in many indigenous and local communities.⁹

40. In addition, biological resources associated with genetic diversity in plant, animal and microbial species includes a diversity of chemicals found in various species that serves as sources of pharmaceuticals, cosmetics, food additives and industrial compounds. Plants and other biological resources are highly significant as sources of herbal medicines for local communities and national markets.

41. There is evidence that, as a general matter, IPR systems create incentives for private investment in innovation, producing new products that benefit society (e.g., Levin, et al. 1988; Mansfield 1993). While it is difficult to isolate impacts of IPR from the effects of other policies, they appear to encourage investment in certain industries such as crop breeding, that make significant use of genetic resources and related biological resources such as biochemicals (see Swanson 1996b, citing Perrin et al. 1983, Pray and Knudson 1994, and Huffman and Evenson 1993). Still, the evidence is not conclusive and there may be some negative impacts, for example on diffusion on technology, especially on certain groups or regions (Butler 1996; Jaffe and van Wijk 1995; Stallman and Schmid 1987).

42. Prior to the entry into force of the Convention on Biological Diversity, it is unlikely that IPR systems provided incentives in favour of conservation or sustainable use. Genetic resources were usually considered a common heritage, and users from other countries customarily returned no direct economic benefits to the countries or communities that provided and/or conserved the resources, although some international crop breeding programs sought to develop and distribute crop varieties for use in the developing countries that are the countries of origin for major food crops. Generally, researchers whose inventions qualified for IPR protection resided in developed countries, while the communities that lived near genetic resources and associated biological resources used in such inventions resided in developing countries and did not generally participate in the “advanced” research that led to IPR-protected inventions.

43. Such indigenous and local communities generally did not receive significant compensation if traditional knowledge or practices helped identify a naturally occurring compound that led to the development of a commercially valuable pharmaceutical or other product. Generally, traditional knowledge has not qualified for IPR protection under current laws; the inventive step that led to a commercial product suitable for patenting was considered to be taken in a research laboratory, usually in a developed country.

44. It has been argued that IPR systems can operate as an indirect incentive for conservation only if they are coupled with some other legal mechanism that ensures the transfer of benefits to the resource providers. With the advent of the Convention on Biological Diversity, it has been argued that IPR systems can create indirect economic incentives for conservation. Intellectual property rights can encourage and reward the adding of value to genetic resources used as “raw materials”. They can create indirect incentives, it is argued, when coupled with access and benefit-sharing agreements pursuant to the Convention that require the technology developers to transfer a share of the benefits to the providers of the genetic resources or associated traditional knowledge.

45. Others, however, suggest that IPR combined with such contractual arrangements are unlikely to accomplish benefit-sharing, and thus unlikely to create conservation incentives (Swanson 1996b). They point out that genetic resources and traditional knowledge, like innovations protectable by patents, have value because of their informational content. When such information is easily transferred and used, property rights analogous to patents will be needed to control effectively their use and ensure benefit-sharing. The reasoning is analogous to the rationale for granting IPR: a contract places legal controls on the use of information only as against those who sign the contract, whereas an intellectual property right is much more effective, because it controls use by all others within the jurisdictions where the IPR is

legally recognised.

46. In contrast, others claim that IPR protection creates “reverse incentives” that encourage the development of technologies that displace biological diversity (such as the monoculture of proprietary crop varieties) or threaten biological diversity (such as the inappropriate use of pesticides). For example, there are concerns that IPR-supported research is leading to the development of herbicide-resistant crop varieties the use of which may encourage a greater application of herbicides.

47. Intellectual property rights are also sometimes cited as a reason for the widespread erosion of thousands of traditional crop varieties, which typically contain diversity within as well as among varieties, and their replacement by a much smaller number of “lite” varieties. During the same period that the strength of IPR over plant varieties increased, vast numbers of traditional crop varieties disappeared (WCMC 1992). The requirement that a variety be uniform motivates breeders to reduce the internal genetic variation of the crop varieties they develop (Keystone Center 1991:14). Thus, “[t]o the extent that PBR is intended as an incentive to develop improved varieties, it contributes indirectly to the loss of landrace genetic diversity” (Op cit.: 13).

48. Other policies, however, have major impacts on the use of new crop varieties and the loss of traditional ones. Examples are:

- (a) government farm credits and subsidies, and extension services;
- (b) the policies and programs of international agencies and donor institutions;
- (c) the marketing and research and development policies and programmes of transnational corporations; and
- (d) the increasingly concentrated corporate control of pesticide and agri-biotechnology research and distribution.

The extent to which PBR and other IPR, as compared to these factors, contribute to the displacement of traditional varieties and other changes in agricultural practices is unclear.

49. In addition, there are counter-arguments that IPR protection encourages conservation through the development of conservation technologies or through more efficient agricultural land use. For example, it is argued that IPR encourage the development of new crop varieties that reduce the pressure to convert land to agriculture by increasing yields and enhancing the pest-resistance of crops on existing farmland. With respect to the example of herbicide-resistant crop varieties, it is argued that while the development of such varieties may encourage the greater use of herbicides, some of these herbicides could replace more injurious ones used currently. There are also arguments that PBRs, by encouraging investment in plant breeding, may lead to an increase in the number of crop varieties (Keystone Center 1991:13, Crucible Group 1994:18).

50. A number of general proposals have been made for the creation of new categories of property rights that would enhance incentives for conservation and sustainable use. For example, a number of commentators have proposed the creation of IPR-like property rights schemes that would confer property rights over biological information contained in genetic resources to the countries and/or communities of origin (see, e.g., Sedjo 1989; Vogel 1994; Swanson 1996b). Others have proposed an international "seed tax" on sales of crop varieties; the revenues would go to countries or communities of origin for genetic resources. The amount of tax, the identity of the authorities who would collect it, the nature of the institution that would distribute the revenues, the definition of the entities that would be eligible for receiving the proceeds, and the mechanism for allocating the funds, all remain unspecified. Implementation of farmers' rights through a multilateral fund, financed by developed countries, that would distribute grants to developing-country farmers has also been proposed, and raises similar questions about how it would be operationalised. All of these proposals have met with criticism.

51. There are several other proposals that are also somewhat more detailed. They include the following:

(a) **Development access of and benefit-sharing arrangements** and/or guidelines for such arrangements through the implementation of Article 15. Such arrangements can include the negotiated allocation of IPR between parties. A number of countries are moving forward with this option (see UNEP/CBD/COP/3/20 on access to and benefit -sharing from the use of genetic resources).

(b) **Disclosure in patent applications of the country and community of origin for genetic resources and informal knowledge used to develop an invention.** A number of commentators have argued that Parties should encourage or require such disclosure in their patent procedures (e.g., Gadgil and Devasia 1995), possibly also including the certification of prior approval of the use by the source country or community (e.g. Downes 1993). Possible elements of such a mechanism are outlined in *Knowledge, Innovations and Practices of Indigenous and Local Communities* (UNEP/CBD/SBSTTA/2/7). This type of action could implement Article 8(j) by promoting respect for indigenous and local traditional knowledge. It is worth noting that such disclosure may implicate other conservation concerns; for example, by affecting the rates of exploitation of species vulnerable to overexploitation.

There is evidence suggesting that disclosure of origin would in large part involve simply regularising a practice that is already common in filing patent applications. One recent study reviewed over five hundred patent applications in which the invention involved the use of biological materials, such as materials derived from plants or animals; most were in the pharmaceutical field, with some in other fields such as cosmetics and pesticides (Sukhwani 1996 and pers. comm.). The applications reviewed came from a number of jurisdictions, including France, Germany, UK, Spain, the USA, and the European Patent Office. Of the applications involving plants, the country of origin was invariably mentioned unless the plant was widely distributed or well known (such as the lemon or rosemary). A number of applications also mentioned indigenous or traditional uses as prior art.¹⁰

(c) **Restriction on the ability of users gaining access to genetic resources to maintain exclusive IPR protection over derived products.** For example, a Party could, as part of access regulations under Article 15, require that users obtaining genetic resources from within the Party's jurisdiction must agree to issue a compulsory license on any future invention derived from those resources within the country of origin.¹¹ In other words, a contractual agreement to assign rights over future possible inventions would be part of what each user would trade for access, as part of mutually agreed terms.

(d) **Development of trademarks or appellations of origin for products of traditional knowledge or practices.** A trademark gives a producer the exclusive right to use a distinctive, recognisable, reliable mark or name to distinguish its products from those of its competitors. Similarly, marks of geographic origin allow producers to identify their products as coming from a specific region that is identified with quality and authenticity. Systems of geographic indications are used in a number of countries to regulate labelling of products historically associated with certain regions (Bard and Marchenay 1996). Under the TRIPs Agreement, geographic indications as well as trademarks are included among the types of IPR for which WTO members must establish minimum levels of protection (see UNEP/CBD/COP/3/23). One way that indigenous and local communities might choose to maintain their knowledge innovation and practices relating to sustainable use could be to market products created using such knowledge, innovations or practices to consumers who prefer to support conservation or indigenous autonomy by buying such goods. To market successfully, producers need to be able to present information about how their products were produced, and they must be able to prevent false claims. In light of this, some have suggested that trademarks or marks of geographic origin could reward communities and enhance economic incentives for sustainable traditions. Already there have been some efforts to develop such systems (Pinel and Evans 1994). Trademarks and marks of origin may also serve to protect the cultural and moral values of communities against commercial intrusion and exploitation. Another option might involve the application of concepts found in the Model Provisions for National Laws on the Protection of Expressions of Folklore Against Illicit Exploitation and Other Prejudicial Actions, developed by UNESCO and WIPO (WIPO 1985).

2.3 Impact of IPR Systems on Benefit-Sharing Through the Development of Technologies Using Genetic Resources

52. A related set of arguments revolve around the impacts of IPR systems with a focus on the issue of equitable benefit-sharing, rather than on conservation and sustainable use. Some critics argue that IPR systems favour the development of products that primarily benefit private industry and users in more lucrative markets in developed countries, and that do not respond to the needs of smaller, poorer farmers who cannot afford the expensive inputs needed to cultivate such varieties (Crucible Group 1994:17). Moreover, IPR systems are sometimes claimed to hinder the diffusion of useful new crop varieties to smaller, poorer farmers in developing countries who cannot afford to pay for such proprietary technology. In addition, there are complaints that the existing system is not equitable in that it does not reward indigenous and local communities at a level commensurate with their contributions

to the world □ plant genetic resources inputs in the form of creativity, ingenuity and work over man generations.

53. In contrast, defenders of existing IPR systems point out that IPR systems were not designed to distribute rewards equitably for a wide range of endeavours and activities, or for activities in the distant past. Rather, they are intended to create incentives in the present for a specific activity, a social productive investment in innovation. They are not designed to create proprietary rights or provide economic rewards for current populations in exchange for inventions or conservation efforts by their ancestors in generations past. On the contrary, in order to limit concentrations of economic power, IPR systems are specifically designed *not* to confer proprietary rights for more than a limited duration.

54. There appears to be increasing agreement that, over many generations, indigenous and traditional farming communities have contributed significantly to the world □ genetic resources and knowledge of biological resources. There is also considerable support for the principle that present-day communities should receive a greater share of the benefits from the use of genetic resources and traditional knowledge created from present inhabitants or previous generations. Significant disagreement remains, however, as to how these benefits should be dispensed, how large they should be, and how they should be distributed. In particular, there is little agreement about whether and how IPR systems should be modified to encourage a different distribution of benefits. Proposals for action are discussed under sub-parts 2.1 and 2.2 above.

2.4 Impacts of IPR Systems on Transfer of or Access to Technology

55. Another set of arguments is concerned with whether IPR create incentives for the diffusion or transfer — as distinct from innovation — of technology, including biotechnology that uses genetic resources, particularly to developing countries. These issues also arise with respect to the transfer of and access to technology relevant for the conservation and sustainable use of the components of biological diversity. Such technology could include, for example, geographic information systems useful for inventorying and mapping biological diversity concentrations and associated biological resources, or more selective gear for harvesting marine living resources that reduce the level of bycatch or damage to ecosystems.

56. While there is widespread agreement that IPR in some form are necessary to stimulate innovation, there is less agreement regarding the impact of IPR on the diffusion of technology. In the area of plant genetic resources, for example, the seed industry in developed countries has successfully sought to expand IPR protection, such as PBRs and more recently utility patents, over □lite” crop varieties. There are concerns that the result is a worsening disparity between rewards flowing to seed companies in industrialised countries and rewards flowing to countries and farming communities providing genetic resources. For the latter, it is argued, proprietary varieties may be prohibitively expensive; in addition, there is no formal mechanism analogous to IPR to ensure that they share in the benefits from the use of their resources in the development of elite varieties. Moreover, there are concerns that the expanding scope and use of IPR) in particular utility patents on plant varieties — may

/...

discourage researchers from exchanging resources freely (Plowman 1993). More generally, there are concerns that strengthened IPR in at least some developing countries may open doors to imports of IPR-protected goods without stimulating foreign direct investment in productive facilities (e.g., Correa 1993).

57. On the other hand, some commentators argue that IPR encourage technology transfer and foreign direct investment in sectors like pharmaceuticals or chemicals, where research and development costs are high and products are easily copied, by reassuring owners of proprietary technology that their rights will be protected (Mansfield 1994, UNEP/CBD/COP/3/Inf.10). However, it has been argued that IPR in other sectors in fact play a relatively small role in determining whether technology is accessible (UNEP/CBD/COP/3/Inf.10). Often, access to information about technologies, financial resources and technological capacity are more important determinants of whether a country or firm within a country can acquire a given technology (UNEP/CBD/COP/3/Inf.10). In industries where IPR are considered important, it is argued that potential suppliers of technologies are more willing to transfer technology voluntarily if the host country has an effective IPR regime in place (Ibid.).

58. As a whole, the empirical evidence on these issues appears to be inconclusive (Blakeney 1989; Siebeck, ed. 1990). Recently, the conflict around IPR and technology transfer appears to have abated somewhat, perhaps because the TRIPs Agreement has articulated somewhat more detailed IPR standards for its 120-plus members than previously existed at the international level. Discussion appears to focus increasingly on the impacts of IPR on the transfer of or access to specific types of technologies. This is consistent with the second meeting of the SBSTTA's recommendation to the COP that "[t]he work of the SBSTTA on access to and transfer of technology should now adopt an integrated approach. It should be conducted within sectoral themes related to the priority issues under the programme of work of the SBSTTA, for example technologies relevant to the conservation and sustainable use of, or making use of, marine biological diversity or agricultural biological diversity" (UNEP/CBD/COP/3/3, Recommendation II/3).

2.5 Relationships Between IPR Systems and the Clearing-House Mechanism

59. Intellectual property rights systems are likely to have significant implications for the clearing-house mechanism for scientific and technical cooperation (CHM) established under the Convention pursuant to Article 18(3). The IPR framework for collections of data, especially in digital electronic formats, is evolving rapidly, although perhaps not as rapidly as are the technologies for computerised data organisation and electronic data communications. It is becoming increasingly easy to collect, process, organise, transmit and distribute data in electronic form. These trends are likely to affect IPR regimes, including relevant international law such as the TRIPs Agreement and the intellectual property agreements administered by the World Intellectual Property Organization, including the Berne Convention for the Protection of Literary and Artistic Work. (UNEP 1995:662-65).¹²

60. Several competing principles will bear on these developments. They include the "public interest in encouraging the broadest possible access to information on biological diversity", which encourages the treatment of databases as "public goods" (Ibid.) This approach reflects a long-standing tradition in

the scientific community, and is also reflected in provisions of environmental agreements, including the Convention on Biological Diversity, calling for international exchange of scientific and technical information (see, e.g., Article 17 of the Convention on Biological Diversity). In contrast, the private sector often seeks to restrict the sharing of information to protect economic interests, while government agencies sometimes do the same on grounds of national-security interests. Those seeking to restrict information flows may resort in some cases to the use of IPR, at least for the purpose of conditioning access on payment. There may also be conservation reasons for withholding information; for example when public disclosure of the location of a population of an endangered species would put the species' survival further at risk.

61. Much if not most of the information that will likely be offered (through links or database storage) for the CHM will have been collected by scientists in the public sector. This raises the issue of how IPR are to be allocated if information is obtained from the CHM and then used for economic gain, perhaps as an input into an IPR-protected product or process. Should users be obliged to sign an agreement to share any profits with information providers? Or perhaps to sign an agreement not to assert proprietary rights over information from the CHM or over products developed using that information? Or is a signed agreement the wrong approach altogether?

62. Another issue involves the need to protect the interests of indigenous and local communities if their knowledge, innovations and practices are to be made available through the CHM. At its second meeting, the SBSTTA recommended that the COP should "recognize that ownership and control of all information remain [sic] with the providers, respecting the rights of countries of origin and of indigenous and local communities" (UNEP/CBD/COP/3/3, Recommendation II/6). The relationship of this language to the relevant provisions of the Convention, such as Articles 8(j) and 16(5), leaves a number of questions unanswered.

3. OPTIONS FOR FUTURE WORK UNDER THE CONVENTION

63. The complex debate on IPR systems and their relationship with the Convention's objectives has often been hampered by a lack of specific factual grounding. For example, there has been little empirical study of the impact of specific types of IPR on specific bodies of traditional knowledge. The following options identify areas where the COP might wish to proceed by initiating processes for studying the status and impacts of existing IPR systems or by studying the possibility of changing or adding to the existing IPR framework. Such specific initiatives could help move the debate beyond general discussions of IPR.

64. The COP may wish to consider:

- (a) **Encouraging Case Studies of IPR Impacts.** The COP might wish to call on governments, intergovernmental organisations and other organisations in the field of conservation and sustainable use to conduct and bring to the Secretariat's attention studies of IPR impacts on the Convention's objectives, for wider distribution through the clearing-house mechanism (CHM). Such studies would focus on specific cases in which genetic resources, associated traditional knowledge and/or biological resources have been used outside of the

country of origin. The studies might analyse the relationship between IPR impacts and the principles articulated in Articles 8(j), 15 and 16.

(b) **Encouraging Continued Study on Patent Application Disclosure Policy.** The COP might wish to encourage continued and expanded study by Parties and interested organisations of the extent to which the Convention □ objectives might be furthered through a practice requiring patent applicants to disclose information regarding the origin of biological materials and the traditional knowledge or practices of indigenous and local communities used in the development of the invention, possibly also disclosing measures taken to gain approval for such use and to share benefits. The study could consider the implications of formalising such a procedure, including the practicalities of defining terms, and the feasibility of incorporating such requirements into patent examinations.

(c) **Exploring Options for Accommodating Traditional Knowledge Within Existing IPR Regimes.** The COP might wish to call for study of the potential for existing IPR regimes to accommodate and protect traditional knowledge so as to promote the implementation of Article 8(j) and the achievement of the Convention □ objectives.

(d) **Reviewing the Relationship Between Appellations of Origin or Trademarks and Traditional Knowledge and Practices.** The COP might wish to consider calling on governments and relevant organisations to conduct a study of the potential for existing systems of appellations of origin or trademarks to ensure indigenous and local communities' prior approval of wider use of their traditional knowledge and practices and to encourage sharing of benefits from such use. The study could also review options for modifying or augmenting such systems in order to enhance the opportunities for prior approval and benefit sharing.

(e) **Managing Information Relating to the Clearing House Mechanism (CHM).** The COP might request that the Secretariat carry out a study, as part of the pilot phase of the CHM, exploring practical options for implementing SBSTTA II Recommendation II/6, para. 4, that the COP should □r]ecognize that ownership and control of all information [made available through the CHM should] remain with the providers, respecting the rights of countries of origin and of indigenous and local communities". In particular, the Secretariat might explore options for how the CHM might model approaches for acknowledging or sharing the benefits of indigenous and local communities' knowledge, innovations and practices, and for assuring prior approval for the dissemination or use of such knowledge, innovations or practices.

(f) **Encouraging Parties to Convene Stakeholder Consultations.** The COP might wish to consider calling on governments and IGOs to carry out consultations with stakeholders, which could focus on the impacts of specific types of IPR on specific bodies of traditional knowledge, or on the sharing of specific experiences of IPR impacts on particular communities. Stakeholders could include indigenous and local communities, industry, and public -sector researchers.

(g) **Request the Involvement of Relevant IGOs.** For each of these options, the COP might

/...

wish to encourage or request involvement of relevant IGOs, in particular the World Intellectual Property Organization and the World Trade Organization, as well as relevant NGOs, including academic institutions and professional associations, as appropriate.

(h) **Distribute Results Through the Secretariat and the CHM.** For each of the options above, Parties and other actors could report outcomes and results to the Secretariat, for wider distribution through the CHM.

REFERENCES

Balick, M. 1994. "Ethnobotany, drug development and biodiversity conservation: exploring the linkages". In *Ethnobotany and the Search for New Drugs*. New York: John Wiley and Sons. Ciba Foundation Symposium 185.

Bellagio Conference. 1993. Statement of the Bellagio Conference: Cultural Agency/Cultural Authority: Politics and poetics of intellectual property in the post-colonial era. n.d.: n.p.

Bourd, L. and Marchenay, P. 1996. "Tradition, Regulation, and Intellectual Property: Local Agricultural Products and Foodstuffs in France". Pages 230 -43 in S. B. Brush and D. Stabinsky. *Valuing Local Knowledge: Indigenous People and Intellectual Property Rights*. Washington, D.C.: Island Press.

Berkes, F., Folke, C. and Gadgil, M. 1995. "Traditional Ecological Knowledge, Biodiversity, Resilience and Sustainability". In Perrings, C.A., et al. *Biodiversity Conservation: Problems and Policies*. Dordrecht, Netherlands: Kluwer Academic Publishers. Ecology, Economy and Environment 4.

Blakeney, M. 1989. *Legal Aspects of the Transfer of Technology to Developing Countries*. Oxford: ESC Pub.

Brush, S.B. and Stabinsky, D. *Valuing Local Knowledge: Indigenous People and Intellectual Property Rights*. Washington, D.C.: Island Press.

Butler, L.J. and Marion, B., 1985. "The Impacts of Patent Protection on the U.S. Seed Industry". North Central Region Department of Agriculture Research Publication 304.

Butler, L.J. 1996. "Plant Breeders' Rights in the U.S.: Update of a 1983 study". In van Wijk, J. and Jaffe, W. eds. *Intellectual Property Rights and Agriculture in Developing Countries*. Amsterdam: University of Amsterdam.

COICA (Coordinating Body for the Indigenous Peoples' Organizations of the Amazon Basin). 1994. *Regional meeting sponsored by COICA and UNDP on Intellectual Property Rights and Biodiversity* [Statement]. Santa Cruz de la Sierra, Bolivia. n.p.

Correa, C. M. 1993. *Intellectual Property Rights and Foreign Direct Investment*. New York: United Nations. Doc. No. ECOSOC ST/CTC/SER.A/24.

Cox, P. 1994. "The ethnobotanical approach to drug discovery: strengths and limitations". In *Ethnobotany and the Search for New Drugs*. New York: John Wiley and Sons. Ciba Foundation Symposium 185.

The Crucible Group. 1994. *People, Plants and Patents: the impact of intellectual property on biodiversity, conservation, trade and rural society*. Ottawa, Ontario, Canada: International Development Research Centre.

Downes, D. R. 1993. "New Diplomacy for the Biodiversity Trade: Biodiversity, biotechnology and intellectual property in the Convention on Biological Diversity". *Touro Journal of Transnational Law* 4:1-46.

Downes, D. R. 1996. "Global Trade, Local Economies and the Biodiversity Convention". In Snape, W.J., ed. *Biodiversity and the Law*. Washington, D.C.: Island Press.

Evenson, R. 1995. *The Valuation of Crop Genetic Resource Preservation, Conservation and Use*. Paper prepared for the Commission on Plant Genetic Resources, FAO, Rome.

Farnsworth, N.R. 1994. "Ethnopharmacology and drug development". In *Ethnobotany and the Search for New Drugs*. New York: John Wiley and Sons. Ciba Foundation Symposium 185.

Four Directions Council. 1996. *Forest Indigenous Peoples and Biodiversity*.

Gadgil, M. and Devasia, P. 1995. "Intellectual Property Rights and Biological Resources: Specifying Geographical Origins and Prior Knowledge of Uses". *Current Science* 69(8).

Gupta, A. 1992. *Debate on Biotechnology and Intellectual Property Rights: Protecting the Interests of Third World Farmers and Scientists*. Ahmedabad, Gujarat, India: Indian Institute of Management. W. P. No. 1057.

Huffman, W. and Evenson, R. 1993. *Science for Agriculture*, Iowa State University Press: Ames.

International Alliance of Indigenous-Tribal Peoples of the Tropical Forests. [1996?] *The Biodiversity Convention: The concerns of indigenous peoples*. London: International Alliance of Indigenous-Tribal Peoples of the Tropical Forests. Draft.

Jaffe, W. and van Wijk, J. 1995. *The Impact of Plant Breeders' Rights in Developing Countries*, Technical Paper of the Special Programme on Biotechnology and Development Cooperation, Ministry of Foreign Affairs: The Hague.

Keystone Center. 1991. *Final Consensus Report: Global Initiative for the Security and Sustainable*

Use of Plant Genetic Resources. Keystone, Colo., USA: Keystone Center. (Oslo Plenary Session, Keystone International Dialogue Series on Plant Genetic Resources.)

King, S.R. 1996. "Conservation and Tropical Medicinal Plant Research". In Balick, M.J., E. Elisabetsky, and S.A. Laird (eds). 1996. *Medicinal Resources of the Tropical Forest: Biodiversity and its Importance to Human Health*. New York: Columbia University Press.

Kloppenborg, J. 1988. *First the Seed: the political economy of plant biotechnology: 1492 -2000*. New York: Cambridge University Press.

Levin, et al. 1988. *Appropriating the Returns from Industrial Research and Development*. Washington, D.C.: Brookings Institution. Brookings Papers on Economic Activity 3:783.

Mansfield, E. 1993. *Intellectual Property Protection, Foreign Direct Investment and Technology Transfer*. Washington, D.C.: World Bank.

Mataatua Declaration on Cultural and Intellectual Property Rights of Indigenous Peoples. 1993. Geneva: Commission on Human Rights, Sub -Commission on Prevention of Discrimination and Protection of Minorities. Working Group on Indigenous Populations. Doc. No. E/CN.4/Sub.2/AC.4/1993/CRP.5.

Mays, T. et al. 1996. "Quid Pro Quo: Alternatives for Equity and Conservation". Pages 259-280 in S. B. Brush and D. Stabinsky. *Valuing Local Knowledge: Indigenous People and Intellectual Property Rights*. Washington, D.C.: Island Press.

Perrin, R., Kunnings, K. and Ihnen, L., 1983. *Some Effects of the US Plant Variety Protection Act of 1970*. Economic Research Report No. 46, Department of Economics, North Carolina State University.

Pinel, S.L. and Evans, M.J. 1994. "Tribal Sovereignty and the Control of Knowledge". In T. Greaves, ed. *Intellectual Property Rights for Indigenous Peoples: A Source Book*. Oklahoma City, OK, USA: Society for Applied Anthropology.

Plowman, R.D. 1993. "Intellectual Property Rights in Plants: An ARS Perspective". *Diversity* 9(1&2): 74-75.

Posey, D. and Dutfield, G. 1996. *Beyond Intellectual Property: Toward traditional resource rights for indigenous peoples and local communities*. Ottawa, Canada: IDRC.

Pray and Knudsen, 1994. "Impact of Intellectual Property Rights on Genetic Diversity: The Case of Wheat". *Contemporary Economic Policy* 12:102.

Sedjo, R. A. 1989. "Property Rights for Plants". *Resources* (97):1.

Siebeck, W.E., ed. 1990. *Strengthening Protection of Intellectual Property in Developing Countries: A Survey of the Literature*. Washington DC.: World Bank. World Bank Discussion Papers, No. 112.

Stallman, J. I. and Schmid, A. A. 1987. "Property Rights in Plants: Implications for Biotechnology Research and Extension". *American Journal of Agricultural Economics* 69(2) 423-37.

Sukhwani, A. [1996]. *Intellectual Property and Biological Diversity: Issues Related to Country of Origin*. Paper prepared for the Secretariat of the Convention on Biological Diversity. n.p.

Swanson, T., Pearce, D. and Cervigni, R. 1994. *The Appropriation of the Benefits of Plant Genetic Resources for Agriculture*. Rome: FAO, Commission on Plant Genetic Resources.

Swanson, T. 1995. *Intellectual Property Rights and Biodiversity Conservation*, Cambridge University Press: Cambridge.

_____. 1996a. "Biodiversity as Information". *Ecological Economics* 17:1-8.

_____. 1996b. *Impact of IPR systems on the conservation and sustainable use of biological diversity, and on the equitable sharing of benefits from its use.* (Included as UNEP/CBD/COP/3/Inf.13).

United Nations Environment Programme. 1995. *Global Biodiversity Assessment*. Cambridge, U.K.: Cambridge University Press. (V.H. Heywood, exec. ed. R.T. Watson, chair.)

Vogel, J. H. 1994. *Genes for sale : privatization as a conservation policy*. New York : Oxford University Press.

WIPO (World Intellectual Property Organization). 1985. *Model Provisions for National Laws on the Protection of Expressions of Folklore Against Illicit Exploitation and Other Prejudicial Actions*. Geneva: WIPO/UNESCO.

_____. 1990. *Basic Notions of Industrial Property and Licensing: Document prepared by the International Bureau (for the UNEP Expert Group on proprietary rights and licensing)*. Doc. No. WO/INF/51. Geneva: WIPO.

WCMC (World Conservation Monitoring Centre). 1992. *Global Biodiversity*. London: Hall
World Conservation Monitoring Centre and Faculty of Economics, Cambridge University (1996). *Industrial Reliance Upon Biodiversity*, WCMC: Cambridge.

WTO (World Trade Organization). Committee on Trade and Environment. 1995. *Report of the Meeting Held on 21-22 June 1995: Note by the Secretariat*. Geneva: WTO. Doc. No. WT/CTE/M/3.

NOTES

¹ As of the date of preparation of this paper, the Secretariat had received no case studies from governments or other relevant stakeholders; however, the Secretariat has taken into account comments relating to IPR submitted by Governments in response to a request for information on other agenda items such as ways to promote access to and transfer of technology.

² Article 16 as a whole concerns the access to and transfer of technology among Parties, recognizing that they are "essential elements for the attainment of the objectives of [the] Convention". Paragraph 1 provides that each Party shall "provide and/or facilitate access for and transfer to other Parties of technologies that are relevant to the conservation and sustainable use of biological diversity or make use of genetic resources and do not cause significant damage to the environment". The remainder of the Article qualifies or elaborates upon this general obligation; for example, by putting an emphasis on providing technology for developing country Parties and Parties that are countries of origin for genetic resources. Particularly relevant for the purposes of this discussion is paragraph 2, which states that "technology subject to patents and other intellectual property rights shall be provided on terms which recognize and are consistent with the adequate and effective protection of IPR".

³ Additional discussion of the basic elements of IPR systems can be found in *Intellectual Property Rights*, (UNEP/CBD/COP/2/17), paragraphs 9-22.

⁴ There is, however, some concern that some recent patents in the biotechnology field may violate this principle. See paragraph 33, below.

⁵ It should be noted that while IPR restrict commercial use of protected information, they can also promote broader dissemination of information to the benefit of society. For example, an applicant for a patent must disclose in the application information sufficient to allow another person skilled in the relevant field to reproduce the invention. Relinquishing control over this information is part of what the inventor gives to society in exchange for exclusive control over the reproduction (for a utility patent) or the use (for a process patent) of the invention. Dissemination of this information supports further research and development in the relevant field.

⁶ For additional information regarding the TRIPs Agreement and its relationship to the Convention on Biological Diversity, see the background paper for Agenda Item 14.2 entitled *Synergies and Relationships Between the Objectives of the Convention on Biological Diversity and the TRIPs Agreement*, UNEP/CBD/COP/3/23.

⁷ There are a number of other issues relating to IPR that have raised significant concerns, but are not within the realm of issues identified by the COP and are thus outside the scope of this paper. They include the socio-economic impacts of patenting pharmaceuticals and other products important for public health and welfare, and the moral implications of animal and plant patenting. Likewise, the paper does not discuss issues relating to patenting of human genes, since COP II "reaffirm[ed] that human genetic resources are not included within the framework of the Convention". See Decision II/11,

UNEP/CBD/COP/2/19, Annex II.

⁸ Note, however, that the expansive patent claims referenced in the preceding paragraph have raised questions for some about whether this principle will be consistently applied to biotechnological inventions.

⁹ Further discussion of the value of these resources can be found in *Economic Valuation of Biodiversity: Note by the Secretariat*, prepared for the second meeting of the Subsidiary Body on Scientific, Technical, and Technological Advice (UNEP/CBD/SBSTTA/2/13). Additional information on the value of these resources may be found in *Farmers' Rights and Rights of Similar Groups*, UNEP/CBD/IC/2/14, paras. 7-10; and *Knowledge, Innovations and Practices of Indigenous and Local Communities*, UNEP/CBD/SBSTTA/2/7, paras. 74-82.

¹⁰ See also *The Convention on Biological Diversity and the TRIPs Agreement: Relationships and Synergies*, UNEP/CBD/COP/3/23.

¹¹ An example of this approach may be found in the implementation of Article 15 by the Philippines. Under the Philippines law, foreign institutions must agree, as a condition of access to genetic resources, to permit use within the Philippines of any invention developed using the genetic resources. See UNEP/CBD/COP/3/20. See also *The Convention on Biological Diversity and the TRIPs Agreement: Relationships and Synergies*, UNEP/CBD/COP/3/23.

¹² This assertion, subsequent quotations in this section and the following discussion generally are drawn from UNEP 1995:662-65. See also *The Convention on Biological Diversity and the TRIPs Agreement: Relationships and Synergies*, UNEP/CBD/COP/3/23.

- - - - -



CBD



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr
GENERAL

UNEP/CBD/COP/3/36
26 September 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY

Third meeting

Buenos Aires, Argentina

4 to 15 November 1996

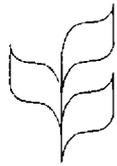
Item 5 of the provisional agenda

**MODALITIES FOR GEF ASSISTANCE FOR CAPACITY-BUILDING IN RELATION
TO THE OPERATION OF THE CLEARING-HOUSE MECHANISM**

In decision II/3 the Conference of the Parties requested the Global Environment Facility (GEF) to explore the modalities of providing support through the financial mechanism to developing country Parties for capacity building in relation to operation of the clearing-house mechanism, and to report to the Conference of the Parties at its third meeting. The report of the GEF on its response to this decision is attached.



CBD



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/Inf.6
28 October 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY

Third meeting

Buenos Aires, Argentina

4 to 15 November 1996

Item 16 of the provisional agenda

**SPECIAL SESSION OF THE GENERAL ASSEMBLY
FOR THE PURPOSE OF AN OVERALL REVIEW AND
APPRAISAL OF THE IMPLEMENTATION OF AGENDA 21**

In order to assist the Conference of the Parties with its consideration of this agenda item, the Report of the Secretary-General on Environment and Development: Special Session of the General Assembly for the Purpose of an Overall Review and Appraisal of the Implementation of Agenda 21 (document A/51/420) is attached.



General Assembly

Distr.
GENERAL

A/51/420
1 October 1996

ORIGINAL: ENGLISH

Fifty-first session
Agenda item 97 (b)

ENVIRONMENT AND SUSTAINABLE DEVELOPMENT: SPECIAL SESSION
FOR THE PURPOSE OF AN OVERALL REVIEW AND APPRAISAL OF THE
IMPLEMENTATION OF AGENDA 21

Report of the Secretary-General

CONTENTS

	<u>Paragraphs</u>	<u>Page</u>
I. INTRODUCTION	1 - 2	3
II. PREPARATIONS FOR THE SPECIAL SESSION	3 - 44	3
A. Commission on Sustainable Development and its Bureau	3 - 15	3
B. Relevant activities carried out by the Inter-Agency Committee on Sustainable Development and by organizations and bodies of the United Nations system	16 - 22	7
C. High-level Advisory Board on Sustainable Development	23 - 24	8
D. Information from Governments on progress achieved at the national level	25 - 27	9
E. National, regional and subregional activities to support the preparatory process	28 - 31	10
F. Rio Conventions	32 - 36	11
G. Initiatives by major groups	37 - 39	12



CONTENTS (continued)

	<u>Paragraphs</u>	<u>Page</u>
H. Public information activities	40 - 42	13
I. Status of contributions to the Trust Fund	43 - 44	14
III. SOME PROPOSALS FOR ORGANIZATIONAL MODALITIES DURING THE FIFTH SESSION OF THE COMMISSION ON SUSTAINABLE DEVELOPMENT AND THE SPECIAL SESSION	45 - 52	14

I. INTRODUCTION

1. The convening of a special session of the General Assembly for the purpose of an overall review and appraisal of the implementation of Agenda 21 was envisaged in paragraph 38.9 of Agenda 21 adopted by the United Nations Conference on Environment and Development, held at Rio de Janeiro, Brazil, in June 1992. That recommendation of the Conference was endorsed by the General Assembly in its resolution 47/190 on the report of the United Nations Conference on Environment and Development.

2. At its fiftieth session, the General Assembly considered a report of the Secretary-General containing proposals on the format, scope and organizational aspects of such a special session (A/50/453) and decided to convene that special session for a duration of one week during the month of June 1997 at the highest possible level of participation (resolution 50/113). The Assembly also determined organizational modalities for the preparations for the special session, including the relevant role of the Commission on Sustainable Development and of other relevant organizations and bodies of the United Nations system. Furthermore, the Assembly recognized the important role played by major groups, including non-governmental organizations, in the implementation of Conference recommendations and the need for their active involvement in the preparations for the special session, as well as the need to ensure appropriate arrangements for their contribution during the special session. The Assembly requested the Secretary-General to prepare a number of reports for the consideration of the Commission containing an overall assessment of progress achieved since the Conference, together with recommendations for future actions and priorities; and to mount a public information programme to raise global awareness of both the special session and work undertaken by the United Nations in the follow-up to the Conference. Finally, the Assembly requested the Secretary-General to submit to it at its fifty-first session a progress report on the state of preparations for the special session.

II. PREPARATIONS FOR THE SPECIAL SESSION

A. Commission on Sustainable Development and its Bureau

3. The General Assembly in its resolution 50/113 decided that the Commission on Sustainable Development would act as a central intergovernmental forum for the preparations for the special session. In particular the Assembly encouraged the participants in the fourth session of the Commission (18 April-3 May 1996) to address matters related to the special session; invited the Commission to devote its Ad Hoc Open-ended Inter-sessional Working Group meeting, to be held in February 1997, to assisting the Commission in undertaking the review for the special session; welcomed the decision of the Commission to devote its fifth session, in 1997, to preparations for the special session; and decided that that session of the Commission would be open-ended in its deliberations, allowing for the full participation of all States.

1. Fourth session of the Commission on Sustainable Development

4. The high-level segment of the fourth session of the Commission on Sustainable Development, held from 1 to 3 May 1996, was attended by almost 50 ministers and policy makers from all the regions of the world. The thrust of the discussion on matters related to the preparations for the special session was reflected in the Chairman's summary of the high-level segment that was included in the report of the Commission on its fourth session. ^{1/} The participants in the high-level segment stressed the vital importance of the special session, when the General Assembly will review the overall progress achieved in implementing the Rio commitments and discuss appropriate strategies for implementation in the coming years. It was stressed that participation in the special session at the highest possible level would be essential for its success.

5. The discussion showed that there was a broad consensus that the special session should not attempt to renegotiate Agenda 21, or other intergovernmental agreements in the field of sustainable development, but should concentrate on their further implementation. In this context, participants highlighted a number of objectives:

(a) To revitalize and energize commitment to the concept of sustainable development, to ensure it a central place on the political agenda and to reinforce momentum for its implementation at the international, national and local levels. Participants recognized the need to strengthen the Commission's public visibility and improve its outreach;

(b) To frankly recognize failures to meet certain goals and identify reasons for failure;

(c) To boost implementation of the Rio commitments through such means as the identification of innovative approaches to cooperation and financial assistance, and through concrete proposals for action;

(d) To define priorities for the period beyond 1997. A number of participants felt that the Commission should focus on a limited number of key issues rather than reviewing every chapter of Agenda 21, in particular those issues where it is felt that real progress could be made;

(e) To raise the profile of issues that had not been sufficiently addressed by the Conference or where significant developments had taken place since the Conference. Such issues might include changing consumption and production patterns, energy (including renewables) and transport, urban issues, enterprises, fresh water, and management of risks.

6. Participants in the high-level segment recognized that, in future work, more attention should be paid to addressing the driving forces that impacted on the sustainable management of natural resources while at the same time giving more attention to the economic and social dimensions of sustainable development, including combating poverty. The crucial link between the driving forces - economic growth and trade, consumption and production patterns and population growth - and resource management were the economic sectors that often defined

the way that policy-making and implementation were organized. To be truly effective, the Commission's consideration of resource management issues had to be combined with an equal emphasis on sectoral policy development. Many sectors, such as agriculture, forestry, fisheries, industry, human settlements and social services, were already dealt with in existing forums in the United Nations system. The impact of the Conference and Agenda 21 on the work in those forums had helped to inject considerations of sustainability into their discussions. However, there were some gaps and, from the perspective of sustainability, the most obvious gap related to transport and energy.

7. Participants reflected on the implementation of Agenda 21 objectives since the Conference and noted the continuing need to strengthen mechanisms within the United Nations system which helped to integrate environmental concerns more fully into regular decision-making processes. Participants encouraged other intergovernmental bodies, especially the Bretton Woods institutions, the World Trade Organization (WTO) and the Organisation for Economic Cooperation and Development, to ensure that sustainable development issues were taken into consideration in a systemic and consistent manner. A number of participants stressed the link between international and national follow-up and encouraged the Commission to promote the integration of conclusions from major international conferences, including those held at Cairo, Copenhagen and Beijing and the then forthcoming Habitat II conference in Istanbul.

8. Particular stress was laid on the importance of devolving implementing actions from global to regional level, and decentralizing responsibilities from national to local level where appropriate. In highlighting the value and effectiveness of local empowerment, it was suggested that the United Nations might sponsor an award that would recognize globally significant examples of sustainable development undertaken at the local or micro-level.

9. Participants in the high-level segment stressed the importance of developing a broad-based consensus involving major groups for achieving sustainable development. The development of new partnerships between stakeholders, such as educators, scientists, Governments, non-governmental organizations, business and industry, trade unions, youth and the media, among others, was encouraged as a means to foster better communication and to get across the key issues of sustainable development. It was noted that closer involvement of the private sector was essential for achieving sustainable development, but that appropriate mechanisms of interaction still needed to be developed in that area.

10. Participants emphasized the importance of the involvement of major groups in the preparations for the 1997 special session and in the session itself, in accordance with the appropriate rules of procedure. They also welcomed initiatives for self-reporting by major groups in 1997.

2. Bureau of the Commission on Sustainable Development

11. The Bureau of the Commission on Sustainable Development met in New York on 15 July 1996. Preparations for the special session were in the focus of the discussion. The Bureau was informed about the process of preparation and format of documentation for the 1997 review to meet the requests for reporting related to the review contained in General Assembly resolution 50/113, decisions of the Commission and other intergovernmental mandates.

12. The Bureau welcomed the fact that the United Nations system, through the system of task managers of the Inter-Agency Committee on Sustainable Development, demonstrated its continuing commitment to and support for the Commission's work programme and would actively contribute to the preparations for the 1997 review. In particular, the Bureau expressed its satisfaction with the intention of the Secretariat to finalize most of the documentation early in 1997 so that it would be available prior to the 1997 meeting of the Commission's Ad Hoc Inter-sessional Working Group when formal intergovernmental preparations for the special sessions would commence.

13. Bearing in mind the discussions held during the high-level segment of the fourth session of the Commission, members of the Bureau considered that the special session should focus on the implementation of Agenda 21 and result in the adoption of an agreed statement or a declaration which would be action-oriented, and that the special session should have a high political profile. As for the process leading to the preparation of the final document of the special session, the Bureau, taking into account the provisions of General Assembly resolution 50/113, felt that it could be organized along the following lines:

(a) The Ad Hoc Inter-sessional Working Group of the Commission (24 February-7 March 1997), taking into account reports of the Secretary-General and other documentation, outcomes of various inter-sessional activities organized by Governments and organizations and other relevant inputs, would strive to agree on the format and structure of a final document and the main elements to be included in it. The outcome of the Working Group meeting would be a detailed outline of the final document;

(b) Such an outline would form the basis for negotiations during the fifth session of the Commission (7-25 April 1997), when the Commission should attempt to agree on the draft final document of the special session;

(c) The special session in June 1997 would resolve all outstanding issues that might remain bracketed after the fifth session of the Commission, and also reflect in the document any new developments, or proposals made, in the period between the fifth session of the Commission and the special session.

14. The Bureau agreed on the need for involvement of the Chairman and/or its members in the main inter-sessional activities and relevant intergovernmental meetings expected to make an input to the preparations for the special session.

15. The Bureau stressed the need for effective arrangements to allow major groups, including non-governmental organizations, to contribute to the preparations for and the deliberations during the special session. While the

Bureau agreed that the rules of procedure needed to be fully respected and that specific decisions on the participation of major groups in the session would be taken by the General Assembly, it also agreed that a number of activities could be organized during the special session with a view to ensuring effective input of major groups and their active inter-action with government representatives. The Bureau considered that it would be useful to assess and build upon the experience gained during previous special sessions of the General Assembly, and sessions of the Commission, as well as Habitat II and other recent meetings and intergovernmental processes, such as hearings in the context of the elaboration of the Agenda for Development.

B. Relevant activities carried out by the Inter-Agency Committee on Sustainable Development and by organizations and bodies of the United Nations system

16. The General Assembly in its resolution 50/113 invited all relevant organizations and bodies of the United Nations system, including the United Nations Conference on Trade and Development (UNCTAD), the specialized agencies and other multilateral organizations, including multilateral financial institutions and WTO, to contribute to the special session, and requested the Inter-Agency Committee on Sustainable Development, in close coordination with the Commission on Sustainable Development, to ensure an effective and coordinated system-wide response to the preparation of the special session. The Assembly also welcomed the decisions of the Governing Council of the United Nations Environment Programme (UNEP), in which the Council emphasized the need for the Programme, in accordance with its mandate in the implementation of Agenda 21, to continue to provide effective support to the work of the Commission, and in which the Council decided to hold its nineteenth session early in 1997 with a view of making a contribution to the special session.

17. The Inter-Agency Committee on Sustainable Development at its eighth session (10-12 July 1996) stressed the political importance of the preparations for the 1997 special session. The Committee agreed that the United Nations system, including the Bretton Woods institutions and other relevant bodies, should actively contribute to making the special session a highly visible international event that would energize global commitment to the implementation of Agenda 21 and advance international dialogue and action for sustainable development.

18. The Committee agreed that it would be essential for the 1997 review to go beyond assessment of progress achieved in the Commission and in the United Nations system and to make a frank and analytical appraisal of the overall progress made and problems encountered at the international, national and local levels.

19. During the session of the Committee it was suggested that, in addition to their active involvement through the Committee's system of task managers in the preparation of the reports of the Secretary-General for the 1997 review, the organizations of the United Nations system would consider making their own contributions to the review process with a view to enriching the preparations for the fifth session of the Commission and the special session itself. In this context the Committee welcomed work carried out in UNCTAD in accordance with

General Assembly resolution 50/95 to prepare a comprehensive assessment on trade and environment and the work carried out by the World Health Organization to prepare a world health and environment report as important inputs to the special session. Preparatory work for the special session would also benefit from a mid-term review of the achievements in reaching the goals set out by the World Summit for Children, whose outcome had been fully incorporated in Agenda 21. The Committee considered that other important contributions could be received from regional commissions and the regulatory bodies of relevant conventions. Furthermore, there were high expectations that the final report of the Ad Hoc Intergovernmental Panel on Forests of the Commission would provide a significant contribution to the 1997 review and to forest-related work in general in the period after the special session. Another important expectation was connected with the ongoing global freshwater assessment.

20. Furthermore, it was considered that it would be essential to engage in this process, as far as possible, relevant governing bodies and intergovernmental meetings held under their auspices. An important input to the 1997 review would come from the World Food Summit which would address the issue of sustainability, and from the nineteenth session of the UNEP Governing Council, which would specifically consider the UNEP contribution to the special session.

21. The Committee underlined the significance of various country-driven initiatives, which would build up a political momentum leading to the special session. The Committee also noted with satisfaction a proposal made during the high-level segment of the fourth session of the Commission to organize a joint meeting of Ministers of Environment and Ministers of Finance as part of the preparatory process for the special session, and expressed the hope that interested countries would follow up on this promising initiative. Important contributions were also expected from non-governmental organizations and major groups.

22. The Administrative Committee on Coordination decided to submit a statement to the General Assembly at its special session, in which it would analyse the effectiveness of inter-agency arrangements established to follow up the Rio Conference and, on the basis of experience gained after the Conference, suggest ways of promoting more effective and efficient United Nations system-wide support in the area of sustainable development for the period after 1997.

C. High-level Advisory Board on Sustainable Development

23. The High-level Advisory Board on Sustainable Development, at its fifth session (29-31 January 1996), agreed that it should contribute to the 1997 review of progress achieved in the implementation of the Rio commitments by means of a concise report focusing on a few critical areas. The Board decided that it would examine the impediments to sustainable development in those areas and make independent recommendations as to how the impediments might be overcome. It proposed that the report be made available to the Commission on Sustainable Development at its fifth session in April 1997. The Board also agreed that its members would consider initiatives to generate debate on the review in their own constituencies.

24. At its sixth session (4-6 September 1996), the Board agreed that its report would focus on three critical areas of sustainable development, namely, energy, transport and water resources. Within each of those areas, the report would examine policy measures for improving sustainable use, with an emphasis on economic factors, and make recommendations concerning policy packages that Governments might use, individually or collectively, to overcome the impediments to sustainable development. In addition to the policy analysis and recommendations, the report would include a number of brief descriptions of successful sustainable development policies in various countries, including rural wind energy programmes, energy taxes, tradeable emissions permits, urban transportation management, and river basin management. The Board also agreed that members would disseminate the report within their constituencies and organize meetings to consider how their recommendations might be implemented. The Board will complete its work on the report at its seventh session, in January 1997.

D. Information from Governments on progress achieved at the national level

25. The General Assembly, in its resolution 50/113, requested the Secretary-General to prepare for the consideration of the Commission on Sustainable Development at its fifth session country profiles providing a concise presentation of progress made and constraints encountered in implementing Agenda 21 at the national level, compiled on the basis of national information received and in close cooperation with the Governments concerned. At its fourth session, the Commission welcomed and supported the preparation of those country profiles.

26. In response to those requests, the Secretariat prepared a common format for the profiles and circulated it to all Governments. For those 74 countries that have submitted national reports to the Commission, the Secretariat is preparing the draft profiles on the basis of the information contained in the national reports. As they are completed in draft form, the profiles are sent to the appropriate national focal points for comments, updating and approval by the Governments as necessary. Countries that have not yet been able to provide the Secretariat with a national report to the Commission have also been requested to complete a national profile in the common format.

27. The national profiles will support the analysis and assessment required for the documentation for the fifth session of the Commission, as envisaged in General Assembly resolution 50/113. In addition, all national profiles will be made available on the Internet following their approval by the Governments concerned. The Secretary-General would like to encourage all countries to continue providing the Commission with information on progress made and constraints encountered in implementing Agenda 21 at the national level, which will be of great value for the 1997 review.

E. National, regional and subregional activities to support the preparatory process

28. The General Assembly in its resolution 50/113 invited Governments as well as relevant regional and subregional organizations to consider undertaking reviews of progress achieved since the Rio Conference at the national, subregional, regional and interregional levels with a view to contributing to the preparations for the special session. The Assembly welcomed the preparation of hemispheric, regional and subregional conferences on sustainable development and invited Governments concerned to contribute to the special session the outcomes of such conferences.

29. A number of Governments are undertaking or are considering undertaking inter-sessional meetings and initiatives with a view to contributing to the 1997 review. The outcomes of such initiatives are expected to be presented to the Commission on Sustainable Development and/or the General Assembly at its special session directly by the Governments concerned. However, if such meetings or initiatives conclude by the end of November 1996, the Secretary-General would appreciate being informed of their outcomes so that they can be reflected, as appropriate, in the documentation prepared by the Secretariat.

30. With regard to the regional commissions and other regional organizations, various activities are being conducted as a contribution to the preparations for the special session of the General Assembly:

(a) In Africa, the first Conference of African Ministers Responsible for Sustainable Development and Environment was held in March 1996 at the initiative of the Economic Commission for Africa. It adopted the guidelines for monitoring the progress made in building critical management capacities for sustainable development in Africa as a framework instrument for harmonizing relevant activities in the region.

(b) In the Asian and Pacific region, the Committee on Environment and Sustainable Development of the Economic and Social Commission for Asia and the Pacific, which will hold its third session in October 1996, will conduct a regional review of progress achieved in the implementation of the outcome of the Rio Conference as an input to the fifth session of the Commission and the special session.

(c) In the region of the Economic Commission for Europe (ECE), a special session of the Committee on Environmental Policy was held in January 1996, which considered the outcome of the Ministerial Conference on Environment for Europe, held at Sofia in October 1995. The Environmental Programme for Europe adopted at the Sofia Conference represented a first attempt to set out a common direction to make Agenda 21 more operational in the ECE region.

(d) In the Latin American and Caribbean region, the contribution to the special session will be considered at the Tenth Meeting of Ministers of the Environment of Latin America and the Caribbean, to be held on 11 and 12 November 1996 at Buenos Aires, and the Hemispheric Summit on Sustainable Development, to be held on 7 and 8 December 1996 at Santa Cruz de la Sierra, Bolivia, under the auspices of the Organization of American States.

(e) Upon the suggestion of the Economic and Social Commission for Western Asia (ESCWA), the Council of Arab Ministers Responsible for Environment, in May 1996, called upon all Arab countries to participate actively in the 1997 review, by such means as setting up national committees to prepare national reports on the implementation of Agenda 21. A synthesis of those reports will be considered at the next Council meeting in November 1996 and then forwarded to the special session. Furthermore, the ESCWA Committees on Energy and Water Resources are holding meetings early in 1997 to review ongoing and planned activities, thus providing regional perspectives on these issues to the 1997 review.

(f) Belarus announced at the fourth session of the Commission on Sustainable Development that it is organizing at Minsk a conference on sustainable development of countries with economies in transition.

31. Furthermore, the regional commissions, in cooperation with the regional offices of UNEP, are preparing inventories of regional initiatives in the area of sustainable development undertaken since the Rio Conference, or conducting regional reviews. The results of those exercises will be available at the special session.

F. Rio Conventions

32. The General Assembly, in its resolution 50/113, invited the conferences of parties or other regulatory bodies of the United Nations Framework Convention on Climate Change, the Convention on Biological Diversity and the United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, as well as the regulatory bodies of other relevant instruments, as appropriate, and the Global Environment Facility, to provide their inputs to the special session.

33. The Conference of the Parties to the United Nations Framework Convention on Climate Change agreed to make a special input, through its Subsidiary Body on Implementation, to the special session. The secretariat of the Convention has been requested by the Conference of the Parties, at its second session, to prepare a relevant submission for consideration by the Subsidiary Body on Implementation at its fifth session in February 1997.

34. In the case of the United Nations Convention to Combat Desertification, its interim secretariat will prepare, after the January 1997 session of the Intergovernmental Negotiating Committee, an input summarizing the key provisions of the Convention, action taken prior to the Convention's entry into force and the outlook for the first session of the Conference of the Parties.

35. Pursuant to decision II/18 (annex), adopted by the Conference of the Parties to the Convention on Biological Diversity at its second session, a report will be submitted to the General Assembly at its special session from the perspective of the Convention's three objectives: the conservation of biodiversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

The report will be considered by the Conference of the Parties at its third session (Buenos Aires, 4-14 November 1996).

36. The Global Environment Facility will also make an input to the special session.

G. Initiatives by major groups

37. The General Assembly in its resolution 50/113 recognized the important role played by major groups, including non-governmental organizations, at the Rio Conference and in the implementation of its recommendations, and recognized the need for their active involvement in preparations for the special session, as well as the need to ensure appropriate arrangements for their contribution during the special session.

38. The secretariat of the Commission on Sustainable Development prepared and distributed a set of guidelines (1997 Guidelines for Major Groups' Input) to all major group contacts currently in the database. These guidelines provide information on how major groups can contribute to the 1997 review process, the fifth session of the Commission and the special session of the General Assembly.

39. Major group organizations are also organizing various meetings independently or jointly with international organizations, non-governmental partners and Governments. These events aim to review and assess the Rio follow-up process as well as raise awareness about the 1997 review and follow-up activities in the period after 1997. Such initiatives include:

(a) Rio+5. A global assessment of sustainable development progress led by the Earth Council, in collaboration with numerous network non-governmental organizations and major group organizations, and in consultation with the secretariat of the Commission. In addition to organizations from each of the nine major group categories, the event involves the national councils for sustainable development, the media, and the religious and education communities, as well as various United Nations and non-United Nations international organizations. The culminating event is a week-long meeting at Rio de Janeiro (13 to 19 March 1997).

(b) Sustainable Development Indicators for Youth Project, Phase II. The project, led by Rescue Mission and other youth organizations around the world, is a follow-up to the youth panel/exhibition prepared for the fourth session of the Commission. The Children's State of the Planet Television Report, also led by Rescue Mission, is a major media campaign by youth on sustainable development and the 1997 review process.

(c) Survey of local Agenda 21 initiatives. This comprehensive survey of local efforts is led by the International Council for Local Environmental Initiatives and the Division for Sustainable Development of the Department for Policy Coordination and Sustainable Development. This survey is the first comprehensive stocktaking exercise on the fast-growing local Agenda 21 movement around the world. It is estimated that more than 2,000 local governments and authorities have developed projects and frameworks for achieving local

sustainable development. The results of the survey will be presented to the Commission on Sustainable Development at its fifth session and to the General Assembly at the special session.

(d) Survey on the future of the Commission on Sustainable Development, led by the World Federalist Movement and INTGLIM. 2/ This is based on a short survey and a series of interviews with United Nations staff members, as well as governmental and non-governmental experts. The leading organizations will submit the final report to the Ad Hoc Inter-sessional Working Group of the Commission, and to the Commission at its fifth session.

(e) The World Business Council for Sustainable Development is preparing a report and various events on the business perspective on sustainable development.

(f) Earth Summit II: A Business Input. A national level meeting organized by the United Nations Environment and Development (United Kingdom) and the International Chamber of Commerce (United Kingdom) to review business responses to sustainable development in the United Kingdom of Great Britain and Northern Ireland.

(g) The Inter-Parliamentary Union will emphasize changing consumption and production patterns in its input to the 1997 review process, and it will follow up on its declaration on financing and transfer of technology, which was submitted to the Commission at its fourth session.

(h) Global Cities 21: Local Agenda 21 for Sustainable Communities. A meeting organized jointly by the International Council for Local Environmental Initiatives, the Global Action Plan and the Earth Council to review contributions of local authorities, which will be held at Lisbon on 8 and 9 October 1996.

(i) A meeting of indigenous people will be held in Colombia in 1996 to prepare an input to the fifth session of the Commission and the special session, with special emphasis on forests.

H. Public information activities

40. The General Assembly in its resolution 50/113 requested the Secretary-General to mount a public information programme to raise global awareness of both the special session and the work undertaken by the United Nations in the follow-up to the Conference.

41. In response to that request, the Department for Policy Coordination and Sustainable Development and the Department of Public Information are joining their efforts with a view to designing and implementing the media/public information strategy that will ensure broad outreach of the preparatory activities and of the special session, build awareness of sustainable development issues, promote further the goals and objectives of the Rio Conference and of the 1997 review, and, as follow-up to the special session, ensure dissemination of its results.

42. In implementing the strategy, the Secretariat intends to prepare various information materials and radio and television programmes and organize special media/public outreach activities. It will also strive to ensure the broadest possible dissemination, inter alia, through electronic means, of the official reports and documents prepared in connection with the 1997 review, including the outcomes of the fifth session of the Commission on Sustainable Development and of the special session itself. One of the challenges will be to ensure effective outreach in the developing countries.

I. Status of contributions to the Trust Fund

43. The General Assembly in its resolution 50/113 invited Governments to assist the developing countries, in particular the least developed among them, in participating fully and effectively in the special session and its preparatory process, and in that regard invited them to make appropriate contributions to the Trust Fund to Support the Work of the Commission on Sustainable Development.

44. Pursuant to that resolution, a note verbale soliciting contributions for the above-mentioned purposes has been circulated by the Secretary-General to all Member States and Observers. The Secretary-General would like to reiterate his appeal to all interested countries for relevant contributions to the Trust Fund, earmarked for assisting the participation of developing countries in the special session of the General Assembly.

III. SOME PROPOSALS FOR ORGANIZATIONAL MODALITIES DURING THE FIFTH SESSION OF THE COMMISSION ON SUSTAINABLE DEVELOPMENT AND THE SPECIAL SESSION

45. A number of general proposals for the organization of the 1997 special session and its preparatory process were brought to the attention of the General Assembly at its fiftieth session (see A/50/453). While specific decisions about the organization of work during the fifth session of the Commission on Sustainable Development and the special session itself will be taken by the Commission upon the recommendation of its Bureau and by the General Assembly, the Secretary-General would like to make some additional suggestions on this matter for the consideration of Member States.

46. Concerning the formal intergovernmental part of the 1997 review, bearing in mind previous practice, the provisions of General Assembly resolution 50/113 and current discussions in the Commission and its Bureau, it is likely that the main work on the text of the final document of the special session will be done during the fifth session of the Commission, which will largely be a negotiating meeting. During the special session itself, in parallel to the plenary meetings of the Assembly where a high-level debate will take place, an ad hoc committee of the whole, reporting to the plenary, could be established. The role of the committee will be to reach agreement on all outstanding matters in the final document.

47. Bearing in mind the provisions of General Assembly resolution 50/113 and the recommendations of the Commission at its fourth session, an important

challenge will be to ensure appropriate arrangements that will allow major groups, including non-governmental organizations, to make their contribution to the meetings with due respect to the existing rules of procedure.

48. It is likely that during the fifth session of the Commission and the special session of the General Assembly a number of Governments, international organizations and major groups will organize, individually and jointly, various informal side events, presentations and briefings with a view to contributing to a more formal intergovernmental process. It would be useful to ensure that contributions from major groups to such events will be organized in a systematic way. Some suggestions in this regard are made in the following paragraphs.

49. During the fifth session of the Commission, one possibility would be to organize, in parallel with the drafting groups that will work on the text of the final document of the special session, hearings involving representatives of Governments, major groups and eminent persons, devoted to an assessment of the existing and potential role, and contribution to its implementation, of each of the major groups identified in Agenda 21. Summaries of such hearings could either be included in the report of the Commission on its fifth session or made orally by the Commission at the special session.

50. During the special session itself, the formal debate in plenary meeting could be interspersed with panels and/or dialogue sessions with world leaders or other eminent persons covering a wide spectrum.

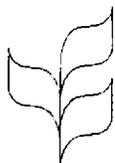
51. While the organizational recommendations relating to the fifth session of the Commission could appropriately be made by the Bureau of the Commission, the views and recommendations of the General Assembly will be important for the organization of the special session and parallel events envisaged at that time.

52. As to the dates for the special session, the Secretary-General, bearing in mind the calendar of other United Nations meetings and conferences and the provisions of General Assembly resolution 50/113, recommends that it be held from 7 to 13 June 1997.

Notes

1/ Official Records of the Economic and Social Council, 1996, Supplement No. 8 (E/1996/28).

2/ International non-governmental organization working group on legal and institutional matters.

**CONVENTION ON
BIOLOGICAL DIVERSITY**Distr.
GENERALUNEP/CBD/COP/3/Inf. 7
29 October 1996

ORIGINAL: ENGLISH

**CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY**

Third meeting

Buenos Aires, Argentina

4 to 15 November 1996

Item 9 of the provisional agenda

INTEGRATING BIOLOGICAL DIVERSITY INTO AGRICULTURAL DEVELOPMENTNote by the Executive Secretary**1. INTRODUCTION**

1. Decision I/9 of the first meeting of the Conference of the Parties (COP) to the Convention on Biological Diversity set out to consider in 1996 the "conservation and sustainable use of agricultural biological diversity within the context of the Convention's three objectives and its provisions." Decision II/1 of the second meeting of the COP took note of the report of the first meeting of the Subsidiary Body for Scientific, Technical and Technological Advice (SBSTTA) in which the SBSTTA, in its recommendation I/2, proposed to provide to the COP "advice on scientific, technical and technological aspects of the conservation of agricultural biological diversity and sustainable use of its components (also taking into account the other provisions in Article 25, paragraph 2)" of the Convention. At the second meeting of the SBSTTA considered agricultural biological diversity. The recommendations of the SBSTTA are contained in Recommendation II/7 of the Report of the Second Meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (see UNEP/CBD/COP/3/3).

2. This Note draws upon a World Bank paper entitled "*Mainstreaming Biological diversity in Agricultural Development: Toward Good Practice*" (August 1996).

3. As the world's population continues to grow, agricultural production must meet the rising demand for food. Current patterns diminish the biological diversity that provides many valuable services to agriculture and other sectors, and undermine long-term sustainability of agricultural production. The conversion of natural

habitats to agricultural use is of particular concern because it substantially reduces biological diversity. Intensification can be beneficial if it reduces pressures to expand cultivated areas, but it can also be harmful. Meeting the imperative of increasing agricultural production in a sustainable way while conserving and prudently using biological diversity is a major challenge.

4. This Note summarises the strategic responses to this challenge and the constraints that mitigate against such responses. In addition, this Note examines the role of the World Bank and other financial institutions in helping developing countries remove such constraints and effectively mainstream biological diversity in agricultural development.

2. MAINSTREAMING AT THE COUNTRY LEVEL

5. Mainstreaming biological diversity into agricultural development at the country level requires a framework to embrace biological diversity conservation as agricultural development policies and programs are formulated. This framework includes five strategic elements to reduce conflicts and build on the complementarities between agriculture and biological diversity. The relevance and importance of each element, summarised below, will vary from country to country, and strategies and actions to implement them must be designed in the context of country and local conditions.

a) Conflicts and complementarities between biological diversity conservation and agriculture need to be recognised and diagnosed. To ensure that this happens, biological diversity considerations must be included on the economic development agenda by (i) improving the effectiveness of national strategic planning frameworks (National Environmental Action Plans and Biological diversity Strategy and Action Plans); (ii) heightening awareness at technical and political levels of the conflicts, complementarities, and compromises between biological diversity conservation and agricultural development; and (iii) broadening agriculture sector planning objectives and processes to embrace biological diversity conservation.

b) Policy distortions that exacerbate pressure on biological diversity must be addressed through macroeconomic and sectoral policy reforms that benefit biological diversity while supporting the objective of economic efficiency. In addition, cross-sectoral policies such as those regulating land use should be consistent with biological diversity conservation objectives.

c) The effects of extensive market failures must be reduced to the extent possible. The broad instruments available include (i) using green taxes; (ii) enhancing security of property or usufruct rights; (iii) empowering local communities to manage natural resources, including biological diversity; and (iv) finding effective means to return the benefits of biological diversity to local communities.

d) Research and extension must be reoriented to provide more and better technical options to farmers who use biological diversity as an input to enhance agricultural productivity on a sustainable basis.

e) Recognising that the previous four elements may still leave critical aspects of biological diversity vulnerable to the actions of humans, targeted interventions for conservation will be required to protect critical natural habitats -- either in the agricultural landscape or through *ex situ* means.

6. Mainstreaming biological diversity in agricultural development means addressing the above five strategic elements. There are a number of factors that tend to encumber such mainstreaming and prevent or

/...

restrain biological diversity-friendly policy reforms, institutional adjustments, or other interventions designed to conserve biological diversity in the agricultural landscape. These factors fall into three broad categories:

a) A weak information base and a generally poor understanding of the nature of effects make assessment and identification of appropriate and specific responses difficult. These deficiencies prevent awareness of conflicts between agricultural development and biological diversity conservation. This lack of awareness undermines the sense of urgency for high-level policy decisions to support biological diversity conservation.

b) The traditional focus on sectoral production and employment objectives and institutional barriers to cross-sectoral coordination have effectively prevented inclusion of biological diversity conservation in agricultural development planning. Lack of technical understanding on the part of agricultural planners about how agriculture depends on biological diversity and the relative isolation that characterises sectoral and environmental planning in many countries are contributing factors.

c) Implementation of policies is impeded by the lack of proven modalities and instruments to address biological diversity loss problems. Although a wide range of tools and mechanisms have been proposed, experience with their use remains limited.

3. THE ROLE OF THE WORLD BANK AND OTHER FINANCIAL INSTITUTIONS

7. Support by the World Bank and other financial institutions to developing countries for mainstreaming biological diversity in agricultural development is essential for several reasons. First, conservation of biological diversity is linked to sustainable agricultural development, and for many developing countries agricultural production is the main engine of economic growth. Second, there should be a commitment by financial institutions to help governments meet their obligations under the Convention for Biological Diversity (CBD). The Convention sets out general measures for the conservation and sustainable use of biological diversity in Article 6(a) and calls upon each Party to “develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect, inter alia, the measures set out in this Convention relevant to the Contracting Party concerned.” In Article 6(b) the Convention outlines the sectoral basis for its implementation and invites each Party to “integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies”. Article 6(b) provides the legal basis for focusing on sectoral issues such as agricultural, forest and marine biological diversity, among others. Finally, as an implementing agency for the Global Environment Facility (GEF), the interim financing mechanism for the CBD, the World Bank has a direct responsibility to help client governments mainstream biological diversity in development.

8. The World Bank's commitment to its developing country partners in this effort was spelled out in the 1995 report *Mainstreaming Biological Diversity in Development: A World Bank Assistance Strategy for Implementing the Convention on Biological Diversity*. The agenda for action was broadly defined to (a) help 'green' country assistance strategies, (b) help countries design biological diversity-friendly sector policies and programmes, (c) facilitate cross-sectoral planning for biological diversity conservation, (d) ensure that Bank policies and practices help countries mainstream biological diversity, and (e) foster and expand strategic partnerships in support of biological diversity conservation. The first two of these tasks are directly relevant to mainstreaming biological diversity conservation in agricultural development.

3.1 Biological Diversity Conservation and Country Assistance Strategies

9. The World Bank's Country Assistance Strategies (CASs) have traditionally focused on macroeconomic performance, including the questions of external debt management and domestic resource mobilisation. More recently, addressing constraints to development of key sectors of the economy has assumed greater importance. Notwithstanding these developments, sectoral issues generally remain less than fully integrated into the diagnosis or the proposed solutions presented in the CASs.

10. An increasing emphasis on environmentally sustainable development and environmental and natural resources management underpins World Bank assistance. While the purpose of, and audience for, a CAS does not allow extensive treatment of biological diversity conservation issues, it is important that they are given due attention when closely linked to the overall goals of development assistance delivery. In recent CASs for Mexico, Brazil, and Nepal, for example, biological diversity conservation as part of a broader set of environmental management priorities has been integrated into the analysis of development constraints and the formulation of the World Bank's assistance strategy .

11. Most of the World Bank's client governments are Parties to the Convention on Biological Diversity, and the World Bank, together with other donor agencies and partners, has an obligation to help these governments meet their obligations under the Convention. The World Bank has a special obligation because it is one of three implementing agencies for the Global Environment Facility.

12. The World Bank's current operational policy establishes that, where appropriate, global environment issues and the role of the GEF should be addressed in the CAS. Global environment issues such as conservation of biological diversity, however, have important links to generation of domestic benefits (extractive and non-extractive) and resource management. On such grounds alone, as well as the commitment under the CBD, biological diversity conservation would in many cases warrant explicit consideration and attention in World Bank assistance strategies. Prudent use and conservation of biological diversity amounts to management of an important part of a country's national capital stock. The World Bank's strategy for helping countries design and implement plans for rational use and conservation of such assets should form an essential part of the CAS. This means supporting policy reforms and priority investments that help to conserve biological diversity, including measures to minimise threats to these assets from agricultural development.

13. Two conditions must be satisfied for CASs to appropriately address biological diversity conservation. The World Bank's economic and sector work needs to be strengthened to address, where appropriate, biological diversity conservation as an explicit development objective. Such work is underway as collaborative exercises involving client government institutions and other partners in the delivery of development assistance. To address this need, the World Bank's ESD Vice Presidency has launched the Global Overlays Program. The Global Overlays Program, launched by the World Bank in partnership with bilateral donors and NGOs, seeks to internalise global externalities into national environmental planning and the Bank's sector work, operations, and dialogue with governments and partners. It is an iterative process, combining conceptual studies, reviews of state-of-the-art techniques for measuring and mitigating global externalities, and testing these concepts and tools through country-level studies as a means of identifying good practices for country planners and Bank task managers. The results will help guide national actions to reduce greenhouse gas (GHG) emissions, conserve biological diversity, and protect international waters.

14. The second condition is that there must be a strong commitment and deliberate process to integrate into the CASS' strategic recommendations that emerge from relevant sectoral and cross-sectoral studies and assessments, whether prepared by the Bank, country institutions or jointly. This includes agriculture sector reviews, natural resource management studies, country environmental strategy papers, as well as documents emerging from the country's own strategic planning in relevant areas (including agriculture development plans, national environmental action plans, biological diversity strategies, and action plans).

3.2 Biological Diversity Conservation and Agriculture Sector Work

15. As part of the World Bank's traditional sector work, agriculture sector reviews (ASRs) have concentrated on policy reform and sector investment priorities designed to increase agricultural production, secure rural employment, promote food security, and reduce poverty. The World Bank's agriculture sector work has recently changed. First, what used to be World Bank-prepared sector reports based on the work of visiting World Bank missions are now sector assessments and planning studies undertaken collaboratively with government institutions and other local partners. Second, the traditional all-encompassing sector-wide review is gradually being replaced by more narrowly focused studies and analyses, addressing subsectors or issues of special relevance to country planning or decision-making for agricultural development. In this process, natural resource management studies (including food production, land use and tenure, forestry development, rural employment, or rural infrastructure) have become increasingly common.

16. Coverage of biological diversity issues within the World Bank's agriculture sector work varies significantly. A 1995 review conducted by the Bank's Agriculture and Natural Resources Department found that biological diversity was addressed within the context of agricultural development in only seven of twenty-four ASRs undertaken between 1987 and 1995.

17. The World Bank and other financial institutions need to strengthen their agriculture sector work to effectively help developing country partners mainstream biological diversity conservation in planning for this sector. In a local context, the staff interacting with country sector planners need to be able to address four questions:

- a) How do agricultural development activities in the sector or subsector affect biological diversity?
- b) How can the sustainable use of biological diversity enhance agricultural development?
- c) How can government policies and programs be adjusted to reduce biological diversity loss?
- d) What are the costs of such adjustments? And how can trade-offs be evaluated?

18. The development of good practices begins with forming a suitable conceptual framework to help analyse the relationship between agricultural development (including policies, programs, and practices) and biological diversity conservation. It also depends on the availability of analytical tools and methods to measure effects of biological diversity losses or gains. Most important, country-sector studies will help test the conceptual framework, refine analytical tools and methods, and prepare a set of good practice guidelines to incorporate biological diversity conservation objectives into agriculture sector work and operations.

19. These tasks form part of the World Bank - Environmentally Sustainable Development's (ESD) broader

/...

initiative to promote mainstreaming global environment objectives in World Bank operations. This initiative, which is coordinated under the Global Overlay Program involves ESD departments working with the Bank's regional departments. To help conserve biological diversity, the Global Overlay Program envisages the following three activities over the next three years:

a) Based upon relevant studies and country experience, propose an analytical framework to examine effects of sector activities and policies on biological diversity. Initial work will focus on agricultural development and extend to forestry management and land degradation control.

b) Building upon ongoing or recent sector reviews, evaluate up to eight global overlay applications (such as country studies) involving agriculture and forestry sectors in collaboration with developing country governments and institutions. The Environment Department and the Agriculture and Natural Resources Department, together with regional Sector Operations Divisions, are currently discussing suitable countries in which overlays may begin during early fiscal 1997. The country studies would initially focus on the complementarity between sector development and global environment objectives (the 'no regrets' options). They would identify opportunities to capture additional global environment benefits through markets for such benefits (limited as such markets may be), or international resource transfers (through institutions such as GEF). They should provide policy prescriptions, sector investment priorities from global environment standpoint, and identification of associated incremental costs.

c) Using the results of the previous two activities, prepare good practice guidelines for global overlays for use by country planners, sector practitioners, and World Bank staff.

20. The World Bank and other financial institutions must be prepared to help governments lower or overcome the barriers to integrating the agendas for sectoral development and environmental management, including biological diversity conservation. This can be done through:

a) Helping to prepare environmental and biological diversity conservation strategies or action plans which secure the active participation of sectoral interests. A centrally-placed coordination mechanism that has governmental support from the highest level should be included.

b) Supporting these strategic national frameworks covering biological diversity conservation, where the emphasis should be on the importance of (i) assigning responsibilities to individual sectors of the economy to adopt and implement policies and programs that address identified priorities for biological diversity conservation; (ii) identifying win-win policy reforms; and (iii) establishing a system to monitor the execution of such responsibilities by sectoral ministries or agencies.

c) Supporting country planning studies designed to integrate biological diversity conservation into agriculture sector planning which emphasises cross-sectoral and broad-based participation, embracing not only government agencies, but also the local NGO and scientific communities. Support should be designed to foster capacity building rather than producing a study report. International NGOs working with local NGOs may be in a position to facilitate such a process.

3.3 Biological Diversity and the Lending Portfolio

21. The first generation of biological diversity projects in the World Bank's portfolio, dating back to the 1970s, helped Government institutions establish and manage national parks and protected areas. At the time, management meant protecting biological diversity by keeping all other activities out and relying on penalties (enforcement) as the incentive. World Bank support for these purposes came either in the form of free-standing projects or as components of forestry or other relevant operations.
22. It soon became clear that this approach was unsustainable from most perspectives. As a result, a second generation of biological diversity projects recognised the need to involve local communities in management and sharing benefits. These projects recognised that the sustainability of any regime to protect biological diversity in national parks depends largely on how effectively it reduces the pressure generated by the production and consumption needs of communities neighbouring the protected areas.
23. A third generation of projects now needs to effectively promote biological diversity outside traditional protected areas. The development of such projects should follow naturally by successfully mainstreaming biological diversity conservation at the sectoral level, and should manifest itself in two main ways: agricultural lending operations should include biological diversity conservation among project objectives; and the design of agricultural projects should reflect the use of environmental assessment to select the most cost-effective means of supporting biological diversity.
24. A review of the recent agriculture and related natural resource management portfolio carried out by the World Bank's Agriculture and Natural Resources Department concluded that while only a limited number of projects explicitly address biological diversity conservation, the proportion of biological diversity-friendly agricultural projects is increasing.
25. Of 402 agricultural projects (IBRD loans or IDA credits) approved between 1988 and 1995, 10 percent recognised biological diversity as an explicit objective with activities that typically supported strengthening existing protected area management and national strategic planning for biological diversity conservation. While such activities are important, they often have few direct functional links to agricultural development activities of the project. In such cases, the agricultural project serves more as a convenient vehicle to support biological diversity management activities than as a means to integrate biological diversity conservation in agricultural development
26. There are important exceptions, however, including agricultural projects that have been designed explicitly to promote biological diversity conservation, either through activities that otherwise would not have been undertaken, or projects that have exploited important synergies between biological diversity conservation and agricultural development. It is important to note that the approach of these projects is distinctly different from that of agricultural projects which, consistent with World Bank operational policy, establish new protected areas to compensate for natural habitats or wildlands that would be lost or threatened as part of the project's proposed activities.
27. For the overwhelming majority (320) of the agricultural projects approved during 1988-95, biological diversity conservation did not figure as an objective. Many of these have potentially harmful effects on

biological diversity by promoting pesticide use, encouraging monoculture crops, and constructing irrigation canals through nature reserves. The share of such projects in the agricultural portfolio is, however, declining--in the 1988 portfolio one out of every three was judged (by the recent World Bank review) to have potentially harmful effects on biological diversity, but this ratio dropped to one out of fifteen for projects approved in 1995.

28. An increasing number of agriculture sector projects have direct or indirect positive effects on biological diversity through agroforestry, integrated pest management, natural resources management, crop rotation, and genetic resources preservation. These projects include among other things: soil conservation efforts such as the creation of protection forests; on-farm erosion control; agroforestry; promoting contour plowing, bench terracing, and reducing erosive mechanisation; and strengthening and expanding the use of integrated pest management through farmer education, field investigation, links with research and extension systems, and strengthening regulatory frameworks for pesticides.

29. Within the group of projects that indirectly benefits biological diversity conservation are those that increase productivity either through restoration processes or successful intensification, and thereby reduce the pressures on adjacent biological diversity-rich lands or natural habitats. Such projects include, for example, investments in land reclamation (such as improved drainage networks) while promoting soil management practices (including reduced tillage systems, increased use of natural fertilisers, and retention of organic matter), and diversifying cropping systems (incorporating food crops, salt-tolerant fruit trees, and high-value aromatic plants) to further arrest expansion of sodic lands.

30. Biological diversity-friendly agricultural projects are the result of more systematic and effective use of environmental assessments and an increased awareness of unsustainable forms of agricultural production. Good practice examples of environmental assessments of agricultural projects are those which, among other things: recognise the divergence between private and social benefits of services provided by biological diversity; address safeguards needed to prevent private enterprises from adversely affecting the environment; and identify relevant environmental issues and their related effects on biological diversity.

4. OPTIONS FOR ACTIONS

31. The challenges for the World Bank, and other financial institutions, in mainstreaming biological diversity at the project level are:

a) To deepen the implementation of 'do no harm' strategies in the design of agricultural projects by effective use of environmental assessments, and by systematically applying the policy of compensatory actions for natural habitats threatened by proposed project activities.

b) To promote identification of synergies between biological diversity conservation and agricultural development, and build them into project design.

c) To broaden the use of environmental assessments as a tool to mainstream biological diversity in agriculture. This includes using sectoral and regional environmental assessments to screen both public investment programs and upstream project design options against the objectives of biological diversity conservation.

d) To use agricultural investment and sector adjustment operations appropriately as instruments to

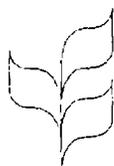
/...

support policy reform, institutional capacity, and awareness of mainstreaming biological diversity in agricultural development.

32. The Conference of the Parties may wish to consider requesting the World Bank, and other financial institutions, to report on efforts to meet the challenges of mainstreaming biological diversity into agricultural development.



CBD



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/Inf.8
18 October 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY

Third meeting
Buenos Aires, Argentina
4 to 15 November 1996

**SUBMISSIONS RECEIVED BY THE EXECUTIVE SECRETARY CONCERNING
BIOLOGICAL DIVERSITY AND FORESTS**

(Submissions have been reproduced as received by the Secretariat)

CONTENTS

Australia.....	Page 3
Burundi	Page 9
Canada	Page 11
Chile.....	Page 22
China.....	Page 23
Czech Republic.....	Page 26
Denmark.....	Page 27
Germany.....	Page 33
Madagascar	Page 35
Mexico	Page 42
New Zealand.....	Page 54
Saudi Arabia	Page 55
South Africa.....	Page 56
Sudan	Page 57
Sweden.....	Page 67
Switzerland	Page 68
United Kingdom	Page 69



AUSTRALIA

Dr Calestous Juma
Executive Secretary
Secretariat of the Convention on Biological Diversity
World Trade Centre
413 St Jacques Street Office 630
Montreal
Quebec CANADA H2Y 1N1

Dear Dr Juma

**Response to Request for written contributions and Information on Forests
and Biological Diversity**

I refer to your request for written contributions and information on forests and biodiversity.

Key actions to improve the conservation of forest biodiversity include the following:

Improve the knowledge base

The need to improve the knowledge base is a particular concern in Australia. Australia's millions of years of isolation from the other continents has resulted in the evolution of a unique flora and fauna. As a result, a high percentage of Australian species occur nowhere else. At the species level, about 82 per cent of our mammals, about 45 per cent of our land birds, about 85 per cent of our flowering plants, about 89 per cent of our reptiles, and about 93 per cent of our frogs are found only in Australia. However, it has been estimated that we have identified less than 50 per cent of native species. Invertebrates are a particular concern, and these are an important component of forest biodiversity.

The 1996 *National Strategy for the Conservation of Australia's Biological Diversity* (Biodiversity Strategy) identifies improving our knowledge of biodiversity as a major goal. It states that major research initiatives are required in the areas of compilation and assessment of existing knowledge, conservation biology, rapid assessment and inventory, long-term monitoring, and ethnobiology.

An example of recent work in this area is a consultancy commissioned by the Commonwealth government to prepare a report on evaluating and comparing the efficiency of environmental surrogates and modelling techniques in predicting the distribution of biodiversity. Surrogates investigated include forest types, vegetation types, environmental domains and environmental units.

The research needs identified above are also relevant to forest biodiversity at the international level. Research on ethnobiological knowledge is a priority. In Australia, the Biodiversity Strategy seeks to recognise the value of the knowledge and practices of Aboriginal and Torres Strait Islander peoples and incorporate this knowledge and those practices in biological diversity research and conservation programs by:

- (a) encouraging the recording (with the approval and involvement of the indigenous people concerned) of indigenous peoples' knowledge and practices;
- (b) assessing the potential of this knowledge and these practices for nutritional and medicinal uses, wildlife and protected area management and other purposes;
- (c) applying the knowledge and practices in ways that ensure equitable sharing of the benefits arising from their use.

Parties to the Convention on Biological Diversity (CBD) could consider assisting research aimed at improving knowledge of forest biodiversity through identifying training requirements and capabilities for providing that training, facilitating co-operative arrangements between parties to the Convention aimed at increasing expertise (including, for example, staff exchange), and information exchange through the CBD Clearing House Mechanism. Research and information exchange on monitoring of forest biodiversity is also needed. Where appropriate, parties should assist work by the Intergovernmental Panel on Forests to develop criteria and indicators for sustainable forest management.

Integrating biodiversity conservation and natural resource management

National governments should take the lead in developing policies, programs and practices that integrate biodiversity conservation into all aspects of natural resource management. Australia has developed the *National Strategy for Ecologically Sustainable Development* as its principal sustainable development policy. A core objective of the Strategy is to protect biodiversity and maintain essential ecological processes and life-support systems. This objective is further addressed in the *National Strategy for the Conservation of Australia's Biological Diversity*.

/...

Within this framework, Australia has provided for the ecologically sustainable management of its forests by developing the *National Forest Policy Statement* in conjunction with its States and Territories. The Strategy seeks to:

- _ provide for a comprehensive, adequate and representative (CAR) forest reserve system which will protect old growth forest, wilderness and biodiversity;
- _ develop an efficient, value adding, internationally competitive and ecologically sustainable wood products industry which includes the expansion of plantations;
- _ provide for a range of other forest values including water supply, tourism and recreation in an ecologically sustainable management framework;
- _ coordinate decision making between the Commonwealth and the States and Territories; and
- _ assist communities faced with structural adjustments as a result of the implementation of these measures.

An integral component of the Strategy is a process of joint Comprehensive Regional Assessments (CRAs) leading to the negotiation of Regional Forest Agreements (RFAs) between State and Commonwealth governments. RFAs recognise the range of economic, social and environmental obligations both tiers of government have regarding the long term management and protection of forest values in specific regions. RFAs aim to bring certainty to the timber industry by guaranteeing a sustainable resource base, whilst at the same time ensuring the protection of Australia's biodiversity through a CAR reserve system and complementary management of off-reserve areas.

The Commonwealth approach to biodiversity conservation as a component of CRAs includes the following elements:

- a) A national framework - the development of consistent approaches using appropriate scientific methods for assessing forest biodiversity, the coordination or assembling of information to provide the national context for biodiversity aspects of CRAs, consistency with international developments on sustainable forest management related to biodiversity, and the development of common approaches to management issues that cross CRA boundaries.
- b) Regional biodiversity assessments - the collection, assessment and analysis of biodiversity information for CRA regions through collaborative projects with the States. Includes public consultation and public participation in the assessment process.
- c) Threatened species management - the development of recovery plans for endangered and vulnerable species and endangered ecological communities, and threat abatement planning for threatening processes in accordance with the Endangered Species Protection Act 1992.

The CBD Clearing House Mechanism could be used to assist countries to integrate biodiversity conservation into forest management through the dissemination of information on the valuation of the full range of forest biodiversity values, the impact of subsidies on forest biodiversity, regional planning for forest management including research into incorporating biodiversity conservation into forest planning, the role of reserve systems, ecologically sustainable forest management principles, and the use of incentive measures to achieve biodiversity conservation. The Global Environment Fund, as the interim financial mechanism, should continue to be used to support projects related to forest biodiversity.

Managing threatening processes

The Biodiversity Strategy recognises the need for Australia to:

- * Monitor, regulate and minimise processes and categories of activities that have or are likely to have significant adverse impacts on the conservation of biological diversity and be able to respond appropriately to emergency situations;
- * Ensure effective measures are in place to retain and manage native vegetation, including controls on clearing;
- * Control the introduction and spread of alien species and genetically modified organisms and manage the deliberate spread of native species outside their historically natural range;
- * Minimise and control the impacts of pollution on biological diversity;
- * Reduce the adverse impacts of altered fire regimes on biological diversity;
- * Plan to minimise the potential impacts of human-induced climate change on biological diversity;
- * Repair and rehabilitate areas to restore their biological diversity;
- * Ensure that potential impacts of any projects, programs and policies on biological diversity are assessed and reflected in planning processes, with a view to minimising or avoiding such impacts.

Ecologically sustainable forest management, which is a key principle of the *National Forest Policy Statement*, ensures forest harvesting occurs in a manner which protects the full range of forest ecosystems and other environmental values. It will be given effect through:

/...

- the continued development of integrated planning processes;
- codes of practice and environmental prescriptions;
- management plans that, among other things, incorporate sustainable yield harvesting practices; and
- continuing research and long-term monitoring so that adverse impacts that may arise can be detected and redressed through revised codes of practice and management plans.

The management plans will provide a set of operational requirements for wood harvesting and other commercial and non-commercial uses of forest areas.

Addressing threats to forest biodiversity is another issue for which national governments need to show leadership by working co-operatively with other government jurisdictions in their countries and affected communities to develop appropriate programs.

In Australia, a major threat to forest biodiversity is land clearing. The Commonwealth intends to provide national leadership in ensuring significant areas of remnant vegetation are preserved and properly managed by working with the States, Territories, Local Government and landholders in establishing guidelines for the provision of incentives for landholders who voluntarily preserve vegetation which may otherwise be cleared. The Commonwealth is examining a range of possible incentives, including payments for voluntarily signing heritage agreements, rate rebates, community awareness and education programs and financial assistance for fencing and other works. A Council for Sustainable Vegetation Management is to be established to advise the government on areas of priority for protection from land clearing. Such an approach will recognise the specific needs of individuals and communities as well as the current policy positions of various state governments.

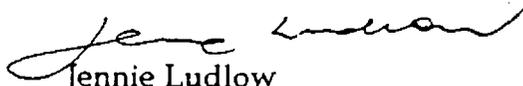
Land clearing and revegetation are also addressed in the *National Greenhouse Response Strategy*. Other threats to biodiversity as a whole are being addressed through the Biodiversity Strategy and in turn through more specific strategies such as those on weeds, feral animals, endangered species, wetlands, and rangeland management.

The CBD Clearing House Mechanism could be used to disseminate information on the threatening processes affecting forest biodiversity and the underlying causes of these processes. Economic instruments and other measures could then be identified to address these causes. The usefulness of this material would be further assisted by including several case studies which, between them, respond to the range of environmental and socio-economic factors affecting forest biodiversity around the world.

Finally, Australia recognises that conserving forest biodiversity requires community involvement and participation. Parties to the Convention could consider mechanisms to enhance public education, particularly in relation to global issues, and to encourage broad community involvement in biodiversity conservation. This includes ensuring that relevant material produced by the Secretariat is widely distributed and is used to progress the development and refinement of measures to conserve forest biodiversity within each country.

I trust the above information is of assistance in the production of the background document.

Yours sincerely



Jennie Ludlow
Director
Biodiversity Unit
6 June 1996

BURUNDI



Ministère de l'Aménagement du
Territoire et de l'Environnement
CABINET DU MINISTRE

B.P. 431 Tel. 224977 Téléfax : 228102

Bujumbura - BURUNDI

N° 270 / 7 / 1236 -

Objet :

Institut National pour l'Environnement
et la Conservation de la Nature
(I. N. E. C. N.)

Envoyé le.....
expédié le.....
le.....
l'heure.....
Révisé par.....

A Monsieur Calistos JUMA
Secrétaire Exécutif
Secrétariat de la Convention sur la
diversité biologique
15, Chemin des Anémones
CH- 1219 Châtelaine, Genève.

SUISSE -

Monsieur le Secrétaire Exécutif,

J'ai l'honneur de me référer à votre note de demande d'information relative aux forêts, populations autochtones et communautés locales, pour vous adresser notre sincère encouragement et vous assurer de notre entière disposition pour contribuer à la réussite de votre projet de document.

En effet Monsieur le Secrétaire exécutif, comme dans toutes les sociétés traditionnelles, le Burundi dont la population est rurale à 85 % possède encore dans sa culture des atouts non négligeables pour la protection du patrimoine naturel. A travers les rites, les coutumes, proverbes et poésies populaires les adultes parviennent à inculquer à la jeunesse des attitudes positives pour le respect de la vie. Ils adoptent des comportements bénéfiques pour la Conservation du Patrimoine Naturel, surtout en ce qui concerne la petite faune sauvage (aussi bien les animaux anthropophiles que les animaux de forêts ou de savanes).

Le séminaire atelier que vous organiserez durant la première semaine de février 1996, nous intéresse à plus d'un titre, et je vous serais très reconnaissant de bien vouloir associer nos cadres techniques à ses travaux. Le Directeur Général de l'Institut National pour l'Environnement et la Conservation de la Nature (INECN), Dr. Caspard NIKWEMU est prié de vous fournir la synthèse des informations utiles

/...

à ce sujet.

Veuillez agréer, Monsieur le Secrétaire Exécutif, l'assurance de ma
haute considération.

LE MINISTRE DE L'AMENAGEMENT DU
TERRITOIRE ET DE L'ENVIRONNEMENT

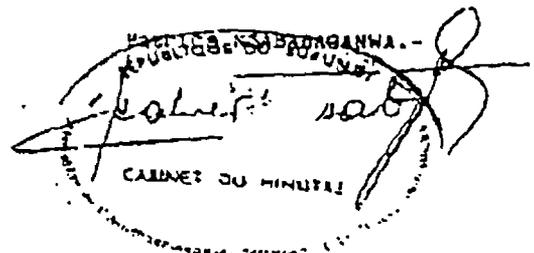
C.P.I.4/

- Monsieur Le Ministre des Relations
Extérieures et de la Coopération.
- Monsieur le Secrétaire d'Etat Chargé
de la Coopération

à BUJUMBURA.-

- ✓ - Monsieur le Directeur Général
de l'I.N.E.C.N.

à GITEGA.-



CANADA

Forests and Biological Diversity

I. Background:

At the second meeting of parties to the Convention on Biological Diversity (COP2), the Executive Director of the Convention's Secretariat was mandated to carry diversity. Parties to the Convention (COP), will consider this document at their next meeting and decide whether further input to the Intergovernmental Panel on Forests (IPF) is required. The report will also be transmitted to the IPF for their information (COP2 Decision II/9).

Canada, as a signatory to the Convention and as a member of the IPF, believes that forest biodiversity must be conserved and that forest biological resources be used in a sustainable manner. Thus, work by the COP and the IPF should be complementary, coordinated and mutually supportive.

The purpose of this paper is to provide advice to the Executive Director to assist his preparation of a background document on forests and biological diversity for consideration by parties to the Convention on Biological Diversity at their next meeting. Parties will determine if the background document should be transmitted to the IPF for their consideration.

The advice provided in this document is presented under 3 major themes, which are:

1. The need for cooperation and collaboration between the COP and the IPF;
2. The need for country capacity building in order for them to implement an Ecological Management Approach or Sustainable Forest Management Approach; and
3. A list of potential forest biodiversity topics that the COP and the IPF may choose from and initiate activity on in 1997.

II. Cooperation and Collaboration:

Formal and informal linkages must continue to be developed between the COP and IPF to ensure that both organizations focus on key forest biodiversity issues and avoid duplicating efforts. That is, work by the COP and the IPF should be complementary, coordinated, non-duplicative, and mutually supportive. To accomplish this, the Executive Secretary of the COP should:

1. Ensure that the COP is informed of the work of the panel, and ensure that the panel is aware of the work of the COP. The IPF should report on their work at COP3.
2. Ensure that IPF members receive invitations to participate in relevant conferences, meetings and expert groups established under the COP or

the COP's Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA).

3. Work with the IPF to identify biodiversity experts that could assist the IPF in their work, and work with the IPF to establish mechanisms for the COP and the IPF to pursue mutually supportive initiatives.

III. Ecological Forest Management and Forest Ecosystems - Sustainable Forest Management

Note: the terms ecological forest management and sustainable forest management are synonymous in this paper

The conservation of forest biodiversity and the sustainable use of forest biological resources requires the adoption and implementation of an ecological management approach. Adoption of a ecological management approach requires substantial human and financial resources and technical and other capacities.

The ecological management approach which requires the integration of social, cultural, economic and environmental objectives consists of several elements. Many of these elements are described in the following steps: out work on forests and biological diversity with a view to producing a

background document on the links between forests and biological

Step 1: Management Goals and Objectives

Each nation must set management goals and objectives which have the support of all major stakeholders. Broad goals such as ensuring the conservation of forest biodiversity and the sustainable use of forest biological resources should be established at the beginning of the planning process, with more specific objectives agreed to as planning and management progresses to more detailed levels.

The Convention on Biological Diversity, especially the Convention objectives and Articles 6-14, provide elements from which to develop forest management goals and objectives.

The importance of setting goals and objectives can not be stressed too much. Each nation must set goals and objectives based upon its situation. While each situation will be unique, it is recommended that each country:

1. Ensure that they establish goals and objectives that reflect all forest values, (economic, social, cultural and ecological values);
2. Ensure that goals and objectives are developed and agreed upon by all major stakeholders and decide who will be responsible for what; (Without this support, goals and

objectives will not likely be achieved).

3. Establish who will be responsible for the planning and management activities and establish timelines.
4. Use international biodiversity and forest agreements where applicable to develop national goals and objectives, complementing these with site-specific goals and objectives for each forest type or forest management area; and
5. Periodically review goals and objectives to ensure they reflect current needs and priorities.

Step 2: A Commitment to Action

Governments, forest companies, land and woodlot owners, indigenous and other local communities, non-government organizations and individual citizens all must set goals and objectives and commit themselves to action to ensure the implementation of the ecological management approach. Commitments are required to:

1. Conserve forest biodiversity;
2. Maintain and enhance forest ecosystem condition, ecological services and productivity;
3. Conserve soil and water resources;
4. Protect forest ecosystem contributions to global ecological cycles; and

5. Maintain the multiple benefits to society provided by forests.

These general commitments will need to be complimented with more detailed commitments as planning processes advance specific forest sites are selected for study.

Step 3: Communication and Involvement

Effective communication among government agencies responsible for management of various forest resources, local and indigenous communities, forest companies, environment groups, research and education institutions and others, is an essential component of the ecological management approach. All stakeholders must have opportunities to participate in forest management decision-making processes from the early planning phases through to implementation of management practices, policies and legislation. Effective communication is a prerequisite to obtaining participation in planning processes. This requires developing processes that encourage participation, including eliminating obstacles to participation such as providing language translation if required and preventing over-representation by one sector or interest.

Indigenous and other local communities in particular, must have opportunities to participate in forest planning and management to ensure

the wise use of resources upon which they depend. These communities also possess knowledge about forests that must be considered in conserving and developing forest resources.

The communication plan must include a public education component as individuals make decisions and consumer choices which influence the use of forest resources. Public understanding of the many values of forests, (economic, ecological, social, cultural and intrinsic values), must be increased in order to convince members of the public and their elected officials to provide staff and financial resources to support forest conservation and management efforts.

Step 4: Understanding Forest Ecosystems

Ecological management of forests requires a basic understanding of these complex ecosystems. There are three major elements to achieving this understanding. The first requirement to enhancing understanding is basic biophysical inventories. The level of inventory required depends upon the availability of existing inventory data and information, land-use objectives for the area, and the intensity of any proposed development or use of the area.

Comprehensive biological inventories at the species and genetic levels will generally be cost prohibitive for large areas, and constrained by the lack of available expertise. Consequently, resource managers will

need to carefully consider what inventories can be conducted that will yield the best data to support management decisions. Inventories should be enhanced as financial resources and expertise become available, to the level appropriate to their purposes.

An alternative to comprehensive forest inventories are the selection and use of indicators. Indicators can be used to monitor changes in forest biodiversity over time and to evaluate management programs. Indicators must be cost-effective while providing adequate information to support management decisions. Focused, small scale comprehensive inventories are recommended to complement the use of indicators.

The second key element to understanding forest ecosystems is research. Research is required to understand the structure, function, composition and dynamics of ecosystems; it is necessary to assess appropriate uses of resources, and levels of use to ensure sustainability. Integrated or multi-disciplinary research programs are necessary to understand forest ecosystems, to determine appropriate resource use options, and to evaluate management practices. Integrated research is critical to achieving sustainable forest management which requires understanding of the interactions among flora and fauna, environmental

characteristics and resource management practices.

Understanding natural ecological processes will aid resource managers to plan the use of forests in ways that replicate, as much as possible, natural disturbance patterns.

Included in the research component is the need to include knowledge of indigenous and local people. Individuals that live in or near forests know what resources exist, understand the impacts of different traditional uses of resources, and can provide both detailed and an overview of changes to the forest over time.

Far too often the knowledge of indigenous and local people is ignored or misunderstood by scientists, government officials and others. Finding ways and means for indigenous and local knowledge to become integrated into forest planning and management processes can only improve the understanding and management of forest ecosystems.

The third key element of the ecological management approach is an understanding of the monetary and non-monetary values of forest ecosystems. Economic values result from both timber and non-timber resources and ecological services that forest ecosystems provide. Forests provide food, materials for shelter, medicines and many other benefits which must be accounted for.

In addition to monetary values, forests have many non-monetary values that should be accounted for when assessing the overall value of a nation's forests.

Resource evaluations and accounting procedures are very important elements of the ecological management approach as they will promote conservation and sustainable use efforts by demonstrating how unsustainable practices and the loss of biodiversity negatively impacts a nation's economy.

Step 5: Threats to Forest Biodiversity

The Convention on Biological Diversity requires nations to identify components of biodiversity requiring urgent conservation measures and as far as possible and as appropriate, take action. The Convention provides for a range of conservation measures: establishment of protected areas; rehabilitation of ecosystems and recovery of threatened species; prevention, control or eradication of alien species; and implementation of legislation, guidelines and other measures to manage the use of biological resources.

In cases where components of biodiversity are facing immediate extinction, appropriate action should proceed as rapidly as possible, based upon the best available knowledge.

In addition to immediate action to address threatened biodiversity, nations

need to address the underlying causes of the loss of biodiversity.

The COP and the IPF can address international policies and activities that lead to the loss or decline of biodiversity.

Step 6: Planning and Environmental Assessment

Resource and Land Use Planning are crucial aspects of the ecological management approach. These processes support the establishment of specific objectives and targets. Data and information gathered from inventories and research are analyzed and decisions are made on appropriate and inappropriate use of resources.

Successful planning will often exhibit the following 3 characteristics:

- a) It provides opportunities for all stakeholders to be involved with all phases of planning, which requires the establishment of non-intimidating processes to promote involvement;
- b) It is hierarchical and continuous. Thus, decisions are made on the best available information and then refined with experience with additional data and information is collected and analyzed; and
- c) It provides feedback mechanisms to ensure periodic review of progress towards goals and objectives.

Site specific planning and management is necessary to

accommodate the needs and desires of indigenous and other local communities, to prevent conflicts between resource users and to ensure decisions regarding uses are based upon local ecological characteristics.

This level of analysis and planning makes it possible to zone forest management units. For example, an area may be subdivided into forest harvesting areas, protected areas and multiple use areas.

Environmental Assessments are not typically used in Canada to manage forest ecosystems. However, they are an important and commonly used tool to assess potential impacts of proposed projects on ecosystems including forest ecosystems, and provide direction to prevent or reduce impacts. Thus, environmental assessments complement land-use and forest planning and management activities.

Environmental assessments can also be used to assess impacts of proposed policies to ensure that they do not result in unintentional impacts.

Like planning, environmental assessments need to be open and transparent processes. Multi-stakeholder participation in environmental assessments

enhances their credibility, improves the data and information bases for decision-making and often increases the acceptance of the decisions that emerge from the process.

Resource and land planning and Environmental Assessment are complementary processes which not only assist in short-term and long-range planning, but collectively are invaluable tools for determining the cumulative impacts of human use of ecosystems.

Step 7: Public Education and Awareness

Education and awareness programming are essential components of an ecological management approach.

Education provides a foundation that promotes citizen involvement in decision-making processes and increases awareness of individual or group responsibilities in ensuring the sustainable management of resources.

Step 8: Legislation and Incentives

Establishing a sound legislative and incentive framework tailored to meet the needs of individual countries, is an important element of an ecological management approach. The key is to obtain the right mix of these policy instruments to ensure their acceptance in the communities that will be employing them.

Step 9: Data and Information Management

Developing effective data and information networks is essential to implementing ecological management approaches. Data and information on forests are often collected by scientists, landowners and managers, conservation organizations and naturalist, over long periods of time. Data and information are required on climate, soils, hydrology, flora and fauna, land-use practices, culture and social characteristics and many other parameters.

Ideally, data and information standards and protocols will be agreed to by those gathering the data and information to make analysis and sharing of data and results more effectively. This may require: establishing a coordinating body; negotiating data and information sharing agreements, data standards and protocols; and maintaining a directory of data bases.

Step 10: Training

Training is a very important aspect of developing an ecological management approach, and may be required at all steps of the process. All individuals involved in the conservation and sustainable use of forest ecosystems must be competent in the performance of their duties. This requires training in many fields and each country must determine its own training priorities. In determining specific training needs, countries should also be aware of the need to provide

training in both communications and forest resource management, as ecological management has as much to do with communicating with forest users as the actual management of the resource.

Step 11: Monitoring

Monitoring is another necessary component of the ecological management approach. The level of monitoring depends upon the objectives for the area and the intensity of resource use. Monitoring programs should be linked to management objectives in order to assess the impacts of policies, plans, legislation and programs.

As far as possible, monitoring of climate, soils, hydrology, flora and fauna and other parameters should be integrated and analyzed to provide a comprehensive view of the changes in forest ecosystems.

IV. Capacity Building

The Convention on Biological Diversity requires developed countries to assist developing countries to conserve biodiversity and sustainable use biological resources. Given the importance of forests to humans, locally, nationally and globally and the importance of forests in maintaining biodiversity, both the COP and the IPF should give high priority to capacity building.

Conservation of forest biodiversity and sustainable use of

forest biological resources requires implementation of an ecological management which requires considerable capacity to communicate, inventory, research, analyze, plan and implement programs. There are many technologies that can assist with these functions, and thus, finding ways and means to make these technologies available to developing countries will be very important.

Given the importance of building capacity to ensure the conservation and sustainable use of forests, the COP and the IPF need to collaborate to examine ways and means to build capacity in developing countries, and profile this need internationally.

V. Sharing of Benefits and Access to Forest Genetic Resources and Technology

Sharing of benefits arising out of the use of genetic resources, access to genetic resources and transfer of technologies, are all important elements of the Convention on Biological Diversity. Contracting parties must develop mutually agreed upon terms to access other countries genetic resources and find ways and means to share benefits that arise from the use of these resources. The Convention also recognizes the need for parties to develop arrangements to provide access to technologies

relevant to the conservation and sustainable use of biodiversity.

Given the obligations of the Convention, the COP and IPF need to collaborate to: a) ensure continued access to forest genetic resources on mutually agreed terms, b) establish effective mechanisms for sharing the benefits arising from the use of forest genetic resources, and c) find ways and means to transfer technologies necessary to support the conservation of biodiversity and sustainable use of forest biological resources.

V. Conclusions

Note: the recommendations provided in the following section are based upon the assumption that the IPF will continue its work beyond 1996 and will have a mandate to pursue the suggested topics. The reader should also be aware that the recommendations essentially constitute a list of topics that the COP and IPF would choose from according to their priorities.

1. It is essential that the COP and the IPF collaborate to avoid duplication of efforts and to ensure action is taken on priority issues. Therefore, the COP should continue to establish formal and informal linkages with the IPF, and working groups that report to the IPF. The IPF should be invited to participate in relevant working groups established directly under the COP, and indirectly by SBSTTA.
2. International agreements, national and sub-national strategies and plans and site-specific planning and analysis, and ecological management approaches are required to conserve forest biodiversity and sustainable use forest biological resources and are being developed by countries and international organizations. Therefore, the COP should examine these guidelines to ensure that biodiversity has been adequately considered.
3. International and national voluntary standards for achieving sustainable forest management systems could be extremely valuable as means to ensure that members of the public and other clients identify companies

committed to sustainable forest management, and products that are produced from forest that are managed on a sustainable basis. Therefore, the COP should recommend that the IPF continue to work toward adopting internationally acceptable criteria and indicators against which progress towards ecological sustainable forest management (including conserving forest biodiversity), can be measured.

4. Immediate and appropriate action must be taken to conserve components of forest biodiversity that are currently threatened.

Therefore, the COP should recommend to the IPF that they collaborate and work with countries and regions to identify forested areas where biodiversity is under immediate threat and set priorities to address these threats. They should also examine the underlying causes of the loss of biodiversity, deforestation and forest degradation.

5. The world forests provide genetic resources that have value for many economic sectors, including: agriculture, forestry, pharmaceutical production, chemicals and other manufacturing, to name a few.

Fair and equitable sharing of the benefits arising out of the utilization of genetic resources is essential to ensure the conservation of these resources. Therefore, the COP should recommend to the IPF that they work with FAO and other

international organizations to identify mechanisms for providing access to forest genetic resources and for sharing the benefits arising from the use of these resources.

6. Many existing and emerging technologies could assist developing countries to conserve forest biodiversity and sustainably use forest biological resources.

Therefore, the COP should recommend to the IPF that they identify technologies and methodologies that can assist countries to conserve forest biodiversity and use forest biological resources in a sustainable manner. The COP should also recommend use of their Clearinghouse Mechanism to disseminate this information.

7. Indigenous and local communities have knowledge that can contribute to the conservation of forest biodiversity and the sustainable use of forest biological diversity. The Convention requires contracting parties to examine means of sharing the benefits arising from the use of indigenous and local knowledge, innovations and practices. Therefore, the COP and the IPF should provide opportunities for indigenous and other local people to participate in considering ways and means to protect, use and share the benefits arising from the use of forest related knowledge, innovations and practices of

indigenous and other local communities.

8. Research, inventory and training are required to ensure the sustainable use of forest biological resources and the conservation of forest biodiversity.

The Convention on Biological Diversity requires developed countries to cooperate with developing countries to conduct research and training. Therefore, the COP should recommend to the IPF that they collectively establish an international forest research, inventory and training agenda. If agreeable to both parties, the SBSTTA could establish a process to develop this agenda.

9. Capacity building is essential to developing ecological management approaches for forest ecosystems.

Therefore, the COP should ensure that the Global Environment Facility considers country proposals that include requests for financial resources to build capacity in the management of forests, and also recommend to the IPF that they establish mechanisms to assist countries, especially developing countries, to develop user needs assessments to properly match technologies with individual country needs.

10. Countries need to assess the multiple benefits of forest resources in monetary and non-monetary terms, and create conservation and sustainable use incentive mechanisms

where required. Therefore, the COP should recommend to the IPF that they jointly develop and test methods, models or guidelines for evaluating forest resources and examine or develop forest conservation incentive mechanisms.

11. Environmental impact assessments are valuable tools for identifying potential impacts of proposed projects on forests ecosystems.

Therefore, the COP should promote sharing of environmental assessment legislation and guidelines and make this information available through the Convention's Clearinghouse Mechanism.

12. Education and awareness are essential to achieving the conservation of forest biodiversity and the sustainable use of forest biological resources.

Therefore, the COP should recommend to the IPF that they collaborate to inventory existing education and awareness materials relating to forest ecosystems, and distribute this information using the Convention Clearinghouse Mechanism.

CHILE

REPUBLICA DE CHILE
MINISTERIO DE RELACIONES EXTERIORES
EMBAJADA EN KENYA

NQ 45-C-3/96

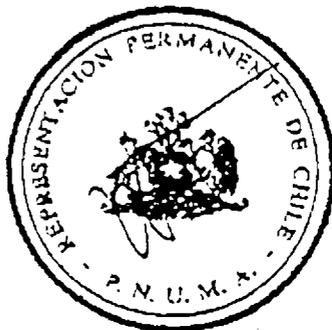
La Representación Permanente de Chile ante el Programa de las Naciones Unidas para el Medio Ambiente (PNUMA) saluda muy atentamente al Secretario Ejecutivo de la Convención de la Diversidad Biológica y tiene al honor de referirse a su Nota de fecha 4 de Enero pasado, mediante la cual solicita la opinión del Gobierno de Chile respecto de una serie de Resoluciones de la Segunda Conferencia de las Partes (II/10, II/4, II/9, II/8, II/3 y II/12).

Sobre el particular, esta Representación Permanente cumple con informar a la Secretaría Ejecutiva que, efectuadas las consultas del caso ante las autoridades pertinentes de Chile, estas han informado que se encuentran en plena elaboración y análisis de los referidos documentos, razón por la cual no ha sido posible hasta esta fecha hacerlos llegar oficialmente a la Secretaría Ejecutiva.

En consideración a lo anterior, esta Representación Permanente se permite solicitar al Señor Secretario Ejecutivo que se prorroge el plazo fijado a Chile para la recepción de dichos antecedentes hasta fines del presente mes de marzo.

La Representación Permanente de Chile ante el Programa de las Naciones Unidas para el Medio Ambiente aprovecha la oportunidad para reiterar al Señor Secretario Ejecutivo las seguridades de su más alta y distinguida consideración.

Nairobi, 19 de Marzo de 1998



1...

CHINA

Forest Ecosystems

Forest ecosystems. The natural forests in China can be divided into coniferous, broad-leaved, and mixed coniferous and broad-leaved forests.

- Cold-temperate coniferous forests. These forests are mainly characterized by larch (*Larix* spp.), spruce (*Picea* spp.), fir (*Abies* spp.), and pine (*Pinus* spp.) forests. The sites of these forests are cold and moist, providing habitats for more than 200 species of wild animals, including more than 40 species of mammals and about 120 species of birds. Among them the *Gulo gulo*, *Alces alces*, *Cervus elaphus*, *Felis lynx*, *Lepus timidus*, *Tetra parvirostris*, *Tetrastes bonasia*, *Lyrurus tetrix* and others are protected by the State as priority species.
- Temperate mixed coniferous and broad-leaved forests. These forests are characterized by the mixed Korean pine (*Pinus koraiensis*) and broad-leaved forests. After destruction they would be replaced by deciduous broad-leaved forests. They provide habitats for about 360 species of wild animals, including 53 species of mammals and 280 species of birds. Among animals protected with priority are *Panthera tigris altaica*, *Cervus nippon*, *Panthera pardus*, *Gulo gulo*, *Moschus moschiferus* and others.
- Warm-temperate deciduous broad-leaved and coniferous forests. Warm-temperate deciduous broad-leaved forests are characterized by oak (*Quercus* spp.) and oak mixed with many broad-leaved trees, such as *Betula* (spp.) and *Populus* (spp.). Warm-temperate coniferous forests include *Pinus tabulaeformis*, *Pinus densiflora*, *Pinus bungeana* and *Platycladus orientalis* forests. These forests contain about 2,000 species of wild plants and more than 200 species of vertebrates. Among animals protected with priority are *Panthera pardus*, *Moschus moschiferus*, *Capreolus moschiferus*, *Naemorhedus goral*, *Aquila chrysaetos*, *Chrysolophus pictus* and others. The deciduous broad-leaved forests are severely degraded. Their secondary growth forests have become isolated islands, and their old age forests have already disappeared.
- Subtropic evergreen broad-leaved and coniferous forests. The subtropical areas in China have the broadest territorial extent in the world and the most favorable physiographic conditions. They cannot be compared with the narrow stretches of subtropical zones located in the Mediterranean region, Middle Asia, the South Asian subcontinent, Southwest Japan, the Florida peninsula, and East Australia.
The forests in China's subtropical region are characterized by evergreen broad-leaved forests, associated with many kinds of coniferous forests. Evergreen broad-leaved forests are composed of *Fagaceae*, *Lauraceae*, *Magnoliaceae*, *Theaceae* and other families. Coniferous forests are characterized in the east by *Pinus massoniana*, and in the west by *Pinus yunnanensis* var. *tenusifolia*, and *Pinus armandii* forests. There are specific coniferous forests consisting of "live fossil" plants left over from the late Tertiary Period, including *Cathaya argyrophylla*, *Pseudolarix kaempferi*, *Metasequoia glyptostroboides* and *Taiwania Cryptomerioides*.
The evergreen broad-leaved forests are growing sites for plants of 2,764 genera and 146,000 species and a great number of wild animals, with more than 1,000 species of vertebrates. More than 80 species of wild animals are protected with national priority in these forests, including *Ailuropoda melanoleuca*, *Rhipithecus roxellanae*, *Panthera tigris amoyensis*, *Neofelis nebulosa*, *Budorcas taxicolor*, *Felis temminckii*, and *Tragopari temminckii*.
- Tropical rain forests and seasonal rain forests. Tropical forests in China occupy only 0.5 percent of its territory, but contains 25 percent of the total number of species in the country. They are mainly distributed in the southwest part of Yunnan Province, Hainan island, south of Guangxi, and southeast of Tibet.
Tropical forests in the Xishuangbanna region of Yunnan Province contain 15 percent of the total number of plant species and 27 percent of the total number of animal species in the country and provide habitats for many rare valuable animal species such as *Elephas maximus*, *Bos gaurus*, *Eylobates concolor*, and the like.

Priority Forest Ecosystem Protection Regions and Nature Reserves

Tropical Areas

- Southern Tibet: Zhumulangma Peak Reserve, Momo Reserve (2 reserves). The area represents the northernmost border of the tropical zone with distinct distribution from tropical forests up to the snowline and rich in endemic species.
- Xishuangbanna: Mengla, Mengjun, Mengyang, and Naban Reserves (4 reserves). The only region with wild elephants, high in species diversity, some of which are endemic.
- Southwest Guangxi Zhuang Autonomous Region: Nonggang Reserve (1 reserve). The core region of the Indo-Malayan and Sino-Vietnamese flora zone with plentiful calcareous stone mountains and endemic species, especially white and black leaf monkeys (*Presbytis* spp.).
- Southern part of Hainan Island: Jianfengling Reserve, Bawanglin Reserve, Dizuluoshan Reserve, and Wuzhishan (Five Fingers) Mountain Reserve (4 reserves). The flora are characterized by Indo-Malayan components with rich species and endemic species especially the gibbons (*Hylobates* spp.).

Summary: There are altogether 11 nature reserves in 4 regions in the tropic area.

Subtropical Areas

- Southern section of the Hengduanshan Mountain: Gaoligongshan Reserve, Nujiang Reserve, Yaoshan Reserve, Baimaxueshan Reserve, and Ailaoshan Reserve in Yunnan province (3 reserves). The transitional region for the paleophytes of the North Pole and the tropics, with high species diversity and endemism. Well-known as the center of origin and evolution for mammals, and wide altitudinal differences from subtropical to alpine. Yunnan golden monkey (*Rhinopithecus* spp.) is concentrated here.
- Northern section of the Hengduanshan Mountain: Wolong reserve, Baishuijiang reserve, Tangjiahe reserve, Baihe reserve, Wanglang reserve, Jiuzhaiguo reserve, Xizhaizhigou reserve, Huanglongshi reserve, Mingbaogou reserve, Labahe reserve, Fengyongzhai reserve, Mabian-Dafengding reserve, and Meigu-Dafengding reserve in Sichuan and Gansu provinces (13 reserves). The habitats of giant panda and red panda characterized by species diversity and endemism from subtropical to permanent frost with scrub forests in the valleys.

- Wulingshan mountain regions: Fanjingshan Reserve and Dashahe Reserve in Guizhou province; Badagongshan Reserve in Hunan province; Jinfoushan Reserve in Sichuan province; and Siennongjia Reserve in Hubei province (5 reserves). The core region of central China flora of the East Asian flora with high species diversity, endemism, and relic species.
- Nanling Mountains: Mangshan Reserve and Qianjiadong Reserve in Hunan province; Huaping Reserve in Guangxi Zhuang autonomous region; Jiulianshan Reserve in Jiangxi province; Babaoshan Reserve in Guangdong province; and Meihuashan Reserve in Fujian province (6 reserves). The juncture region of Central China, East China, and South China floras of the East Asian flora with high species diversity and endemism.
- Jiangxi-Fujian mountain region: Wuyishan Reserve (Fujian), Wuyishan Reserve (Jiangxi) (2 reserves). Center of East China flora of the East Asian flora rich in species diversity and endemism.
- Zhejiang mountain region: Western Jianmushan reserve, Longtanshan reserve, Qinliangfeng reserve, and Baishanzu-Fengyangshan reserve (4 reserves). One of the distribution centers of the East China flora and Japanese flora in the East Asian floristic region with rich wild species, especially endemic species.
- Miaoling Mountains: Leigongshan Reserve (1 reserve). Concentrated distribution region of Flous Taiwanian, with many other species, some which are endemic.
- Jiuwandashan Mountains: Maolan Reserve in Guizhou province and Jiuwandashan Reserve in Guangxi autonomous region (2 reserves). Maolan reserve is the best preserved subtropical forest in the calcareous stone regions containing many endemic species. Jiuwandashan reserve also contains well-preserved subtropical forests with Yuanbaoshan fir.
- Jiangnan hilly area: Guanjiutang Reserve in Anhui province (1 reserve). Contains high species diversity and endemism.
- South China hilly area: Damingshan Reserve and Dayaozhan Reserve in Guangxi autonomous region and Dinghushan reserve and Heishiding reserve in Guangdong province (4 reserves). The transition zone between tropical and subtropical regions with the best protected species around the Tropic of Cancer.

- Qinling and Baoshan Mountains: Taibai Mountain Reserve, Foping Reserve, and Yangxian County (crested ibis) Reserve in Shaanxi province (3 reserves). The transition region between sub-

tropical and temperate zones with high species diversity and endemism, e.g., pandas, golden monkeys, and crested ibises.

- Funiushan Mountains: Baotianman Reserve (Neixian county), Baotianman Reserve (Nanzhao county), and Laojieling Reserve, Longchiman Reserve, Laojunshan Reserve and Shirensan Reserve in Henan Province (6 reserves). North tropical zone with high species diversity and endemism and various varieties of Yangtze.
- Dabieshan mountains: Mazongling Reserve in Anhui province, Jigongshan Reserve and Dongzhai Reserve in Henan province (3 reserves). Located in the north tropic zone with high species diversity and endemism.

Summary: There are altogether 35 nature reserves in 13 regions in the sub-tropical area.

On forests and biodiversity

Chinese government has always attached great importance to the conservation of the forest and biodiversity. The Forest Act has been enacted. The area of afforestation in China numbers first in the world. 12 March of each year is the National Tree-planting Day in China. There is much information on the forest and biodiversity in China and it can be referred to in China's Biodiversity Country Study.

CZECH REPUBLIC

Re: Request for Written Contribution and Information on Forests and Biological Diversity

- Inclusion of documents on forests into biodiversity agenda is very important for the Czech Republic, as the forests cover 1/3 of total country area and have played an important role not only in environmental conservation but also in country historical development.

- We fully support coordination of actions with other relevant organizations, including IPF.

- Environmental services and non-consumptive values of forests have an ever increasing importance and therefore methods for the proper valuing of multiple benefits derived from forests are needed.

- Principles of sustainable forest management should be included into national forest strategies and policy.

- The importance of forests in sequestration of CO₂ from the atmosphere in connection with climate change should be emphasize.

- We recognize the importance of public awareness and education as well as of their raising at all levels of society.

- Forest research represents a prerequisite for forest biodiversity valuation and appropriate management. The state supervision and funding is necessary to assure required quality and continuation.

(Certain difficulties appeared in this respect in countries with economy in transition, as a result of restrictions in sectors with hardly measurable or low immediate profit.)

- Implementation of resolutions agreed on during Ministerial Conferences on Forest Conservation in Europe (Strasbourg 1990, Helsinki 1993) is an important task for European countries. The results of these meetings should be included and coordinated with the CBD programmes, especially as regards the H2 Helsinki Resolution on conservation and sustainable development of European forests biodiversity.

DENMARK

.....
MILJØ & ENERGI
MINISTERIET

Secretariat of the Convention on Biological Diversity
World Trade Centre, 413 St. Jacques Street
Office 630, Montréal, Québec
Canada H2Y 1N9

Ministry of
Environment and Energy
The National Forest and
Nature Agency

1996-885/46-0003

14. June 1996

Re: Request for Written Contributions and Information on Forests
and Biological Diversity.

As requested in the letter of 10. January 1996 from the Executive Secretary of the CBD, Denmark hereby, pursuant to Decision II/9 of COP2, submits its views and additional information to be used in the preparation of the background document on "the links between forests and biological diversity".

The document is, pursuant to Decision II/9, to be used by COP3 for considering "whether further input to the Intergovernmental Panel on Forests is required", but should, given the urgency of the matter, also be used to support the considerations on the subject of forests and biodiversity under the relevant items on the COP agenda.

Denmark worked actively at COP2 to secure that a strong Statement was sent to the IPF, and commends that the Statement clearly recognised that the CBD has a number of important roles to play in relation to the conservation and sustainable use of all types of forests.

Denmark supports that further input related to the provisions of the CBD be given to the ongoing process in the IPF by COP3. The background document should as far as possible take into account the current status of the negotiations of the IPF.

Skov- og Naturstyrelsen
Haraldsgade 53
DK 2100 Copenhagen Ø

Phone 009 45 39 47 20 00
Fax 009 4539 27 93 99
Telex 21495 nature dk
E-mail (X-00): fmsns: S=skov-og-
naturstyrelsen; O= skov-og-
naturstyrelsen; OU=fmsns; P=sdn;
A=dk+00; C=dk;
E-mail (Internet): snst@sns.dk

/...

At the same time, given the fact that tropical, temperate and boreal forests are among the most diverse ecosystems on earth, and are at the same time among the ecosystems most severely and immediately threatened by degradation, it is important that the CBD also takes immediate steps to fulfill its own mandate to secure the protection and sustainable use of forest ecosystems.

As many of the subjects relevant to forest biological diversity are of a scientific, technical and technological nature, Denmark suggests that the background document is submitted to the SBSTTA in order to enable it, should it so decide, to make recommendations to the COP on specific actions to be taken in relation to forest ecosystems.

The links between forests and biodiversity are multiple, and encompasses most of the CBD. Denmark suggests that the background document is prepared in such a way that it enables the COP to include the subject of forests and biodiversity under the following COP agenda items. At the same time this approach would best enable the COP to give further input to the IPF:

6.1. General measures for conservation and sustainable use,

6.1.1. Implementation of articles 6 and 8.

- Actions to promote national forests and land use plans and programmes (TOR of IPF I/1) should fully take into account the provisions of the CBD, particularly those of articles 6 and 8 of the convention. Specifically, the need to carry out multiple use planning in the forestry sector, based on a sustainable ecosystem management approach, should be emphasised.
- Recommendations to the IPF, and to the parties, concerning the use of systems of protected areas to secure the in-situ conservation of biological diversity (article 8), including forest genetic diversity. Recommendations should fully take into account that in most cases the degradation of the forest

ecosystems is closely related to socio-economic issues. Therefore participatory processes in the establishment and management of protected areas should be adopted if conservation efforts are to have any lasting success. Participatory processes should include efforts to identify alternative income generating activities, e.g. in bufferzones, especially where conservation measures will reduce local income opportunities.

6.4 Consideration of the future programme of work for terrestrial biological diversity in light of the outcome of deliberations of the third session of the CSD in 1995:

- Funding criteria and guidelines for the CBD's financial mechanism concerning forest ecosystems should be established.
- Definition of constituent elements of forest quality from a biological diversity perspective and, related to this, a definition of forest degradation. These definitions should be presented to the IPF for inclusion in its deliberations, and distributed to the parties for their use.

In order to secure the quality of forest ecosystems there is a need to define and use appropriate criteria and indicators for sustainable forest management. Such criteria and indicators should, keeping within the framework of those already internationally adopted, e.g. those following from the Helsinki-resolutions, the Montreal process and as elaborated by ITTO, reflect both the need to avoid ecosystem degradation in existing forests in general, and the need to secure both an authentic composition of flora and fauna and the processes and functions of the various types of forest ecosystems, taking into consideration the subsistence needs of local people and the role of forests in national development processes. This point should be based on a review of work carried out in the IPF (TOR of IPF, item III/2)

- Guidelines for ecologically sound re- and afforestation should be established, including suggestions for ways and means to facilitate and support the establishment of an authentic and diverse flora and fauna (TOR of IPF I/4)
- The background document should enable the COP3, based on its considerations under the relevant agenda items, and based on relevant issues on the COP4 agenda, particularly 7.3 Measures for implementing the CBD, should it so decide, to start the process of making a programme of Action for Forests.

The programme of action should be the instrument used by the COP in its future work related to the biological diversity of forests; recognising that among the terrestrial ecosystems the biological diversity of forests is particularly under threat.

Denmark suggests that the COP3, if it decides to start the process of making a programme of action for forests, should request expert advice from the SBSTTA on all issues relevant to the decision on the programme of action related to forests and biological diversity.

The programme of Action for Forests should complement the outcome - in terms of recommendations and actions - of the IPF, and coordinated implementation should be decided upon by IPF/CSD5 and subsequently initiated.

6.5 Knowledge, innovations and practices of indigenous and local communities

6.5.1. Implementation of Article 8(j)

- Denmark attaches great importance to the issue of the "protection and use of forest-related knowledge, innovations and

practices of forest dwellers, indigenous people and other local communities, as well as fair and equitable sharing of benefits arising from such knowledge, innovations and practices" (TOR of IPF, item I/3). Without a substantial effort to promote such a protection, use and fair and equitable sharing of benefits other measures to protect the biodiversity of forest ecosystems may in many cases prove to be without lasting effect.

Today, however, the situation in many parts of the world is that indigenous peoples are under strong pressure being subject to different kinds of suppressions and in danger of losing the basis of their existence. This is not least the case regarding indigenous communities making their living in forest areas throughout the world.

One of the major obstacles to the preservation of indigenous knowledge and practices is that the rights of indigenous people to their land are not broadly recognized. It is crucial that those rights to land as well as resources are properly recognized and that possibilities to self-organization are given as being the basis for the survival of local communities and their culture. To that effect work on the development of local or regional models of agreements between indigenous people and states should be initiated as soon as possible, including models adapted to forest-dwellers. In that connection the Danish government would like to point to the fact, that Greenland is a part of the Kingdom of Denmark, where the majority of the people are inuit people. For more than a decade there has been an extended Home Rule system in Greenland. Except for foreign policy and a few other matters all decisions are taken by the Greenlandic Parliament.

Another important element for a more general acceptance and recognition would be increased information and public awareness to further an understanding of and for the culture, economic systems and rights of indigenous peoples.

Finally it should be underlined that the main aspects of indigenous knowledge and practices is integrated in any possible future international instrument as being one of the most important elements of the conservation and sustainable use of forest ecosystems.

The background document should enable the COP3 to make substantial recommendations to both the IPF and the parties on this issue.

6.8 Incentive measures

6.8.1. To consider the compilation of information and experiences shared on the implementation of Article 11.

- The development and application of appropriate incentive measures are imperative to the promotion of conservation and sustainable use of forest ecosystems. COP3 should make recommendations on the issue to IPF as well as to the parties and other relevant intergovernmental institutions.



Robert Jensen
Head of Section

GERMANY

Forests and biological diversity

I. Due to the significance of forests for the conservation of biological diversity stopping global deforestation is a prerequisite for further progress in this field.

This means that all underlying causes of deforestation must be tackled in a comprehensive way. Since the most important causes of deforestation lie outside the forest sector only integrated solutions also addressing other policy sectors can lead to success.

The COP therefore gives strong support to all relevant efforts of the IPF.

Management, conservation and sustainable development of forests - as described in the Rio forest principles and chapter 11 of AGENDA 21 - have to be considered together.

II. As so the special aim of improving sustainable forest management both generally and with respect to biological diversity the European States, soon after the Rio conference, agreed on two specific pan-european guidelines (General guidelines for the sustainable management of forests in Europe, H1, and General guidelines for the conservation of the biodiversity of European forests, H2) within the framework of the Ministerial Conference on the Protection of Forests in Europe.

Moreover, a follow-up process was started guiding relevant action to implement the decisions.

In the German view these guidelines could also serve as a model for the international level and therefore are provided together with this

document.

Among others the definition of sustainable forest management given by H1 (preamble, para.D) has to be pointed out at this occasion.

MADAGASCAR

Conservation et utilisation durable de la diversité biologique

Forêts et diversité biologique

(Décision II/9 de la CDP 2 de la Convention sur la Diversité Biologique)

Vues et informations de Madagascar

a) L'importance du rôle vis-à-vis de la forêt joué par les populations autochtones et les communautés locales dans la conservation et l'utilisation durable de la diversité biologique :

Fidèles à des modes de vie traditionnelle, les populations autochtones et les communautés locales jouent deux rôles vis-à-vis de la forêt, l'un négatif, l'autre positif.

Le premier est fait de destruction, de pratiques et techniques agricoles inadéquates (*tavy*, *hatsake*, culture itinérante sur brûlis, feux de pâturage).

Le second rôle consiste à protéger la diversité biologique d'une manière directe ou indirecte. Les populations et les communautés respectent la forêt en raison de que celle-ci représente pour elles.

La forêt est considérée comme le domaine privilégié des diverses forces de la surmatrice et habitée par des esprits (*Kokolampy*, *Kalanoro*, *Bemihitsara*, *Sangomby*).

La forêt a une dimension sacrée. L'installation de communauté fidèle à des modes de vie traditionnelle s'accompagne de la découverte et de la création du « sacré », d'où la notion de forêt sacrée, de lac sacré, d'arbre sacré, d'animaux sacrés chez presque tous les groupes de populations malgaches.

La forêt est souvent un lieu de culte des ancêtres.

La forêt est un nécropole des souverains en pays Mahafale, Sakalava et Betaimisaraka, Tanala.

La forêt est utilisée comme parc à boeufs et pâturage de saison sèche pour les Bara, Sakalava et Masikoro, dans le Sud et l'Ouest de Madagascar

La forêt est nourricière : le *tsinároke*, ou pratique de la cueillette (miel, tubercule) et de la chasse (hérissons, oiseaux, lémuriers, sangliers.....).

La forêt est utilisée par les populations locales dans la pharmacopée en raison des vertus curatives des plantes médicinales qu'elles savent distinguer et protéger.

b) L'état actuel du savoir traditionnel et des pratiques relatifs aux forêts des populations autochtones :

Un inventaire exhaustif de ces pratiques n'a pas encore été fait dans le cadre des travaux de recherche, mais des cas spécifiques doivent cependant être relevés, à savoir:

- sélection des animaux chassés en fonction de leur sexe et âge, interdiction de toute chasse en période de production et d'allaitement dans la région de Morondava et Tsiribihana.
- gestion du couvert végétal par le contrôle des feux et protection des massifs forestiers sélectionnés.
- préservation d'allées d'arbres porte-graines à caractère sacré.
- système de rotation de l'agriculture sur brûlis permettant une régénération du couvert végétal par le contrôle végétal.
- utilisation limitée des produits de la forêt (ramassage du bois mort et bois de construction, interdiction de la forêt aux étrangers).
- distinction entre zone pastorale, zone agricole et zone forestière.

c) les menaces sont de plusieurs ordres (on peut citer:

la simplification du mouvement migratoire, de l'accroissement démographique et l'exiguïté des bas-fonds réservés à la riziculture notamment sur les Hautes Terres Madagascar est confronté depuis longtemps à un phénomène global de dégradation de ses ressources forestières. L'Inventaire Ecologique Forestier National (IEFN) exécuté actuellement au niveau de la Direction des Eaux et Forêts donnera une estimation plus fiable de la surface forestière existante. Toutefois, on peut affirmer que le pays est bien en train de perdre son capital forestier renfermant son haut niveau de degré d'endémisme (75 % en flore, 85 à 80 % en faune). Le problème de la perte de biodiversité qu'occasionne cette tendance est connu, mais le risque est aussi économique et social.

d) Voies et moyens pour une protection effective des forêts et de la diversité biologique

1) Utilisation du savoir relatif aux forêts, des innovations et pratiques des populations autochtones et des communautaires locales

- restitution aux populations cibles des résultats de recherche (exemple: Foyer utilisant des herbes comme source d'énergie).
- utilisation des structures traditionnelles. Exemple du *filongoa* qui est un pacte conclu entre tout nouveau venu et la communauté d'accueil. Celui-ci, par le biais de *titike* (serment), se soumet aux lois régissant le microcosme consistant notamment à protéger la forêt.
- étude du savoir des guérisseurs, des communautés *vazimba* et Mikea qui ont des rapports magico-religieux avec la forêt.

2) Gestion forestière communautaire :

La gestion durable des ressources forestières ne peut être envisagée sans une prise de responsabilité au niveau des collectivités locales ; le transfert de gestion se fait dans le cadre d'une démarche de cogestion contractuelle entre l'administration forestière d'un côté et les collectivités locales de l'autre. Cette gestion participative constitue un élément essentiel de la stratégie forestière : la création de groupements villageois, regroupés en coopération forestière est à envisager ; ceux-ci joueront un rôle dans l'utilisation des terres, préalablement à un schéma d'aménagement forestier.

3) Politique forestière :

De nouvelles options de développement sectoriel du pays ont été définies notamment par l'adoption de la Charte de l'Environnement, puis d'une nouvelle politique pour le Développement Rural.

L'ensemble de ces évolutions font que la redéfinition de la politique forestière malagasy est aujourd'hui considérée comme une priorité.

Cette politique forestière malagasy est tournée vers la lutte contre la dégradation forestière, compte tenu de l'importance de ce phénomène, et vers la recherche de la meilleure adéquation possible entre les ressources et besoins dans le cadre d'une gestion durable.

Elle comporte quatre axes prioritaires :

Axe 1 : mieux gérer les ressources forestières en :

-1.1 en élaborant des plans d'aménagement des ressources forestières

- la description des ressources forestières à aménager, les contraintes environnementales, le régime de propriété et d'utilisation des terres, les conditions socio-économiques et un profil des terres adjacentes,
- la description du système de sylviculture ou autre aménagement, sur la base de l'écologie de la forêt, concernée et des données obtenues par le biais d'un inventaire des ressources ;
- la justification des taux des coupes annuelles et la sélection des essences ;
- les dispositions prévues pour le suivi de la croissance et de la dynamique de la forêt;
- les mesures de sauvegarde de l'environnement basées sur une évaluation de l'environnement;
- les plans d'identification et de protection des espèces rares, en danger ou menacées d'extinction ;
- les cartes décrivant la masse des ressources de la forêt (y compris les aires protégées, les activités d'aménagement envisagées et le régime de propriété foncière) ;
- la description et la justification des techniques et matériels de récolte à utiliser.

-1.2- en gérant rationnellement l'exploitation des ressources forestières :

- l'ensemble des conditions d'accès à la ressource forestière devra garantir une exploitation durable en responsabilisant les acteurs concernés. Enfin, des mesures sont à prendre afin de réduire le phénomène d'exploitation illicite. L'exploitation forestière sera cantonnée dans les zones prescrites dans les plans d'aménagement.

...

-1.3- en réorganisant les recettes forestières :

Il est nécessaire de revoir le taux et le mode de recouvrement des distances bénéficiant aux collectivités décentralisées afin de favoriser la prise de conscience des riverains sur la valeur qu'ils peuvent tirer de la forêt et de ses produits.

-1.4- en instituant le professionnalisme forestier :

- Instituer de véritables métiers en favorisant les différents niveaux de la filière, de la récolte à la transformation des produits de la forêt.
- Accorder des avantages aux opérateurs du secteur formel qui se professionnalisent.
- Créer ou redynamiser les unités de formation professionnelle forestière dans les différentes régions écologiques du pays.

Axe 2 : contribuer à rationaliser l'approvisionnement en produits forestiers en :

- augmentant la part des reboisements dans la production,
- valorisant mieux les produits forestiers,
- maîtrisant la consommation de produits forestiers
- améliorant et maîtrisant les circuits des produits forestiers.

Axe 3 : augmenter la superficie et le potentiel forestiers en :

- assurant la sécurité foncière aux planteurs,
- redéfinissant le système d'appui aux initiatives ou reboisement.

Axe 4 : enrayer le processus de dégradation forestière et assurer une meilleure gestion de la biodiversité en :

4.1 - Appuyer les pratiques rurales de substitution en :

- planifiant l'utilisation des ressources forestières,
- améliorant la politique de défense et restauration des sols,
- contribuant à la maîtrise des feux de brousse,
- redéfinissant les systèmes de suivi et d'évaluation de la dégradation forestière,
- conciliant le développement avec conservation,
- préservant le patrimoine forestier et les équilibres écologiques tout en favorisant les conditions qui concilient leur mise en valeur et leur conservation à long terme.

La politique forestière malagasy a fait l'objet d'un atelier national qui a été soumis au niveau de l'Assemblée Nationale.

L'application de cette politique constitue le Plan Directeur Forestier National (PDFN). Ce dernier va être finalisé pour être proposé dans le Programme Environnemental II (1997-2001).

Il s'agit de :

- faciliter l'adoption par les populations rurales de nouvelles pratiques agricoles, à la fois plus productives et moins préjudiciables à la forêt dans le cadre de l'aménagement des vallées forestières et plus généralement de la gestion des terrains villageois.
- encourager et diversifier les activités liées à l'utilisation des produits secondaires de la forêt, de générer des revenus supplémentaires pour les populations rurales (miel), plantes médicinales, champignons, diverses matières pour l'artisanat en veillant à ce que cela contribue à une prise de conscience sur l'intérêt de la préservation du patrimoine forestier

4.2 - Contribuer à la maîtrise des feux de brousse.

4.3 - Préserver le patrimoine forestier et les équilibres écologiques.

L'amélioration de la gestion visera à favoriser un développement durable des ressources forestières dans les conditions qui concilient leur mise en valeur et leur conservation à long terme.

QUELQUES EXEMPLES D'EXPLOITATION RATIONNELLE DE LA FORÊT

Face à la dégradation accélérée des différentes composantes du milieu naturel, il est apparu de plus en plus évident que la gestion rationnelle des ressources naturelles au service du développement durable devient une urgente nécessité, ainsi il est nécessaire d'avoir des approches nouvelles concernant les rapports de l'homme et de son milieu. Le projet consiste à faire participer la population locale à la gestion de la biodiversité.

Pour cela, il est envisagé :

- la mise en place d'un programme d'exploitation de la faune et flore de façon rationnelle et durable axé sur la création de revenus pour les populations rurales, afin de les rendre conscientes de la nécessité de conservation de leur patrimoine naturel.
- l'établissement d'une carte de zone riche en biodiversité, hors aires protégées, pour le développement d'activités d'exploitation rationnelle et durable d'espèces de faune et de flore au profit de la population rurale.
- l'organisation de la population rurale en groupement de collecteurs et des éleveurs en association des éleveurs. Ceci dans le but que le secteur privé associé aux populations rurales soit en mesure de pérenniser le système du programme de développement de l'élevage ou la reproduction artificielle de la faune et flore sauvage générant des revenus aux populations riveraines des zones riches.

Ainsi l'apport des institutions nationales ne serait plus qu'au niveau de l'information des nouveaux opérateurs malagasy, des contrôles et des prises de décision finale.

EXEMPLE SUR LE DEVELOPPEMENT DE L'ELEVAGE DE CROCODILES A MADAGASCAR, S'ORIENTANT VERS LE RANCHING (PROJET DEF/F.A.O.)

L'approche qui a été préconisée fut bien évidemment celle d'impliquer les populations rurales dans la collecte des oeufs de crocodile. Les revenus générés par la collecte des oeufs sont parfois considérables et indispensables pour l'achat des vêtements, des matériaux, d'ustensiles de cuisine, voire de charrette ou de zébus dans certain cas.

Des mesures de protection ont été instaurées par la population locale. Elles consistent en la protection de la ressource en particulier sous la forme de la surveillance continue du site de ponte pendant la période de reproduction pour éviter la présence d'étrangers susceptibles de briser les oeufs et pour éviter le passage des zébus qui dérangent les sites de ponte. Cette protection s'est faite sous la forme d'un *dina*, pacte scellant un accord traditionnel entre les paysans. Ceci a pu se voir lors de la collecte où les populations locales ont demandé spontanément si elles pouvaient avoir une autorisation administrative pour empêcher le passage de zébus et d'étrangers susceptibles de déranger leurs crocodiles. La population locale a émis le souhait que la collecte soit un peu mieux organisée pour qu'elles soient prévenues un peu plus à l'avance et que le prix soit augmenté.

Le résultat le plus fondamental est de voir que des animaux perçus aussi négativement que les crocodiles peuvent, de par l'intérêt économique qu'ils génèrent, se voir considérer comme une ressource renouvelable appartenant à la communauté.

Ces résultats montrent que l'on peut sérieusement penser que l'implication de la population rurale dans des projets d'exploitation rationnelle et durable de la faune peut être un moyen de plus intéressant pour la conservation d'espèce et de leur habitat dans les pays en voie de développement

L'EXEMPLE LIENS ENTRE LA POPULATION LOCALE ET LA BIODIVERSITE FLORISTIQUE

Un projet en collaboration avec le WWF réalisé dans la réserve spéciale de Manongarivo au nord-ouest de Madagascar, s'efforce de combiner un développement bien conçu et la conservation de la diversité bioculturelle de la région sans toucher à la tradition et à la culture ancestrale de la population mais au contraire en cherchant les liens entre la population et les éléments de la biodiversité qui les entourent. La population ressentira les avantages des liens qui l'unissent à la biodiversité et participera alors aux activités de conservation. Le projet a mis en place dans la région un système de santé intégré dans lequel il soit de règle d'utiliser à la fois des remèdes traditionnelles à base de plantes médicinales et des médicaments modernes. Ce système amène la communauté locale à assumer volontairement la responsabilité de la conservation de biodiversité qui l'entoure. Des habitants de la région ont déjà cessé de défricher certaines zones de la forêt primaire pour cultiver, pour la simple raison que diverses plantes médicinales qui en proviennent ont réussi à les guérir. Il s'en suit bien entendu, une réaction en chaîne puisque les autres organismes peuplant les même habitats sont de ce fait également préservés.

e) Le partage juste et équitable des avantages découlant du savoir, des innovations et pratiques des populations locales et de la forêt en général.

On peut citer la mise en place de :

- sites pilotes : essai de reproduction de modèle de communauté soucieuse de la conservation et de l'utilisation durable de la diversité biologique tenant compte notamment de mode d'appropriation et de gestion des ressources spécifiques à l'espace considéré. Amélioration du niveau d'organisation sociale par le biais de conseils appropriés. Encouragement fait sous forme d'encadrement de petits travaux et de crédits.
- l'encadrement permanent (groupes homologues) et modélisation multidimensionnelle (lier les savoirs : forêt, élevage, agriculture) sur 3 niveaux : communautés locales (échange d'informations et pratiques) ; département et région (conseil de gestion, diffusion des innovations techniques, décisions dans les conditions traditionnelles);

* La forêt, lieu d'écotourisme, favorisera la vente sur place de produits artisanaux par les groupements villageois.

Les populations autochtones doivent recevoir une compensation pour l'application de leurs connaissances traditionnelles en matière d'utilisation d'essences forestières ou de systèmes d'aménagement dans les opérations forestières. Cette compensation doit être fixée avec le libre consentement des populations concernées, préalablement au début des opérations.

1...

* La plupart des Aires Protégées (A.P.) de Madagascar sont des forêts et leur gestion avec la population riveraine commence à être envisagée (cf. Divers ateliers, Antsirabe-1995, Majunga 1994, Mantasoa 1995, etc.).

Pour mieux sensibiliser ces populations riveraines, vivant dans les zones périphériques de ces Aires Protégées, le Conseil d'Administration de l'ANGAP a décidé, lors de sa réunion du 30 Mars 1993, d'octroyer les 50 % des droits d'entrée dans les Aires Protégées à des activités (conformes à la conservation) que ces populations veulent exécuter, selon la décision d'un comité de gestion mis sur place par ces populations.

Il est vrai que cet octroi ne correspond pas directement à l'utilisation du savoir traditionnel relatif aux forêts, des inventions et pratiques de ses habitants, il constitue toutefois une part importante du pays dans la recherche de voies et moyens en vue d'une protection effective. Les populations conscientes de l'importance de l'existence de ces Aires Protégées, dont elles reçoivent des avantages concrets, sont des partenaires de conservation actifs.

* L'autogestion est à envisager : les populations assurent elles-mêmes la collecte, la maintenance, recevront les ristournes provenant de la vente des produits tels que phytomédicaments et autres produits de la forêt.

* Les opérations d'aménagement forestier doivent promouvoir une utilisation rationnelle des multiples produits et services forestiers pour assurer la viabilité économique et une gamme étendue d'avantages environnementaux et sociaux.

- 1- l'aménagement forestier doit s'efforcer de réaliser la viabilité économique tout en prenant en considération les coûts local, environnemental et opérationnel de la production et en consentant les investissements nécessaires au maintien de la productivité écologique de la forêt.
- 2- l'aménagement forestier et les opérations de commercialisation doivent encourager l'utilisation optimale et la transformation locale des multiples produits de la forêt.
- 3- l'aménagement forestier devra réduire au minimum les pertes liées aux opérations de récolte et de transformation sur place et éviter tous dégâts aux autres ressources de la forêt.
- 4- l'aménagement forestier doit tendre à renforcer et diversifier l'économie locale en évitant la dépendance vis-à-vis d'un seul produit.
- 5- les opérations d'aménagement forestier doivent reconnaître, entretenir et, le cas échéant, valoriser les ressources et services forestiers tels que les bassins versants et les pêcheries.

MEXICO

Desde su creación el Instituto Nacional Indigenista consciente de la necesidad de rescatar y valorar los conocimientos y prácticas tradicionales de manejo y uso que los diversos grupos indígenas hacen sobre sus recursos naturales, ha instrumentado acciones que permitan recopilar e impulsar actividades en pro de este legado cultural. En este sentido apartir de 1989 el Instituto ha incorporado algunos criterios al queahecer indigenista, con la intención de impulsar estas políticas:

- ◆ *Los pueblos indígenas son herederos y poseedores de conocimientos sobre la naturaleza y el medio ambiente, desarrollados y decantados durante muchos siglos, lo que les ha permitido establecer criterios de utilización y manejo sobre los mismos.*
- ◆ *La razón por la cual la sociedad contemporánea (rural y urbana) y la naturaleza sufren un proceso generalizado de expropiación y deterioro, es la pérdida del control de la sociedad humana sobre la naturaleza y sobre si misma.*
- ◆ *Que esta toma de control debe considerarse como punto de partida para el desarrollo comunitario; que por un lado implica el mantenimiento y defensa de su cultura y por otro lado el rescate de sus tecnologías y el diseño de estrategias para el uso adecuado o no destructivo de los recursos naturales (flora, fauna, suelos, recursos hidráulicos) que forma parte de su territorio .*
- ◆ *En este contexto en los últimos años se ha observado una reactivación de la participación de los pueblos indígenas que atañe precisamente a la defensa de su cultura y su desarrollo material.*
- ◆ *Este proceso obedece a una toma y recuperación, no solo de la identidad étnica, sino de su propia dignidad. Es decir, la discriminación y el desprecio hacia sus técnicas tradicionales de producción y manejo de recursos así como de sus formas de interpretar y conocer la naturaleza, elementos importantes de su cultura, han traído consigo una baja autoestima y pérdida de su propia dignidad (1).*

México es una nación que cuenta con recursos naturales abundantes, diversos y complejos, es depositario del 12% de la biota mundial, ocupa el primer lugar mundial en herpetofauna, el segundo en mamíferos, el cuarto en anfibios, sin mencionar la riqueza de fauna de invertebrados, por lo que respecta a la vegetación, México cuenta con aproximadamente 22 mil especies de fanerogramas, de las cuales el 52% de ellas son endémicas, por lo que se considera un país con "megadiversidad"⁽²⁾

En lo sociocultural no es menos diverso, rico y complejo. Los registros más antiguos señalan que este territorio ha sido habitado por diferentes pueblos desde hace por lo menos 30 mil años.

1 *La Jornada Ecológica*, Año 2, No. 15, septiembre de 1992.

2 *Plan de Acción Forestal 1995-2000*, SEMARNAP, 1995.

Actualmente existen más de 56 pueblos indígenas, con 94 variantes dialectales en proceso de recuperación y afirmación, lo cual subraya la existencia de una experiencia ancestral y una amplia relación con la naturaleza.

En este sentido el Instituto junto con las comunidades indígenas ha trabajado en diversas líneas de acción; por un lado en la elaboración de un inventario sistematizado de las especies vegetales utilizadas en las prácticas medicas tradicionales, lo cual culminó en la elaboración y publicación del "Atlas de las Plantas de la Medicina Tradicional Mexicana" y de la "Flora Medicinal Indígena de México", que incluyen 3,103 especies de plantas medicinales de mayor frecuencia de uso. Paralelo a estas acciones se realizó un inventario de las prácticas asociadas al uso de las plantas; en los diversos grupos indígenas del país así como de los términos utilizados por estos grupos, para definir sucesos particulares del tratamiento y cura de alguna enfermedad, recopilados en las obras "La Medicina Tradicional de los Pueblos Indios de México" y el "Diccionario de la Medicina Tradicional Mexicana". Por otro lado se han apoyado propuestas concretas (proyectos productivos piloto) en comunidades indígenas, que plantean modelos de desarrollo comunitario sustentable. En cada uno de los proyectos que se describen a continuación; se trabaja con especies tanto de flora como de fauna considerados por los Pueblos Indios como elementos importantes dentro de su propia cosmovisión, los objetivos de estos proyectos están enmarcados en el rescate de las técnicas tradicionales de manejo de recursos, en la conservación, el uso y aprovechamiento sustentable de los mismos.

Producción de Vainilla Orgánica (Vainilla plannifolia) en el Norte de Oaxaca.

A partir de 1985, se inició el rescate, domesticación y cultivo de vainilla, planta nativa de la selva Chinanteca; actividad que pronto rebasó los límites geográficos y étnicos por sus particularidades, la actividad social que generó el cultivo de vainilla se considera un proceso que ha propiciado y fortalecido la identidad y organización entre los pueblos chinantecos y mazatecos, quienes históricamente han padecido divisiones fuertes, no tan solo por las variantes de su propia lengua, sino de su religión y ahora por sus afinidades políticas. En este proceso alrededor de dos mil campesinos de 15 municipios -9 chinantecos y 6 mazatecos- han encontrado en ella no solo un catalizador de revaloración a su cultura y de recuperación de su dignidad étnica; sino un agente coadyuvante en la regeneración, y conservación de sus recursos naturales en forma ecológica, productivamente sustentable y económicamente rentable, es decir que el proyecto se sustenta en los conocimientos y tecnologías propias derivadas del contacto del grupo con su entorno físico-ambiental.

Aprovechamiento Forestal en la comunidad indígena de Nuevo San Juan Parangaricutiro, Mich.

La comunidad indígena de Nuevo San Juan, en los últimos 15 años ha venido promoviendo acciones para conservar y aprovechar el bosque. En este aspecto son importantes los avances logrados, destacan las medidas de recuperación a través de la reforestación con

especies de pino (*Pinus pseudostrobus*, *Pinus moctezumae* y *Pinus leiophylla*), encino (*Quercus laurina*, *Quercus rugosa* y *Quercus obtuso*), especies pertenecientes a la flora original de estas localidades. La participación de las comunidades indígenas en tareas como la vigilancia y el mantenimiento de sus viveros forestales y áreas de repoblamiento han tenido impacto directo en la recuperación del bosque.

Es importante destacar que el trabajo del bosque, también ha permitido, por medio de la empresa Forestal de la comunidad, la generación de alrededor de 850 empleos directos, apoyando el arraigo de las familias a la comunidad.

Para continuar e incrementar el ritmo de desarrollo de la comunidad, se hizo necesario establecer un Plan de Manejo Integral, mediante el cual se obtienen opciones productivas para dejar de presionar solamente el recurso forestal y al mismo tiempo se aprovecha el potencial que la comunidad tiene mediante actividades controladas en áreas agropecuarias, hortícolas, recursos hidrológicos, producción de abonos orgánicos y comercialización de la flora medicinal y aromática, así como la crianza de especies faunísticas en semicautiverio para repoblar al bosque.

Manejo Sustentable de Venado Cola Blanca (Odocoileus virginianus spp) en las comunidades indígenas huicholas.

Los huicholes cuentan con una reserva forestal de 140,000 has. en estos terrenos el proceso de deforestación ha avanzado de manera muy importante, esto se debe principalmente a la acción de las compañías madereras ajenas a las comunidades indígenas.

Este fenómeno provoca un fuerte deterioro de la cobertura vegetal de los ecosistemas de la Sierra, siendo consecuencia inmediata la extensión de la frontera desértica y la drástica disminución del venado cola blanca y otras especies de la fauna silvestre.

Esta especie es un elemento fundamental de la cultura de los huicholes, lo cual ha afectado incluso, el ciclo ritual del calendario sagrado del grupo.

En este sentido se trabaja por la conservación y recuperación de la fauna silvestre y en particular del venado cola blanca a través de la reproducción y domesticación en semicautiverio, y bajo la estrategia de una suma de esfuerzos de ONG'S, instituciones gubernamentales e integrantes de la comunidad indígena para fortalecer una visión común de conservación del medio ambiente y que el aprovechamiento ritual del venado y otras especies silvestres sea sustentable.

La importancia del proyecto con respecto al desarrollo, es que actualmente son pocos los trabajos que se orientan hacia modelos de manejo y aprovechamiento sustentable de los recursos naturales en zonas indígenas. Para lo cual es necesaria la capacitación y la

conformación de equipos técnicos y promotores comunitarios, cuya principal función sea asumir esta nueva filosofía de producir-conservando.

Programa para el Desarrollo de Unidades de Conservación, Cultivo y Comercialización de Plantas Medicinales, Especies y Aromáticas, como parte del proceso de desarrollo de la medicina tradicional en Comunidades Indígenas de México.

En este programa participan diversas organizaciones y comunidades indígenas del país en el desarrollo y establecimiento de unidades de conservación y cultivo (de tipo orgánico) de plantas medicinales, se ha proyectado también el desarrollo de infraestructura para el procesamiento, industrialización y envasados de las mismas; así como la búsqueda de líneas de comercialización en los mercados nacional e internacional.

Tomando como antecedentes que el manejo y la utilización de las plantas medicinales ha sustentado por muchos años el desarrollo de la medicina tradicional en diversas culturas en el mundo, tales son los casos de la medicina tradicional china, la medicina tradicional Ayurvédica y de nuestra propia medicina tradicional en América Latina. Por ello, existe una gran preocupación, a nivel mundial, por desarrollar programas de conservación y cultivo de plantas medicinales, ya que estas son reconocidas como materia prima para la elaboración de medicamentos y por consiguiente para la cura de numerosas enfermedades.

Las grandes líneas de acción que provee este tipo de proyecto son:

- Realizar el inventario y clasificación terapéutica (periódicamente actualizado) de las plantas medicinales empleadas en las diferentes regiones y estados del país.
- Establecer criterios y métodos científicos para la utilización segura de los productos elaborados a partir de plantas medicinales.
- Establecer estándares internacionales y especificaciones de identidad y pureza.
- Proponer acciones productivas concretas, que redunden en el desarrollo comunitario sustentable.

Objetivo general del proyecto:

Promover y apoyar el desarrollo de la medicina tradicional mexicana, a través de el establecimiento de unidades de conservación, cultivo y comercialización de plantas medicinales, especias y aromáticas, que contribuyan a elevar el ingreso económico y la calidad de vida de las comunidades indígenas involucradas.

Las comunidades integradas en este proceso son las siguientes:

- Nuevo San Juan Parangaricutiro, Michoacán, comunidad de habla Purépecha. La comunidad maneja y fomenta el crecimiento de 2 especies de plantas utilizadas

tradicionalmente como tés aromáticos y que poseen posibilidades de explotación comercial el Nurite (*Satureja macrostema*) y el quien sabe (*Hedeoma piperita*), ambas recen de manera natural y abundante. En este sentido se ha proyectado el establecimiento de parcelas productivas en los terrenos propiedad de la comunidad.

- Cuetzalán, Puebla. Comunidad de habla Nahuatl. El trabajo se inicia con el cultivo jengibre (*Zingiber officinale*); propuesta a cultivar por la Sociedad de Solidaridad Social de Médicos Tradicionales Indígenas de estado de Puebla, "Masehualpajtí". Quienes pretenden propagar y acopiar otras especies medicinales de importancia para ellos, además de el rescate de especies de plantas medicinales consideradas en peligro de extinción.
- Capulalpan de Méndez, Oaxaca. Comunidad zapoteca con una fuerte organización social, la Unión de Organizaciones de la Sierra Juárez de Oaxaca UNOSJO, esta organización propone el establecimiento de unidades de conservación y producción de plantas medicinales, en particular de especies de árnica (*Heterotheca inuloides*); gordolobo (*Gnaphalium spp.*) y Santa María (*Tanacetum parthenium*) entre otras.
- Organización de Terapeutas Indígenas Tzeltales A.C. (ODETIT), comunidad sede Oxchuc, Chis., ha planteado el establecimiento de unidades de conservación y cultivo de jengibre (*Zingiber officinale*), Higuierilla (*Risimus communis*), el cardomomo (*Cinamomum cardomomum*), Angélica (*sp./nrp.*) y spoxil lucum (*sp./nrp.*).

Rescate, protección y aprovechamiento de frutales nativos del trópico mexicano en la región de Papantla, Ver.

El trópico mexicano esta considerado como uno de los cinco lugares con mayor biodiversidad del mundo, las condiciones climáticas, edáficas y orográficas, propician el desarrollo de una amplia diversidad de plantas de importancia frutícola, maderable, medicinal, industrial, ornamental, de uso doméstico y ritual. Las actividades propuestas de rescate, protección y aprovechamiento de frutales tendrá que ser de acuerdo a la capacidad del suelo que predomina en las zonas indígenas; la mayoría son suelos pedregosos, delgados y de topografía irregular, que año con año se van empobreciendo, hasta quedar inservibles cuando aflora la roca madre.

Por ello, en 1984 "La convención de pueblos totonacas" propuso:

I. Realizar acciones encaminadas a evitar la erosión de los suelos.

Establecer plantaciones de frutales y especies nativas comerciales como zapote mamey, (*Calocarpum mammosum*); pitaya, (*Hylocereus undatus*); chicozapote, (*Manilkara zapota*); pimienta gorda, (*Pimenta dioica*); pagua, (*Persea shiedeana*) y zapote negro, (*Diospyros digyna*), como alternativas a sus cultivos tradicionales.

1. Reforestación con especies maderables, cedro (*Cedrela mexicana*) y caoba (*Swietenia macrophylla*).
2. Capacitación que les permita conjugar la nueva tecnología con la tecnología tradicional, para efficientar el uso de los recursos naturales en condiciones sustentables.

Como resultado en 1992 se inicio el rescate de germoplasma vegetal nativo del trópico, registrando y evaluando las especies antes mencionadas, seleccionando el material que reunía las características de calidad comercial.

Esta acción ha permitido el establecimiento de viveros del zapote mamey en ocho comunidades, logrando la propagación de 15,000 plantas, que serán injertadas con vareta de los árboles seleccionados, para el establecimiento de 150 has. de plantaciones comerciales.

En relación a la pitaya, se están organizando 10 grupos de campesinos para propagar 50 mil esquejes, y plantar 50 has. a nivel comercial.

Producción Estabulada de venado cola blanca en la Región Maya de Quintana Roo

Después de ocurrido el huracán Gilberto y los incendios en los municipios de Benito Juárez, Isla Mujeres, Lázaro Cardanes y Cozumel, en el Norte de Quintana Roo, se econtró indispensable el estudio de la regeneración de la selva y la búsqueda de alternativas de manejo en la zona afectada.

Entre otras acciones se destaca propiciar el desarrollo de las comunidades al utilizar apropiadamente sus recursos naturales. Como parte de estos estudios, desde 1992 se ha venido realizando un Programa de "domesticación" del venado cola blanca (*Odocoileus virginianus*), que ha permitido establecer técnicas de manejo y determinar las instalaciones que puedan hacer de este recurso natural una fuente de ingresos para los pobladores

Se han encontrado indicadores claros de la factibilidad y de la necesidad de instrumentar esta actividad productiva como una alternativa de supervivencia real y de un gran valor cultural, para los pobladores del área.

Algunas comunidades utilizan al venado como un presente para los dioses en la celebración de LOH-KAH o "Bendición del Pueblo" en que piden al dios YUM BALAM evite la entrada de "Malos Vientos" y la fiesta de CHAA CHAC o "Primicias de la Milpa", en la que solicitan al dios CHAC la bendición de la lluvia para sus campos recién sembrados.

Participación Indígena y Desarrollo Sustentable en Areas Naturales Protegidas.

En muchas regiones indígenas se han establecido áreas naturales protegidas con fines de investigación, enseñanza y difusión de sus recursos bióticos.

Las condiciones de relativo aislamiento, han permitido la conservación de su diversidad biológica, la presencia de endemismos, y el estilo indígena del manejo de la naturaleza las hacen propicias para su protección.

En ocasiones su establecimiento se ha hecho sin expropiación, indemnización o consentimiento de las autoridades comunales que posteriormente quedan en la zona núcleo o de amortiguamiento de las reservas o parques nacionales, lo que les crea problemas de tipo socioeconómico, ya que el decreto de creación se acompaña de la prohibición absoluta de actividades dentro del área.

Ante esta situación el Instituto Nacional Indigenista se ha abocado en un esfuerzo de gestión ante las instituciones correspondientes como la SEMARNAP, INE, PROFEPA. Con el objeto de propiciar la participación local indígena en los diferentes proyectos como: propiciar la participación informada de los Pueblos Indígenas en los procesos de estudios básicos, decreto de creación, elaboración de planes de manejo y administración de Áreas Naturales Protegidas A.N.P., así como también en las tareas de conservación, educación, investigación y recreación, y finalmente la participación en los beneficios y responsabilidades que conlleva el manejo de un área natural protegida.

De las 89 Áreas Naturales Protegidas que maneja el Sistema Nacional de Áreas Protegidas S.I.N.A.P. del Instituto Nacional de Ecología en el país. El INI actualmente viene realizando actividades en las siguientes. (cuadro 1).

Finalmente el INI ha brindado apoyo sustancial a comunidades indígenas que poseen recursos forestales importantes susceptibles de ser aprovechados de manera racional. En este sentido cabe destacar el fuerte impulso a proyectos productivos en áreas forestales principalmente en los estados de Chihuahua y Durango. De igual importancia son las acciones que el INI ha impulsado a través del Programa de Acción Forestal Tropical (PROAFT) en comunidades principalmente de los estados de Oaxaca, Veracruz, Quintana Roo y Yucatán, donde se desarrollan proyectos como;

El árbol del Nim en Santa Rosa de Lima, Tututepec, Oax.

El municipio de Tututepec a partir de 1960 ha sufrido severas transformaciones en su entorno natural, debido a la apertura de caminos y la expansión de una agricultura intensiva, transformando selvas medias y altas en campos agrícolas, para la introducción sucesiva de cultivos de algodón, cacahuate, limón, sandía, chile, papaya melón y tomate.

Una característica común de estos cultivos, es su dependencia casi total al uso de agroquímicos. Se estima que a la fecha se han aplicado 28,500 toneladas de plaguicidas, sin sumar fertilizantes, hormonas y otros, dejando suelos estériles o contaminados, afectando a las cadenas tróficas y la salud humana.

Ante esta situación se plantea como opción el uso de pesticidas orgánicos, cuya residualidad es limitada, no se acumulan en los ecosistemas y se incorporan a las cadenas tróficas.

El árbol del Nim *Azadirachta indica* ha demostrado su eficacia al menos en 30 de las plagas más importantes en la agricultura sin afectar a sus depredadores y parásitos, crece en suelos pobres y resiste condiciones de sequía.

El objetivo del proyecto es proporcionar a los agricultores opciones menos agresivas para el control de plagas en los cultivos.

Promoción de la agricultura ecológica en la organización "Tukunwini" de Caxhuacan, Pue.

La región donde se ejecuta este proyecto se localiza en una zona montañosa de clima cálido-humedo, con zonas boscosas pero con partes erosionadas que ya no producen. Esta erosión se ha dado por la extracción de madera para la construcción de casas, o ser usada como leña.

El área de influencia de Tukunwini abarca las localidades de: Caxhuacan, Cuco Chochat y Cajinanin, donde habitan totonacos y nahuas de bajos recursos económicos.

Con la realización de este proyecto se pretende lograr el equilibrio ecológico de la zona, así como una producción agrícola, de buena calidad, de café, maíz, hortalizas y otros; dirigida a lograr la autosuficiencia de la comunidad.

Reforestación de las áreas de pastoreo del venado cola blanca (*Odocoileus virginianus*) en la comunidad de El pescador, Pajapan, Ver.

Desde su fundación, hace aproximadamente 12 años, la comunidad ha realizado diversas actividades tendientes a la conservación de los recursos naturales, estableciendo una campaña permanente en el cuidado de la selva y no a la quema de potreros. Estas actividades están enmarcadas en el cuidado de especies acuáticas y en la reforestación del manglar así como de las áreas de pastoreo con especies maderables como la caoba, el cedro y la primavera.

Esta superficie reforestada ha servido como refugio para distintas especies de fauna silvestre, entre ellas el venado cola blanca (*Odocoileus virginianus*).

Este proyecto se propuso con la finalidad de lograr un manejo sustentable de la población de venado cola blanca, reforestar los linderos del área de pastoreo del venado con especies nativas de rápido crecimiento y enriquecerla con especies forrajeras.

Manejo Forestal de un predio cubierto con vegetación secundaria en Pajapan, Ver.

Este municipio ha sido uno de los más afectados por la ganaderización, el 80% de su territorio (antes cubierto por selva tropical) está convertido en potreros y acahuales, estos últimos se ven cada vez más precionados por la población para el abasto de leña y otras maderas usadas en la construcción de casas.

Considerando esta problemática se han buscado alternativas de producción que contribuyan al restablecimiento y conservación de áreas arboladas que a mediano y largo plazo ayuden a elevar la economía campesina.

Una de estas alternativas la constituye la palma comedora, experiencia iniciada en 1993, la cual ha servido como un módulo experimental y de capacitación en el cultivo de esta palma. La cobertura de cultivo alcanzada las 12 hectáreas, en algunas de las cuales se manejan de forma integral especies frutales, nativas y algunas introducidas como; mango, zapote, mamey, chicozapote, guaya, cítricos, entre otros.

Reforestación dirigida y reproducción de la planta para flor-cortada en la comunidad de Tekantó, Yuc.;

Este proyecto se realiza con un grupo de jubilados henequeneros quienes se encuentran consolidados como una Sociedad de Solidaridad Social, se inicia con el apoyo brindado por Sostenibilidad Maya (Universidad de California, Riverside) para el rescate y promoción del sistema de manejo de Xunan kab (*Melipona beechell* Beneth), como una alternativa productiva en los traspatios mayas-yucatecos y como un rescate cultural aunado a la posibilidad de tener una fuente de empleo de tiempo parcial.

Se pretende establecer criaderos de Xunan kab y conformar un módulo de producción de traspatio y como parte complementaria se realizará el establecimiento de viveros con 10 especies nativas multipropósito y plantas para flor-cortada. Todo esto con la participación directa de 12 mujeres a las cuales se les capacitará, además se diseñarán diferentes presentaciones del producto y se realizará la búsqueda de vías de comercialización.

Manejo de un sistema integral selva-pradera en la producción bovina y forestal de Yucatán,

El manejo inadecuado del sistema roza-tumba-quema, el cultivo del henequén y el crecimiento de la ganadería extensiva, han sido la causa de la disminución de las áreas que comprenden la selva en el estado de Yucatán. El objetivo de este proyecto es desarrollar un modelo de manejo adecuado de la asociación selva-pradera-plantación forrajera; a través del establecimiento de plantaciones forestales y de especies forrajeras, arbóreas y arbustivas, así como el enriquecimiento de la selva con especies forestales y finalmente el diseño del manejo para el pastoreo en la asociación selva-pradera.

Desarrollo del turismo ecológico y cultural en el ejido Tulum en Quintana Roo.

La comunidad originaria de Tulum representa a la población maya tradicional que más fuerte y directamente ha sido impactada por el desarrollo turístico de la zona, en los aspectos social, cultural, ecológico y económico; la idea principal de este proyecto es el desarrollo de un modelo turístico alternativo y de aplicación regional definido por: la participación comunitaria, el beneficio directo a la comunidad y el aprovechamiento adecuado del ambiente, así como la preservación de la cultura maya.

Todas estas acciones nos permiten conocer la situación de los recursos naturales que son objeto de manejo y explotación por los grupos indígenas de México, así como valorar la importancia que para ellos representa un continuo de los recursos a través del tiempo, dado que forma parte de su cultura y entorno.

Sin embargo aún se pueden considerar como un fenómeno aislado, dado que el reconocimiento de su importancia es reciente, para convertirlo en un fenómeno generalizado, es necesario impulsar la toma de conciencia de la sociedad en general para su fortalecimiento, a través de la capacitación y el apoyo decidido hacia la formación de organizaciones sociales que serían base para iniciar hacia un desarrollo comunitario sustentable.

AREAS NATURALES PROTEGIDAS/PROYECTOS PRODUCTIVOS

AREA NATURAL	ESTADO Y MUNICIPIO	EXT. HA.	ETNIAS	ORGANIZACION SOCIAL	CATEGORIA	E. DE MANEJO	BIODIVERSIDAD	P. DE PRO.	
Reserva de la biosfera El Vizcaino	BCS-Derecho del Vizcaino Guercero Negro, Laguna Ojo de Liebre, Vertiente de California, Isla Delgadito Isla Pelicano, Islotes Delgadito, Isla Nalcob, Isla San Ignacio, Isla San Ruique, Isla la Asunción e Isla Navidad. entre otras zonas localizadas del Mu- nicipio de Mulego	2,546,790.25			Reserva de la biosfera	En operación	Matorral xerófilo-microfilo, matorral xerófilo-bosque de coníferas Fauna, felinos, ballenas, turtuga (Turtora taenclatus), aves antilocarpa (Antilocarpa sp.)	30/11/88	
Reserva de la biosfera Calakmul	CAMP-Champotón y Ho- pelchén	723,185.00	-12 - 50	Maya	Consejo de representantes	Reserva de la biosfera	En operación	Selva alta, mediana y baja subperennifolia, vegetaci- ón liudófila Fauna, felinos, monos, tapir, temate, oso hor- migero, aves.	21/05/89
Reserva de la biosfera Manantlán	Zapotitlán de Badillo, Au- tlán, Huacacueco, Cuau- tlan, Casimiro Castillo Tolman, (Isl.) Nimatitlán, (Col.)	139,577.00	-12 - 50	Nahua	SSS "Ayutitlán Miguel Fernández Velasquez"	Reserva de la biosfera	En proceso	Bosque de encino, mesó- filo de montaña, selva me- diana subcaducifolia, ve- getación de sabana	23/01/87
Reserva de la biosfera Sian Ka'an	QRQO-Felipe Carrillo Puer- to, Cozumel	528,147.00	-66 - 80	Maya		Reserva de la biosfera	En operación	Selva mediana y baja subperennifolia, selva ba- ja caducifolia, manglar, tin- tales, marismas, picones, vegetación de dunas cus- teras. Fauna, felinos, mu- nos, tapir, tepezcutile, aves, manati, tortugas, cocodrilo	20/01/86
Reserva especial de la biosfera Mariposa Monarca	MOCH-Ocampo, Angangu- Zitacuaro, Contepec. EDOMEX-Donato Guerra, Villa de Allende y Temez- calzingo.	16,110.00	-14 - 50	Nahua y Puhépechas		Reserva especial de la biosfera	En operación (plan- de emergencia)	Bosque de oyamel de latifoliadas pastizales, ma- torral de juniperus. Fauna mamíferos, aves, reptiles, anfibios y principalmente santuario de la mariposa Monarca	9/04/80
Reserva especial de la biosfera Isla Tiburón	SON-Hermosillo	120,800.00		Seiza Konka' ak	Gobierno tradicional Konka'ak	Reserva especial de la biosfera	En proceso	Vegetación xerófila y selva baja. Fauna, aves, reptiles, mamíferos y aves migrato- rias	13/03/83
Reserva especial de la biosfera sierra de Santa Nolha	VER- Soctapan, Mecaya- pan y Pajapan	20,000.00		Nahua- Popolucas		Reserva especial de la biosfera		Selva alta perennifolia vegetación de dunas cus- teras, selva mediana sub- perennifolia, vegetación rupícola. Fauna, mamíferos, felinos, aves y otras espe- cies.	28/04/80

ÁREAS NATURALES PROTEGIDAS/PROYECTOS PRODUCTIVOS

ÁREA NATURAL	ESTADO Y MUNICIPIO	SAF. (Ha)	ETN(AS)	ORGANIZACIÓN SOCIAL	CATEGORÍA	MANEJO	BIODIVERSIDAD	F. DE DEC.
Reserva de la biosfera El Pinacate	SON	714,336.00	Seriis O'jham	Gobierno tradicional O'jham	Reserva de la biosfera	En proceso	Matorral xerófilo, vegetación costera y de humedales, chaparral, mezquites, tinctoriales arborecentes, (espp. endémicas Fauna mamíferos, felinos, aves, reptiles, anfibios y el pez perito del desierto.	10/06/93
Reserva de la biosfera Alto Golfo de California y Delta del río Colorado	SON, BCS	934,756.00	Paipai		Reserva de la biosfera	En operación	Matorral marino, de duras costeras, desiertos áridos arenosos, vegetación remanente de antiguos humedales del río Colorado. Fauna: Aves, reptiles, anfibios y felinos	10/06/93
Reserva de la biosfera Sierra del Abasco, Michoacán	EL PUEBLO VALLES	21,064.00	Huasteco	Unión de ejidos	Reserva de la biosfera	No tiene	Sierra mesotropa perennifolia	1994
Área de protección de bosques y faunas silvestres y acuáticas YUMBALAM	ORIS	151,952.00	Mayas	YUMBALAM Unión de ejidos	Área protegida	En proceso	Sierra mesotropa subcaducifolia	

88/12/04

NEW ZEALAND

The protection of traditional Maori intellectual and cultural property and indigenous material, which includes forest-related traditional knowledge, is a matter of the utmost concern to Maori. Expropriation or inappropriate use of this knowledge is seen by Maori as threatening its integrity and as a consequence Maori custom.

Traditional Maori knowledge is, however, also seen by Maori as a productive asset able to be used to achieve social and economic development for Maori. The fact that indigenous knowledge and biodiversity are seen globally as having commercial value reinforces this view.

There are initiatives underway to address concerns that Maori have in relation to their cultural and intellectual property rights. These initiatives are in development phase at present but it is hoped that mechanisms developed will not only protect traditional knowledge but also realise scope for enhancement and innovation.

SAUDI ARABIA

Royal Embassy of
Saudi Arabia
Nairobi

المملكة العربية السعودية



سفارة المملكة العربية السعودية
نairobi

TO FAX : 000-1-514-288-65-88

FROM FAX : 000-254-2-760939

No : SAE-K/71/4/96

17 April 1996

Mr. Calcestous Juma
Executive Secretary
Secretariat of the Convention on Biological Diversity
World Trade Centre
413 St. Jacques Street,
Office 630
MONTREAL,
Quebec
CANADA H3V 1N0

Dear Sir

With reference to your request for information on Forests, Indigenous People and Local Communities for preparation of draft document to be submitted in April 1996 for the consideration of the Intergovernmental Panel on forests, we would like to inform that the available information about the bushes in Saudi Arabia will not be of a big use for the document as this type of situation does not prevail in the Kingdom of Saudi Arabia.

Yours faithfully

ROYAL EMBASSY OF SAUDI ARABIA



SOUTH AFRICA

Mr Juma,

Re: Request for written contributions and information on:

- a. The Conservation and sustainable use of Marine and coastal biological diversity
- b. Intellectual property rights
- c. Transfer and development of technology under the CBD
- d. Information on Forests and biological diversity.

Re: Background material

- a. Knowledge, innovations and practices of indigenous and local communities
- b. Incentive measures for promoting conservation and sustainable use of biological diversity
- c. Identification, monitoring and assessment of biological diversity

Re: Guidelines of the review of the effectiveness of the financial mechanism of the CBD.

Unfortunately South Africa is not yet in a position to make a meaningful contribution with regard to the above mentioned requests.

South Africa is currently in the process of developing a strategy for the implementation of the Convention on Biological Diversity (CBD). As soon as this process is under way and the appropriate and responsible organisations have been identified, we would submit the information you requested (Target date, 31 August 1996).

Yours sincerely
Kallie Naude
Assistant Director
Department of Environmental Affairs and Tourism

SUDAN

Forests and Biological Diversity Contribution and Information on Biodiversity conservation and Management in the Sudan

1. Introduction:

1.1. Environmental and Developmental Issues in the Sudan:

Sudan the largest country in Africa, with a geographical area of 250.6 million hectares, faces serious environmental and economic problems which are interrelated. The most populated part of the country is located in the Sahelian zone, with low and erratic precipitation, and hence low biomass productivity. Annual deforestation, estimated as 282000 hectares (FAO, 1993) is one of the highest in Africa, second only to Zaire. Most of the deforestation is attributable to the expansion of authorized farming, both organized and unorganized, and the removal for fuelwood and charcoal. The clay plains which support extensive savannah woodlands became the main food producing area and in the quest of self-sufficiency, extensive areas have been cleared.

The above situation has had a deleterious effect on the unique flora and fauna in the area. Most of the savannah woodlands in the Central and Eastern States have been cleared and even reserves gazetted after protracted settlement procedures been altered through grazing, unsustainable removal of forest products and mechanized farming. Traditional nomadic routes have been blocked and this has increased the grazing pressure on what little remains of the natural vegetation. Although the savannah woodland vegetation has remarkable recuperative capacity, sustained pressure has led to irreversible damage.

Traditionally economic development and natural resource conservation were regarded as mutually incompatible and in the event of conflicts, the short term economic gains get precedence over long term sustainable management. The narrow protection oriented approach adopted by conservation agencies also contributed to the conflict between resource conservation and economic development. Although policies and programmes on conservation of natural resources have been formulated in the Sudan in the past, their implementation has been slack largely due to a variety of factors. However, with the increasing awareness of the inseparability between environmental conservation and sustainable economic development, there is an increasing emphasis on new strategies and approaches to natural resource conservation.

2. A survey of extinct and endangered tree species:

A study was compiled at the request of the Director General National Forests Corporation, to survey tree species threatened by the adverse climatic conditions including both indigenous and exotic tree species of forestry interest as well as those of cultural & scientific value which deserve more consideration. It is also to include tree species for which recent utilization has been discovered (economically, socially or culturally) and recommendations regarding their regeneration in adequate sites and necessary techniques to ensure their propagation.

As early as 1942 a warning was made that something must be done to protect tree species and a Soil Conservation Committee put forward many recommendations some of which saw the light in the 1960's but the majority still wait in the dark.

Since then the steady increase in population both, human and animal, the increasing urbanization and the rise in the standard of living constituted an added burden which trees had to face.

Meanwhile desertification has been continuously at work and gradually intensifying until the catastrophic drought of 1984 hit a great part of the world. The Sudan was one of the more severely affected.

It is no exaggeration to say that most members of the plant kingdom are endangered. The more useful members suffer more than the others, where their condition has even inspired more uses to be made of the less useful due to the general scarcity of plant resources.

In the study the emphasis was naturally on tree species. Since the southern part of the country has been unstable for a long time information is deficient from the mid sixties to the present. The manner in which the survey was handled was as follows.

2.1. Indigenous species:

The list of endangered species includes the following categories of tree species:

1. Species threatened with extinction outright. Their existence is confined to limited locations some of which are not known and may require intensive as well as extensive field surveying. Such species include:

Dracaena ombet kotchy & Feyr. Juniperus procera
Hochst. ex Eng. Rhizophora micronata Lam.

2. Species which show marked retreat in their distribution and regeneration due both to the climatic conditions and also due to the intensity of their removal for wood, fodder, clearance for cultivation or utilization of one part or other of the plant. In most cases the extent of regeneration of such plants does not cope with the intensity of their removal. Under this category come the majority of species listed. Examples of these include *Faidherbia albida* (Del.) Chev.
(*Acacia albida*)
Acacia senegal (L.) Willd. var. *senegal*
Brenan
Acacia tortillis (Forsk.) Hayne subsp.
tortillis Brenan
3. Species of cultural & scientific importance which require more attention to their regeneration and representation in different parts of the country. These include:
Adansonia digitata L.
Delonix elata (L.) Gamble
Kigelia africana (Lam.) Benth.
Pterocarpus lucens Guill. & Perr.
Steriospermum kunihianum Cham.
4. Species of potential intensive utilization by using techniques not previously employed. Such include:
Acacia seyal Del. subsp. *seyal* Brenan
Balanites aegyptiaca Del.
Oxytenanthera abyssinica (A. Rich) Munro.
5. Species requiring more exploration of their properties to ensure maximum utilization such include:
Acacia senegal Del. subsp. *senegal* Brenan
Adansonia digitata L.
Boswellia papyrifera (Del.) Hochst.

2.2. Exotic Species:

The list of exotic species includes mainly species which have reached tree size and produced fruits and viable seeds. Of these we considered as endangered those which have been neglected and no longer propagated at a satisfactory scale, due either to:

- a. The fact that they had originally been introduced to fulfill a particular objective which they did not or a more satisfactory alternative was resorted to. The important fact is that they had

not been considered for other jobs, thus requiring more investigation of their properties.

- b. The fact that some of these species, although they had fulfilled their original objective, showed certain adverse properties. The important fact is that nothing was done to ameliorate such effects or to follow up their introduction with more suitable strains of the same species.
- c. Some successful exotics had been neglected or not sufficiently propagated for no apparent reason. At any rate they qualify for more regeneration.
- d. Certain species had been introduced under false identity discovered after decades but no one seems keen to correct the mistake and follow up the correct introduction.

2.3. Indigenous species endangered

2.3.1 Category 1 species threatened with outright extinction

1. *Briguira gymnorrhiza* (L.) Lam.
2. *Dracaena ombet kotchyi* & Feyr.
3. *Gynocarpus jaequinii* Laws.
4. *Juniperus procera* Hochst. ex Eng.
5. *Maerua crassifolia* Forsk.
6. *Rhizophora mucronata* Lam.
7. *Tamarix mannifera* Ehremb.

2.3.2. Category 2 ; Species with marked retreat.

1. (*Acacia albida* Del) *Faidherbia albida* (Del.) Chev.
2. *Acacia asak* (Forsk.) Willd.
3. *Acacia ehrenbergiana* Hayne.
4. *Acacia etbaica* Schweinf. subsp. *etbaica* Brenan
5. *acacia laeftar.br. exb enth*
6. *acacia sieheriana* dc.
7. *Acacia tortillis* (Forsk.) Hayne subsp. *raddiana* (Savi) Brenan.
8. *Acacia tortillis* (Forsk.) Hayne subsp. *tortillis* Brenan
9. *Avicennia marina* Vierh.
10. *Banalites aegyptiaca* Del.
11. *Bauhinia rufescens* Lam.
12. *Borassus aethiopum* Mrt.
13. *Capparis decidua* (Fork.) Edgew.
14. *Cassia italica* (Mill.) F.W. And.
15. *Cassia senna* L.
16. *Combretum africana* (A.Rich.) Eng.
17. *Commiphora africana* (A.Rich.)Eng.

18. *Cordia abyssinica* R.Br.
19. *Cordia mellenii* Baker.
20. *Cordia ovalis* R.Br.ex DC.
21. *Cordia sinensis* Lam.
22. *Crateva adansonii* DC.
23. *Dalbergia melanoxylon* Guill. & Perr.
24. *Delonix elata* (L.) Gamble
25. *Diospyros mespiliformis* Hochst ex DC.
26. *Dobera glabra* (Forsk.) A.Dc
27. *Dodonea viscosa* Jacq.
28. *Eculea schimperi* (A.DC.) Dandy
29. *Ficus sycamorus* L.
30. *Hyphaene thebaica* (L.) Mart.
31. *Isoberlinia doka* Craib & Stapf.
32. *Khaya senegalensis* (Dese.) A.Juss.
33. *Khaya grandifoliolia* C.DC.
34. *Kigelia africana* (Lam.) Benth.
35. *Lophira alata* Banks. ex Gaerth.f.
36. *Mitragyna inermis* (Willd.) Kuntz.
37. *Oxytenanthera abyssinica* (A.Rich) Munro.
38. *Parkinsonia aculeata* L.
39. *Prosopis africana* (Guill. & Perr.) Taub.
40. *Pseudoceadrela kotschy* (Schweinf.) Harms.
41. *Pterocarpus lucens* Guill & Perr.
42. *Salvadora persica* L.
43. *Sclerocarya birrea* (A.Rich) Hochst.
44. *Spathodia nilotica* Seem.
45. *Steganotaenia araliacea* Hochst.
46. *Sterculia africana* (Lour.) Fiori
47. *Steriospermum kunthianum* Cham.
48. *Tamarix aphylla* (L.) karst.
49. *Tamarix nilotica* (Ehrenb.) Bunge
50. *Terminalia brownii* Fresen.
51. *Terminalia glaucescens* Benth.
52. *Terminalia laxiflora* Eng. & Diels
53. *Terminalia spinosa* Eng.

2.3.3. Category 3. Species with cultural and scientific
Importance:

1. (*Acacia albida* Del) *Faidherbia albida* (Del.) Chev.
2. *Adansonia digitata* L.
3. *Borassus aethiopum* Mrt.
4. *Delonix elata* (L.) Camble
5. *Hyphaene thebaica* (L.) Mart.
6. *Pterocarpus lucens* Guill. & Perr.
7. *Salvadora persica* L.

8. *Spathodea nilotica* Seem.
9. *Steriospermum kunthianum* Cham.
10. *Tamarindus indica* L

2.3.4. Category 4 Species of Potential intensive Utilization:

1. *Acacia nilotica* (L.) Willd. ex Del. Subsp. *nilotica* Brenan
2. *Acacia nilotica* (L.) Willd ex Del. Subsp. *tomentosa* (Benth.)
3. *Acacia nilotica* (L.) Willd. ex Del. subsp. *astringens* Roberty
4. *Acacia seyal* Del. subsp. *seyal* Bernan
5. *Acacia seyal* Del. subsp. *fistula* Brenan
6. *Balanites aegyptiaca* Del.

2.3..Category 5. : Species requiring more exploration:

1. (*Acacia albida* Del.) *Faidherbia albida* (Del.) Cher.
2. *Acacia nilotica* (L.) Willd ex Del. subsp. *nilotica* Brenan.
3. *Acacia nilotica* (L.) Willd. ex Del. subsp. *tomentosa* (Benth.) Brenan.
4. *Acacia mellifera* (Vahl.) Benth.
5. *Acacia senegal* Del. subsp. *senegal* Brenan.
6. *Acacia seyal* Del. subsp. *fistula* Brenan.
7. *Acacia seyal* Del subsp. *seyal* Brenan.
8. *Dobera glabra* (Forsk.) A.DC.
9. *Salvadora persica* L.
10. *Sclerocarya birrea* (A. Rich.) Hochst.

3. Biodiversity and the livelihood and prosperity of the people of the Sudan.

3.1. Uses of trees & shrubs:

The diversity of trees & shrubs of the Sudan is reflected in their past and present uses. The following uses are made of trees and shrubs:-

1. Food by direct consumption of certain parts or extracts thereof. Examples are:

-*Boressus aethiopum* Mrt. The boiled germinated seedling is eaten "Haluk", the fruit is also eaten and a palm toddy is extracted from the sap of the stem.

- Tamarindus indica* L. the fruit is used to make a popular drink and there exists a sizeable trade in the fruits.
- Butyrospermum paradoxum* an edible oil is extracted from the seed.
- Callotropis procera* (Ait.) Ait.f. " Ushar" was used for producing sugar from the flowers, a practice no longer used.
- Adansonia digitata* L. "Tebeldi" the fresh leaves are used for salads and of course the fruit is very popular for eating.

3.2. **Forage:** Trees and shrubs constitute the most important animal food and animals rely for over 70% of their fodder on trees particularly in the Northern half of the Sudan. Popular browse trees and shrubs are *Acacia tortillis*, *A.seyal* , *A.senegal* and many others.

3.3. **Construction:**

Wood from the stem and branches is sawn or used in the round for building, joinery and furniture.

Cordia abyssinica, *Khaya senegalensis* and *Tamrindus indica* are among the popular woods.

3.4. **Energy:**

This item ranks foremost in the uses of trees and shrubs in the Sudan. Wood will continue to be the source of energy in the Sudan for decades to come. At Present the Sudan relies for over 80% of its energy requirement on wood, as indicated in table 2 below.

Energy Source in Sudan (1993).

Energy source	Percent
Wood fuel (Fire wood & Charcoal)	72 %
Agricultural & animal residue	8 %
fuel oil	17 %
hydroelectricity	1 %
Total	100 %

Source : National Energy Administration, Ministry of Energy & Mining

3.5. **Fibers** : From the leaves and bark of many trees the fiber used in building, and various other purposes is obtained. Trees used are, *Hyphaene thebaica* "dom Palm", *Phoenix dactylifera*, Date palm", *Adansonia digitata* "tebeldi".

Some *Ficus* species were used in the Zande area to make textiles (Bagadi).

3.6. **Gums & Resin** : Gum Arabic is still a major export crop in the Sudan obtained from *Acacia senegal* "Hashab" and 80% of the world demand was once met from the Sudan. Gums from other trees eg. *Boswellia papyrifera* , (Tarak tarak), *Commiphora africana* (Gafal) and *Sterculia setigera* (Tartar) are finding their way to the export Market.

3.7. **Tanning Material** : From the pods of *Acacia nilotica* is obtained the major requirement of tanning material in the Sudan.

3.8. **Rubber** : This used to be obtained from *Landolfia* climber and faded out for the competition of other sources of imported rubber. A tree *Manihot glaziovii* was successfully introduced in the Sudan but again the competition of other sources killed the project.

3.9. **Aromatic & Medicinal** : There are over 13 species of tree and shrubs of aromatic and medicinal propects of which the following are only a few:

Acacia nilotica "sunt" "Garad"
Balanites aegyptiaca "Laloub"
Commiphora africana "gafal"

3.10. **Other Uses:**

- *Salvadora persica* "Arak" for toothbrushing.
- *Terminalia brownii*"shaf" wood smoke for cosmetic skin treatment.
- *Nauclea lalifolia* root from which is extracted a yellow pigment.
- *Zizyphus spina christi* "Sider" the dried leaves are used as a soap substitute.

However the greatest use of trees and shrubs lies in their protective function for villages, towns, agricultural land and against adverse wind effects. Shade trees are invaluable assets in many sites particularly *Azadirachta indica* "neem" and *Ficus benghalensis* "Labakh"

The future holds great promise for the use of trees and shrubs for the production of many medical, industrial, food and fodder products, particularly with the progress of knowledge of their properties and the advance in technology.

We should not forget that the ancient civilization of Southern Arabia and the recent importance of the Horn of Africa and India was dominated by Incense gum, spices and other plant products.

4. Biodiversity in the Sudan, an Institutional Concern

Several government institutions are concerned with the conservation and management of Biodiversity. These institutions are:

The Forests National Corporation

The Agricultural Research Corporation Wildlife Conservation administrations

The Natural History Museum

Environmental and Natural Resources Research Instit.

Medical and Aromatic plants Research Institute

Omdurman University - Environmental Studies programme

Co-operation and Co-ordinations between those institutes is secured under the auspices of the Supreme Council for the Environment and Natural Resources with the National Council for Research.

4.1. Duties and Functions of the Biodiversity Unit in the Forests National Corporation (FNC)

The biodiversity unit in FNC is concerned with woody plants as represented by indigenous shrubs, bushes and trees.

The unit undertakes the following duties and functions.

4.1.1 Preparation and upkeep of comprehensive inventory of woody taxa, their natural distribution in the respective environmental conditions, their inter-relationships with man and other organizations.

4.1.2. Monitoring and evaluation of any changes in species composition, extinct and endangered species.

4.1.3. Upkeep and maintenance of herbaria and arboreta in the Various ecological zones in which the taxa are represented.

4.1.4. Establishment of seed stores and germ plasm banks for extinct and endangered taxa.

4.1.5. Cooperation and coordination with the various biodiversity units, National and International Organizations and non governmental organizations concerned.

4.1.6. Establishment and upkeep of biodiversity information bank.

4.1.7. Dissemination of biodiversity awareness among the populations specially to the decision making hierarchy.

SWEDEN



MINISTRY OF THE ENVIRONMENT

22.1.1996

M95/5122/4

Department for biological
diversity and nature conservation
Johan Bodegård
Telephone: +46-8-405 2065
Telefax: +46-8-219 170
E-mail: johan.bodegard@
menr.ministry.se

Dr Calestous Juma
Executive Secretary
Secretariat CBD
Fax +41-22-797-2512
1 page incl. this

Dear Calestous,

Concerning our discussion about contribution on the forestry issue from a tropical expert, I would like to suggest that you take it upon you to identify and approach an appropriate person from a developing country to deal with tropical forests, in view of the sensitivities of officially designating a lead country. I've talked to our expert on international forest issues, Dr Nils-Erik Nilsson, and he suggested a contact with CIFOR in Indonesia to identify an appropriate person, and he also said that Malaysia probably was a good choice for country.

Yours sincerely

A handwritten signature in black ink, appearing to be 'Johan Bodegård'.

Johan

c.c.
Astrid Bergquist
Ulf Svensson

SWITZERLAND

OFFICE FEDERAL DE L'ENVIRONNEMENT, DES FORÊTS ET DU PAYSAGE
Affaires internationales * Section développement durable

TELEFAX

A l'attention de: Mr Calestous Juma

Adresse: Secretariat of the CBD
World Trade Center
413 St. Jacques Street, Office 630
Montréal, Québec
Canada H2Y 1N9

Fax: 1 514 288 65 88

De la part de: L. Ortega
BUWAL

Adresse: 3003 Berne
Téléphone: 31 322 92 97
Fax: 31 351 31 87

Date: 27 February 1996

Nombre de pages: 1

REFERENCE: 8.07.27.5.1/ORT

Dear Mr Juma,

In your letter of January 10, you have requested the Parties to provide comments and additional information to the relationship between forests and biological diversity.

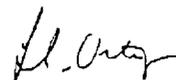
From our part, it will be not possible to provide any interesting contribution for March 15. In fact, we are about to organise a national consultation of experts on Swiss forest ecosystems as well as on tropical forest ecosystems, with a view of producing a substantial contribution for the document which will be prepared by your secretariat.

I need to know until when our contribution may be sent to the secretariat to be useful. Indeed, it will be tough to get this contribution before next May.

With my best wishes for your stay in Canada, I remain

Yours sincerely

Liliane Ortega



UNITED KINGDOM



Department of the Environment

Room A3-3	Direct Line	0171 276 8380
Romney House	Divisional Enquiries	0171 276
43 Marsham Street	Fax Number	0171 276 6883
London SW1P 3PY	GTN Code	276

Calestous Juma Esq
Executive Secretary
Biodiversity Convention Secretariat
World Trade Centre
413 St Jacques Street
Office 630
Montreal, Quebec
CANADA H2Y 1N9

Dear Calestous,

FORESTS AND BIODIVERSITY

Thank you for your letter of 10 January asking for views and additional information regarding the background document on the links between forests and biodiversity.

The UK regards this document as playing a crucial part in the international coverage of the importance of forests in conserving biodiversity. It will form the basis of the COP's consideration of its communication to the CSD Intergovernmental Panel on Forests. I understand that the Panel will be relying on the COP to provide the necessary input on biodiversity and forests, rather than commissioning any work of its own. It is therefore essential that the document and the resulting COP statement provide a comprehensive overview of the links between forests and biodiversity.

As you know, we feel that this work should include some factual and scientific analysis as to why forests are important for biodiversity and how biodiversity is being affected by changes in forests. This could include an analysis of what type and/or extent of change there can be without adverse effects on biodiversity.

The UK's Biodiversity Steering Group, comprising representatives of all major sectors, including industry, NGOs and research institutions, has recently considered forest biodiversity. Their report published in September 1995 gave advice to the UK Government and the attached extracts may be useful information for your study. The UK Government will respond to the report's conclusions shortly.

You will see from the extracts at Annex A (5.20 to 5.22) that there are four main issues in protecting the biodiversity of the UK's woodlands and forests:

- avoiding further reductions in the area of ancient and semi-natural



woodland;

- loss of biodiversity through replacement of habitats of high wildlife value by plantations with less value;
- loss of biodiversity through inappropriate woodland management or lack of management;
- failure of woodland regeneration due to over-grazing by sheep, deer and cattle, particularly in upland areas.

The innovative approach put forward in the UK report is to base the response on a series of species and habitat action plans. The conservation measures identified in these plans is summarised at Annex B (paragraph 5.43). These include providing better site protection, management and advice, undertaking reintroduction, determining conservation status, improving water quality or quantity, commissioning research and providing more sensitive development planning and control. The report also found three issues and actions that applied particularly to woodland management, calling for further action to encourage coppice management and to control the spread of non-native species and further woodland management guidelines. It also flagged up the problem of the poor market in domestic timber products (paragraph 5.48 at Annex C).

You may also be interested in the specific habitat action plans and statements at Annex D. The action plans cover Upland Oakwood and Native Pine Woodlands and the statements cover Broadleaved and Yew Woodland, Planted Coniferous Woodland, Native Pine Woodlands and Lowland Wood Pasture.

Yours sincerely,

P. F. Unwin

P F UNWIN
Head of Environment Protection International



Lundy Cabbage

5.20 All woodlands and forests have some value for wildlife, but the remains of "natural" forest cover (the ancient semi-natural woodland - defined as woodland that is known to have existed continuously in England since before 1600 and before 1750 in Scotland) are the most valuable and diverse, and are of special importance because they cannot be replaced. New planting since the First World War has seen the woodland area of the UK expand to about 10% of the land surface. Much of the new woodland area comprises non-native, conifers but the planting of broadleaved species has expanded significantly in the last few years.

5.21 Recently planted woodlands are less diverse, immature ecosystems, although they can add to the biodiversity of a previously unwooded environment, especially land of low wildlife value. New woodlands established close to existing ancient, semi-natural woodland, and woodlands that follow

closely the natural processes of succession, and those which develop a spatial and structural pattern which mimics nature, have the greatest potential benefit for wildlife conservation. Single trees and hedgerow trees can also make a contribution to biodiversity.

5.22 There are four main issues:-

- avoiding any further reduction in the area of ancient and semi-natural woodland, which only amounts to 1.4% of the total woodland area and is greatly fragmented;
- the loss of biodiversity through the replacement of habitats of high wildlife value by plantations with less value;
- loss of biodiversity through inappropriate woodland management, or lack of management. There are significant areas of woodland whose value for timber production as well as for wildlife is deteriorating; and
- failure of woodland regeneration due to over-grazing by sheep, deer and cattle. This is of particular concern in some upland areas, where deer and livestock grazing is causing deterioration of woodland, and a reduction in the diversity of woodland flora, but is also a growing problem in the lowlands where deer populations are increasing.



Figure 2

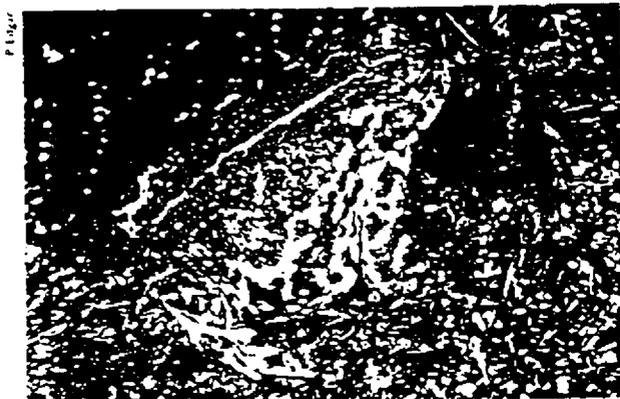


Figure 3

Natterjack Toad



Scots Pine Forest

5.43 The conservation measures identified are:-

- **Provide better advice for land managers or others with an interest in the species.**

Land managers are sometimes unaware of the presence of rare or declining species on their land, or how the land may be managed to benefit the species. Often all that is required is the provision of advice rather than financial support. Provision of advice may also be usefully extended to those with other interests in the species concerned, or the land containing them, for example local conservation groups or land users.

Undertake ecological research, including distribution and reasons for decline.

We do not yet know why many species are declining, so several plans call for ecological research on habitat requirements, population dynamics, genetic viability and other factors which may affect the survival of the species. The need for this sort of research is often linked to the following measure.

Determine conservation or taxonomic status.

Where the plans show it is possible that some rare and little known species may be more common than recent records actually suggest, there is a need for systematic surveys to attempt to determine range and population size or the precise taxonomic status of a species.

Provide improved site protection.

Many action plans call for existing habitat sites, additional known sites, or any sites discovered in the future to be given some protection. Site protection is not always the most effective measure required to combat a known threat, but is often an important contributory factor.

Undertake re-introduction.

Rare species would benefit from re-introduction to former sites, or translocation to new ones - once the habitat conditions are right - to ensure their long term survival.

Improve or maintain water quality or quantity.

Most of the freshwater species concerned require good quality water to breed successfully, but some are believed to be suffering from the effects of pollution. Fertiliser runoff leading to nutrient enrichment is a problem. The plans recommend that efforts are made to improve water quality through the achievement of appropriate water quality objectives. Allied to the requirement for good water quality is the need for it to be available in suitable quantities, and for the water table to be maintained. As a result, this conservation measure is often linked with the following.

Undertake wetland or pond restoration.

The loss of wetland, through drainage or water abstraction, is a limiting factor for a number of the plants and animals. Some species require restoration of their wetland habitat if their long term survival in the UK is to be guaranteed.

Improve grassland management.

Many lowland species suffer from too little grazing of their habitat by livestock. Examples of such species are the early gentian, the marsh fritillary and the silver-spotted skipper. Conversely, other species like the skylark, corncrake and brown hare would benefit from extensification of grassland use. This dichotomy highlights one of the difficulties in conserving biodiversity in the natural environment. Some threatened plants and animals would benefit from increased financial support for grassland management, or from changes to the CAP. For other species, advice or encouragement to land managers to permit a level of grazing suitable for the species may suffice.

Enforce existing legislation more rigorously.

A few species, although protected under the WCA 1981, are still threatened by specimen collection and require rigorous enforcement of the law to ensure their survival.

Increase public awareness.

Some species are declining partly because people are not aware either that they are endangered or that certain

activities are damaging to them. This applies to special interest groups too, for example, providing appropriate advice and guidance to rock climbers could help to conserve the Derbyshire feather moss and the wild cotoneaster by avoiding the rock faces where they grow.

Improve or encourage management schemes for woodland.

Woodland neglect or inappropriate management are major problems for a few species, in particular those which need either an open woodland floor, or temporary clearings as created through coppice management. Different management techniques are needed for which land managers may need financial assistance.

Review agro-chemical use on farmland; also, combat pesticide and fertiliser drift from adjacent land, and air pollution caused by vehicle emissions.

The causes of the rapid decline of several widespread farmland species such as the skylark, grey partridge, song thrush and pipistrelle bat are not fully understood. Research suggests that numbers may have been affected by the increased use of agro-chemicals. It would be desirable to assess the effect of these chemicals, and to find management procedures that would allow threatened species to recover without unduly lessening the productivity of the land. Airborne chemical pollution has also been identified as a threat to five species. Development of environmentally sensitive products and techniques is a scientific and technological challenge.

Provide more sensitive development planning and control.

Populations, or certain local populations of a small number of species are under either actual or potential threat from activities which could be controlled by local authorities through development planning or control processes. The dormouse is included in this category as road developments disrupt its wildlife corridors. Other species include the Norfolk flapwort (threatened by a road-widening scheme), Shetland pondweed (a housing development), and a fungus (*Tulostoma niveum*) which could be eliminated by road widening. Although no other species are specifically identified in the action plans as being under such immediate threat, many plans call for the interests of



Yellow Marsh Saxifrage

P. W. 4/87

threatened species to be taken into account in local development plans. It should be emphasised that local authorities have a key role to play in the protection of species in their areas. Planning Policy Guidance on Nature Conservation (PPG9) provides comprehensive advice to local authorities in England on how the Government's policies for nature conservation are to be reflected in land-use planning under domestic and international law. Local planning authorities must take PPG9 into account in preparing development plans, and it may be material to decisions on individual planning applications.



Heath Fritillary

Table 4: SPECIES ACTION PLANS: PRINCIPAL COMMON ISSUES

Type	Threats		Conservation measures needed	
	Main causes	Measure	Action (number of species expected to benefit)	
Habitat loss and fragmentation	Change of grassland to arable Built development Coniferisation of woods Intensification of farming Land drainage and water abstraction	Habitat protection, re-creation and connection Extensification of farming	Protected areas (64) Re-introduction of species (51) Improved or maintained water quality or quantity (32) Improved grassland management (23) Land management schemes for woodland (8) More sensitive development planning and control (5)	
Restricted distribution or falling population despite apparent availability of habitat	Largely unknown	Research and survey	Ecological research (75) Determine true status (52)	
Natural succession or competition from other native species	Lack of grazing	Improved management of existing sites	Better advice for land managers (78) Improved grassland management (23)	
Habitat quality decline	Fertiliser run-off Falling water quality Insecticides affecting birds and bats	Extensification of farming and further control of pollution in freshwater habitats	Improve water quality (32) Review of insecticide use on farmland (11)	
Direct human disturbance to species	Specimen collection Public access	Improved species protection	Enforce existing legislation more rigorously (13) Increase public awareness (12) Sensitive development planning and control (5)	

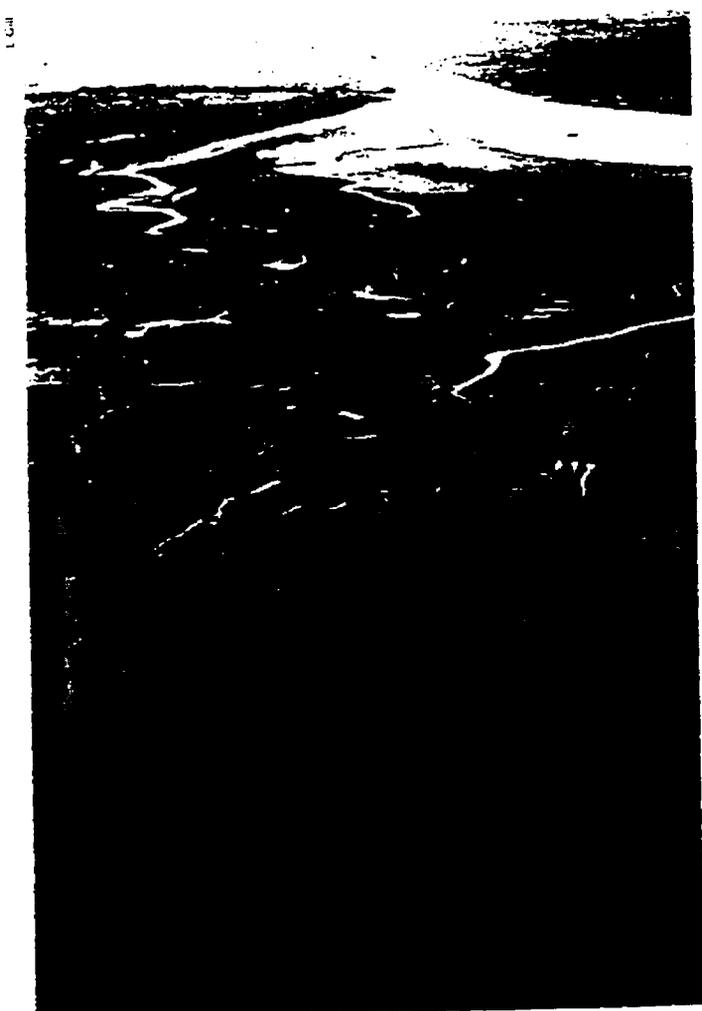
5.48 The following issues and actions apply to wooded habitats:-

- further action is called for to encourage coppice management and to control the spread of non-native species; further woodland management guidelines, aimed specifically at the conservation of biodiversity, would be helpful; and
- the poor market in domestic timber products is a problem because it means there is often little profit in managing

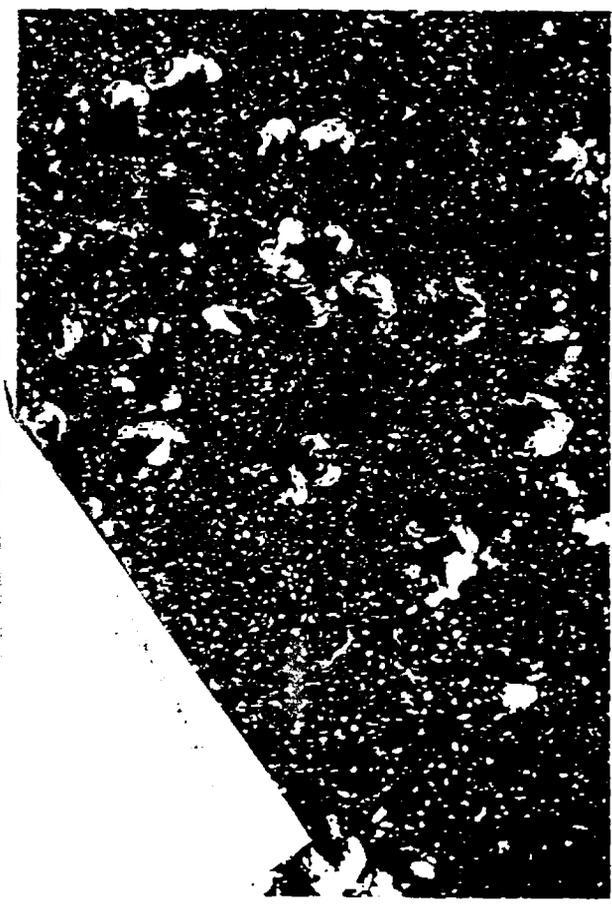
broadleaved woodlands (this also indirectly encourages the import of tropical hardwoods which may be grown in an unsustainable fashion).



pastures



Saltmarsh Solway Firth



1...

UPLAND OAKWOOD A COSTED HABITAT ACTION PLAN

1. CURRENT STATUS

Upland oakwoods are characterised by a predominance of oak (most commonly sessile, but locally pedunculate) and birch in the canopy, with varying amounts of holly, rowan and hazel as the main understorey species. The amount of birch in the woods tends to increase in north-west Scotland. The range of plants found in the ground layer varies according to the underlying soil type and degree of grazing from bluebell-bramble-fern communities through grass and bracken dominated ones to healthy moss-dominated areas. Most oakwoods also contain areas of more alkaline soils, often along streams or towards the base of slopes where much richer communities occur, with ash and elm in the canopy, more hazel in the understorey and ground plants such as dog's mercury *Mercurialis perennis*, false brome *Brachypodium sylvaticum*, Ramsons *Allium ursinum*, Enchanter's nightshade *Circaea lutetiana*, and tufted hair grass *Deschampsia cespitosa*. Elsewhere small alder stands may occur or peaty hollows covered by bog mosses *Sphagnum* spp. These elements are an important part of the upland oakwood system. The ferns, mosses and liverworts found in the most oceanic of these woods are particularly rich; many also hold very diverse lichen communities and the woods have a distinctive breeding bird assemblage, with redstarts *Phoenicurus phoenicurus*, wood warblers *Phylloscopus sibilatrix*, and pied flycatcher *Ficedula hypoleuca* being associated with them throughout much of their range. In Wales the woods are also the main breeding areas for red kites *Milvus milvus*. The invertebrate communities are not particularly well-studied compared to those in some other woodland types but support a range of notable species including for example the chequered skipper butterfly *Carterocephalus palaemon* in some Scottish sites.

There are no precise figures for the total extent of this woodland type, but it is believed to be between about 70,000 and 100,000 ha in the UK. It is found throughout the north and west of the UK with major concentrations in Argyll and Lochaber, Cumbria, Gwynedd, Devon and Cornwall. Related woodland does occur on the continent, particularly in the more oceanic areas but the British and Irish examples are recognised internationally as important because of their extent and distinctive plant and animal communities. For some of these species Britain and Ireland hold a substantial part of the world/European population.

2. CURRENT FACTORS AFFECTING THE HABITAT

Upland semi-natural woods have declined by about 30-40% in area over the last 59-60 years as a result of replanting, mainly with introduced conifers, clearance for quarries or other developments in some areas, and from conversion to rough grazings. Recent changes have greatly reduced the amount of inappropriate planting in the woods so the current factors affecting the habitat are:

- Over-grazing by sheep and deer throughout much of the range of the woods.
- Invasion by species such as rhododendron *Rhododendron* spp., which shades out the ground layers and eliminates much of the conservation interest.
- Development pressures such as new roads and quarrying
- Effects of air pollution, especially on lichen and bryophyte communities.

- In some cases, unsympathetic forest management, where felling rates, choice of broadleaf species planted, or methods of working do not yet reflect published guidelines

3. CURRENT ACTION

3.1 Legal status

National forestry policies include a presumption against the clearance of any broadleaved woodland for conversion to other land uses and seek to maintain the ecological interest of ancient semi-natural woodland. Felling licences will normally be required, if the woods are not managed under plans approved by the Forestry Authority. Management of semi-natural woodlands, including upland oakwoods, has to be in accordance with guidelines published by the Forestry Authority to receive felling licences or grant-aid.

Woods in some areas may receive special attention under structure, National Park or local plans, or through the application of Tree Preservation Orders.

In Britain habitat protection is provided by the Wildlife and Countryside Act 1981 and the resulting SSSI network. In Northern Ireland habitat protection is provided by ASSIs which are declared under the Nature Conservation and Amenity Lands Order (NI) 1985. About 20 - 30% of the resource is estimated to have been notified as SSSI/ASSIs. Western acidic oak woodland is also listed on Annex I of the EC Habitats Directive and the UK Government has recently set out its proposals for a number of areas which it considers merit designation as SACs.

3.2 Management, research and guidance

The statutory conservation agencies carry out survey and monitoring programmes which can be used to identify the extent and current condition of the upland oak wood resource. Similar work is also carried out in places by local authorities, NGOs and the Forestry Authority.

In 1994 the Forestry Authority, after consultation and collaboration with the conservation agencies, published a set of guides to the management of semi-natural woodlands, including one for upland woods. These build on and summarise advice previously produced by the agencies and NGOs. Grants for restocking, and various other forms of management are available from Forestry Authority and to a lesser extent from other government agencies.

A series of "woodland initiatives" (e.g. Sylvanus in south-west England, Coed Cymru in Wales, Cumbria Broadleaves and Highland Birchwoods) are promoting the management of these woods at the local level, with support from, and using the grants of, the Forestry Authority and conservation agencies. A recent concordat between the Forestry Authority and the National Parks of England and Wales is aimed at promoting the expansion of native woodland which will be predominantly of upland oakwood in the National Parks, while in Scotland the Millennium Forest proposal will also involve some new upland oakwood creation. Some ESAs include woodland prescriptions and others require the agreement holder to seek management advice.

Research undertaken primarily by universities, the Forestry Authority and the conservation agencies, is underway into ways of managing these woods for a variety of objectives, including investigation of the markets for the products of management.

There is also a wide range of experience and activity among the major land-owners of these types of woodland. Probably about 50-60% of upland oakwoods are owned and managed by private individuals but other major holders include the Forest Enterprise, the National Trust, other NGOs, and the conservation agencies. These contribute a wide range of experience to the management of these woodlands.

4. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

- Maintain the existing area (70,000 to 100,000 ha) of the upland oakwood system and improve its condition, by a mixture of management for timber (predominantly as low intensity high forest), as sheltered grazing, and minimum intervention.
- Avoiding other habitats of high nature conservation value, expand the area of upland oakwood by about 10% on to currently open ground, by some planting but particularly by natural regeneration by 2005.
- Identify and encourage the restoration of a similar area (about 10%) of former upland oak woodland that has been degraded by planting with conifers or invasion by rhododendron.

Upland oakwood has declined in area by clearance, particularly to agriculture, by about 7% since the 1930s and about another 38% has been replanted with non-native species. A target of 10% for expansion will go a long way towards reversing the fragmentation that has occurred through clearance since the 1930s. The initial 10% target is low enough that we can be sure that sufficient suitable stands can be found, and high enough that the total amount treated will significantly improve connectivity between isolated blocks of semi-natural woodland and increase the size of other patches.

5. PROPOSED ACTIONS WITH LEAD AGENCIES

5.1 Policy and legislation

- Ensure the "Guidelines for Sustainable Forestry" agreed at the 1993 Helsinki Conference, and in subsequent international fora, are being applied in upland oakwoods under existing forestry policies and revise policies as appropriate. (ACTION: DANI, FA)
- Evaluate the success and appropriateness of the Woodland Grant Scheme and other funding mechanisms to achieve the desired management (or minimum intervention) in these woods and seek adjustments to policy or funding as appropriate. Consider the need to establish a new woodland initiative for management of native/semi-natural woodland to reflect the higher conservation and amenity values of such sites and their generally lower timber potential. (ACTION: CCW, EN, FA, SNH, SOAEFD, WOAD)
- Evaluate implications of agricultural policies in the uplands for the management of these woods and seek changes as appropriate. (ACTION: CCW, DANI, DoE(NI), EN, FA, MAFF, SNH, SOAEFD, WOAD)

- Seek to strengthen planning legislation to include a presumption against development including road building within upland oakwoods. (ACTION: DoE)
- Encourage the adoption of policies in local and regional plans and the development of Indicative Forest Strategies promoting the conservation and expansion of upland oakwoods by local authorities, based on the best currently produced by relevant authorities by 2000. (ACTION: DoE, DoE(NI), LAs, SO, WO)
- Discourage re-stocking of conifer plantations adjacent to, or in extant upland oakwoods. (ACTION: CCW, DANI, DoE(NI), EN, FA, SNH)

5.2 Site safeguard and management

- Where significant gaps in the SSSI/ASSI coverage of upland oakwoods are identified the appropriate SSSI/ASSI procedure should be implemented by 2000. (ACTION: CCW, DoE(NI), EN, SNH)
- Examine the value of establishing new "woodland initiatives" such as Coed Cymru in upland oakwood areas not covered by existing schemes. (ACTION: CCW, DANI, DoE(NI), EN, FA, SNH)
- Promote "agreed management plans" for upland oakwoods that cover the various ways in which they may be treated (i.e. including minimum intervention where appropriate). (ACTION: CCW, DANI, DoE(NI), EN, FA, LAs, SNH)
- Promote the management and restoration of upland oakwoods in Forest Design Plans. (ACTION: FA, DANI, FE)
- Encourage groups of owners (particularly public sector and NGOs) to co-operate in the acquisition and management of woods so as to improve the opportunities to reduce oakwood fragmentation and isolation of the species they contain. (ACTION: CCW, DoE(NI), EN, FA, SNH)
- Devise an indicative plan which targets areas for planting/natural regeneration and which identifies where planting/natural regeneration should not be encouraged because of important existing habitats. (ACTION: CCW, EN, FA, SNH)

5.3 Advisory

- Provide advice on and promote the management of deer in areas where they are (or might become) major limitations on the regeneration and spread of upland oakwoods. (ACTION: ADAS, CCW, EN, FA, Red Deer Commission, SNH)
- Continue to promote training courses on the conservation and management of semi-natural woodland including the special features and conditions that apply to upland oakwoods. Develop informal training and networking opportunities at a local level. (ACTION: CC, CCW, EN, FA, NPA, SNH)
- Provide advice on the marketing and use of products from upland oakwoods. (ACTION: FA)

5.4 International

- Encourage the European Environment Agency and the European Centre for Nature Conservation to produce estimates of the extent and distribution of comparable and related woodland, and exchange experience on research and management. (ACTION: CCW, EN, JNCC, SNH)
- Consider expanding links with the European Forestry Institute and proposals to develop a network of near-natural (minimum intervention) forest research sites and include examples of upland oakwoods in such a network. (ACTION: CCW, EN, FA, SNH)
- Seek to develop the current EC concerted action on grazing into a research programme to improve grazing management in these woods. (ACTION: CCW, EN, FA, SNH)

5.5 Future research and monitoring

- Expand the range of sites where long-term monitoring of this woodland system takes place including a range of both managed and minimum intervention sites. (ACTION: CCW, EN, FA, SNH).
- Develop rapid simple monitoring systems for relating the condition of these woods to the current and recent past management. (ACTION: CCW, EN, FA, SNH).
- Research the best ways of restoring sites that have been replanted with non-native species or are heavily invaded by rhododendron. (ACTION: CCW, EN, FA, SNH)
- Research the opportunities, conservation benefits and other implications for developing one or two new large areas of near natural upland woodland stretching from the floodplain to the tree-line. (ACTION: CCW, EN, FA, SNH).

5.6 Communications and publicity

- No action proposed.

COSTINGS

The successful implementation of the action plan will have resource implications for both the private and public sectors. The data in Table 1 below provide a preliminary estimate of the likely resource costs to the public sector in the years 1997, 2000 and 2010, in addition to existing public expenditure commitments in 1995.

There are currently about 20,000ha of western oak woodland under favourable conservation management programmes. In order to meet the target of up to 100,000ha there will be further expenditure required and is estimated in the table below. A further 10,000ha of habitat are assumed to be restored during the action plan and public sector expenditure requirements are also shown below.

The data are based on targets whereby 100,000ha of western oak woodland will be appropriately maintained and improved through to 2010.

HABITAT TYPE: Upland Oak Woodland (£000 per annum)

Area to be maintained and enhanced (Ha)	1997	2000	2010
100,000	1,400	2,900	5,600
Area to be restored (Ha)			
10,000	2,000	4,000	6,000

NATIVE PINE WOODLANDS COSTED HABITAT ACTION PLAN

1. CURRENT STATUS

Native pine woodlands are relict indigenous forests dominated by self-sown Scots pine *Pinus sylvestris* which occur throughout the central and north-eastern Grampians and in the northern and western Highlands of Scotland. They are an important western representative of the European boreal forests in which structure and succession was probably determined naturally by storms and natural fires caused by lightning.

Native pinewoods occur on infertile, strongly leached, podsollic soils. They do not support a large diversity of plants and animals compared with some more fertile habitats. However, there is a characteristic plant and animal community which includes many rare and uncommon species. The main tree species is Scots pine although birches *Betula* spp., rowan *Sorbus aucuparia*, alder *Alnus glutinosa*, willows *Salix* spp., bird cherry *Prunus padus* are also found. Sessile oak *Quercus petraea* also occurs infrequently, mainly in the north-east of Scotland. A shrub understorey, where browsing levels are low, includes common juniper *Juniperus communis*, aspen *Populus tremula*, holly *Ilex aquifolium* and hazel *Corylus avellana*. Old or dead trees and rotting wood supports significant beetle and bryophyte communities. The field layer is characterised by acid tolerant plants like bell heather *Erica cinerea*, blaeberry *Vaccinium myrtillus* and crowberry *Empetrum nigrum*. Many uncommon and rare species are found in this habitat including the specialist hoverfly *Callicera rufa* and the disjunctive bird species capercaillie *Tetrao urogallus*. Britain's only endemic bird species the Scottish crossbill *Laxia scotica*, and rare species such as twinflower *Linnaea borealis* and one-flowered wintergreen *Moneses uniflora* are also found mainly in the native pinewoods.

In pre-historic times native mixed forests dominated by pine may have covered over 1.5 million ha in the Scottish Highlands about 4,000 years ago. Now they occupy around 1% of this former range, some 16,000 hectares, which is spread over 77 separate areas across the Highlands. Much of the areas are sparsely wooded, and regeneration is being prevented in many areas by heavy browsing by deer and sheep. However, recent regeneration schemes have started to increase the area again. Genetically distinct populations have been identified in different regions, particularly in the north-western and south-western Highlands.

2. CURRENT FACTORS AFFECTING THE HABITAT

The primary factors influencing native pinewoods as wildlife habitats are:

- Poor natural regeneration and reduced diversity due to browsing by deer and sheep.
- Fragmentation and isolation of individual woods with consequent loss of wildlife interest and possibly loss of genetic variation.
- Limited diversity of structure in many woods related to historical exploitation and overgrazing.

Past threats which have now ceased include:

- Underplanting with non-native conifer species.
- Active conversion to other land uses.

Expansion of the area of native pinewoods is underway by regenerating the remnant semi-natural woods and planting new native pinewoods of a natural character.

3. CURRENT ACTION

3.1 Legal status

Forestry policy prevents the clearfelling of native pinewood for conversion to other land uses and aims to:

- maintain and restore the natural ecological diversity and aesthetic values of native pinewoods;
- maintain the genetic integrity of populations of native pine, including the identified sub-populations, and of associated trees and shrubs;
- expand remnant native pinewoods and also create new native pinewoods on suitable sites within their natural range;

as well as to take suitable opportunities to produce usable wood.

Felling licences or grant aid from the Forestry Authority will be conditional upon management achieving these aims in accordance with guidance published by the Forestry Authority. 33 native pinewoods are designated whole or in part as SSSIs under the Wildlife and Countryside Act 1981, and some of these have recently been proposed as SACs in response to the EC Habitats Directive.

Native (Caledonian) pinewoods are included as priority habitats in the Habitats Directive.

Over 3,000 hectares in 24 of the 77 remaining native pinewoods are owned by the Forestry Commission.

3.2 Management, research and guidance

In 1994 the Forestry Authority completed an inventory of the Caledonian pinewoods which registers the locations of native pinewoods, the extent of the woodland and possible regeneration and buffer zones.

The Forestry Authority published a Guide to the Management of Native Pinewoods in May 1994 which describes policies and guidance for the management of existing native pinewoods. This was based upon previous guidelines from 1989 together with the results of wide consultation with conservation agencies and NGOs.

The location, design and establishment of new native pinewoods is described by the Forestry Commission's Bulletin 112 and a guidance leaflet for the Woodland Grant Scheme. This scheme provides grants for regenerating and planting native pine and associated native species in both existing and new native pinewoods. Since 1988 when native pinewood grants were introduced, proposals for over 3,000 ha of regeneration of existing woods and the creation of over 11,000 hectares of new native pinewoods have been accepted by the FA and are underway.

The Forestry Commission-owned sites are designated and managed by Forest Enterprise as Caledonian Forest Reserves.

A programme of restoration by removal of underplanted trees and reduction of browsing pressures to encourage regeneration is underway in order eventually to double the 3,000 ha currently covered with native trees and increase the total pine forest area to 12,000 ha.

FE promotes recreational and educational uses as part of the restoration programme.

SNH, the RSPB and the National Trust for Scotland all manage major native pine forests with nature conservation as a major aim.

Scottish Natural Heritage and Forestry Authority staff are working together to develop native woodland inventory methods and databases which can be widely shared and accessed. This work is partly funded by the EU LIFE programme, which also contributes to restoration of FE pinewoods at Afric and several other projects. SNH, FC, Highland Regional Council and Highlands and Islands Enterprise are partners in the LIFE project.

The Forestry Authority has compiled a Caledonian Pinewoods Inventory of genuinely native pinewoods where the trees are believed to be direct descendants of the original post-glacial tree cover. The FA also maintains a Register of Native Scots Pine Seed Collection Areas, where native Scots pine is considered suitable for seed collection within seven seed collection zones, based on genetic differences between populations.

The Cairngorms Partnership are developing proposals for the expansion of major pinewood remnants to form the core of two large mainly native forests in Strathspey and Mar.

The Millennium Fund has awarded nearly £6 million to a group of native woodland projects, including restoration and expansion of native pinewoods.

The Forestry Authority and Scottish Natural Heritage are jointly producing a handbook on pinewood management. This follows a conference organised by the FC, SNH and RSPB in 1994 entitled 'Our Pinewood Heritage' which explored current knowledge of the history, ecology and management of native pinewoods.

The RSPB published a policy advisory booklet *Time for Pine: A future for Caledonian Pinewoods* in 1993.

4. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

- Maintain remnant native pinewood areas listed on the Caledonian Pinewood inventory and restore their natural diversity of composition and structure.
- Regenerate and expand a total of 35% of the current wooded area of remnant native pinewoods (16,046 ha) by 2005, predominantly by natural regeneration within the core and regeneration zones.
- Create the conditions by 2005 for a further 35% of the current area to be naturally regenerated over the following 20 years, mainly by the removal of non-native planted species and/or genotypes and the control of browsing levels.
- Establish new native pinewood over a cumulative total area of 25,000 hectares by 2005 (equivalent to 155% of the existing remnant pinewood area). They should be planted, or naturally colonised where possible, on suitable sites within the natural range of native pinewood.

5. PROPOSED ACTION WITH LEAD AGENCIES

5.1 Policy and legislation

- Continue to review forestry policies for native pinewood with respect to the Guidelines for forestry agreed at the 1993 Helsinki Conference. (ACTION: FC)
- Evaluate the efficiency and suitability of the Woodland Grant Scheme and other funding mechanisms in achieving the desired management of native pinewood and consider adjustments as necessary. (ACTION: FA, SNH)
- Evaluate the implications of upland land use policies for the management and expansion of native pinewood and seek changes as appropriate. (ACTION: SO, SNH, FC)
- Consider the need to strengthen planning legislation to include a presumption against certain developments within native pinewood. (ACTION: SO)
- Encourage the adoption by 2000 of policies in local and regional plans promoting the conservation, restoration and expansion of native pinewood. (ACTION: SO)
- Encourage the development of management plans for native pinewood, building upon outline format described in the FA's 'Guide to the Management of Native Pinewood'. Encourage co-operation between owners to produce integrated plans for the management and expansion of pinewood as part of a local land-use strategy. (ACTION: FA, FE, SNH, LAs)
- Continue to restore and expand native pinewood owned by the Forestry Commission by including them within Caledonian Forest Reserves and Forest Design Plans. Create conditions suitable for natural regeneration of an extra 3,000 hectares of native pine and associated broadleaves by 2000 by removing planted non-native species and/or genotypes and reducing browsing levels. (ACTION: FE)
- Devise an indicative plan which identifies the areas most suitable for expansion of native pinewood in terms of gains and losses of biodiversity. (ACTION: SNH, FA)
- Seek to develop ways of identifying suitable opportunities for native pinewood expansion in Indicative Forestry Strategies taking account of landscape-scale ecological objectives including the strengthening of linkages between individual woods and to other types of semi-natural woods. (ACTION: LAs, SO, SNH, FA)

5.2 Site safeguard and management

- Seek to bring all pinewood in the Caledonian Pinewood Inventory into favourable management by 2000. (ACTION: FA, SNH)
- Review the coverage of native pinewood within SSSIs and proposed SACs and fill any significant gaps in coverage by notifying new sites by 2000. (ACTION: SNH)

- Identify and prioritise by 1997 areas where the ecological diversity or genetic integrity of native pinewood is currently under threat from previous underplanting with non-native species in genotypes of pine, and where their removal would be cost-effective. (ACTION: SNH, FA, FE)

5.3 Advisory

- Continue to provide advice on the status and management of native pinewood at site and general levels. (ACTION: FA, SNH)
- Continue to provide and promote training in the ecology and management of native pinewood including the design and establishment of new native pinewoods. Develop informal training and networking opportunities locally. (ACTION: FA, SNH, FE)
- Provide advice on silvicultural methods to obtain wood products from native pinewood and on marketing and utilisation. (ACTION: FC, Scottish Enterprise)
- Co-ordinate advice training and financial assistance on the management of deer in areas where they are a major constraint upon the diversity or regeneration of pinewood. (ACTION: FC, Red Deer Commission, SNH)

5.4 International

- Encourage the collation by 1998 of information on the status, ecology and management of native pinewood with that of other semi-natural woods on similar and related sites in Scandinavia and other north temperate/boreal regions. (ACTION: FA, SNH, JNCC)
- Consider in liaison with the European Forestry Institute and others the benefits of developing a network of near natural (minimum intervention) forest research sites throughout Europe and including native pinewood sites in such a network. (ACTION: FC, SNH)

5.5 Future research and monitoring

- Expand the range of sites where long-term monitoring of this woodland type occurs including a range of both managed and minimum intervention sites. (ACTION: FC, SNH)
- Update the Caledonian Pinewood Inventory to incorporate changes to the pinewood resource, including new native pinewood. (ACTION: FA, FE)
- Maintain the Register of Native Scots Pine Seed Collection Areas in an up to date condition. (ACTION: FA)
- Co-ordinate development of survey and monitoring methods for native pinewood and other native woods and seek to make data widely accessible. Monitoring methods should enable management outcomes to be compared with national policy aims and with local objectives of management. (ACTION: FA, SNH, FE)
- Research the race of colonisation of native trees and shrubs and selected associated species into the regeneration and buffer zones and into isolated new native woodlands. (ACTION: FC, SNH)

- Research the opportunities, conservation benefits and other implications of developing some large areas of mainly or entirely native forest including pinewood, and of developing connectivity between areas of native woodland. (ACTION: FC, SNH)
- Research the potential for combining native pinewood with more commercial planted forests so that pinewood species can benefit from the larger combined forest areas which results. (ACTION: FC, SNH)

5.6 Communication and Publicity

- Continue to inform the public on native pinewood issues and seek public support and participation in shaping policies and programmes. (ACTION: SNH, FC, SO)

COSTINGS

The successful implementation of this action plan will have resource implications for both private and public sectors. The additional cost to the public sector of the proposals compared to current (1995) public expenditure are estimated below. The major part will be in FA grants for additional programmes of natural regeneration within and adjacent to remnant pinewood of 200 ha/yr from 1997 to 2005. Bringing remaining remnants into favourable management will also add some extra costs in the form of Management Grants under WGS.

Habitat Type Native Pinewood (£000 per annum)

Total Area to be	1997	2000	2010
maintained			
16,000Ha	100	100	100
Total Area to be regenerated/expanded*			
36,000Ha	250	250	160

* Total cumulative area assumed to be established or prepared for regeneration by 2005 under the WGS since 1989.

BROADLEAVED AND YEW WOODLAND HABITAT STATEMENT

1. CURRENT STATUS

Britain is one of the least well-wooded countries within Europe. An estimate from the last Forestry Commission census (1985) shows that broadleaved woodland of both native and non-native species, covers approximately 752,000 ha of Britain. The total area is now greater than this because of planting and natural colonisation and is now estimated to be nearer 800,000 ha. Ancient semi-natural broadleaved and yew woodland covers about 1% of the land surface of Britain (302,000 ha).

Broadleaved and yew woodlands can be split into ancient semi-natural woodlands, ancient plantations, recent semi-natural woodland and recent plantations, according to their origins. The plantations and much recent woodland tend to have a high forest structure. That of ancient semi-natural woodland is more varied depending on its past treatment and includes high forest, coppice, wood pasture and parkland. Wood pasture and parkland are covered in a separate Habitat Statement.

The varied climate and geology of Britain combined with their past treatment to produce broadleaved woods which, despite their small size in relation to European counterparts, are structurally complex and support a wide variety of plants and animals. In the UK most native broadleaved woods comprise a mixture of broadleaved species such as ash *Fraxinus excelsior*, hazel *Corylus avellana*, sessile oak *Quercus petraea*, pedunculate oak *Quercus robur*, field maple *Acer campestre*, while in southern Britain beech *Fagus sylvatica*, small-leaved lime *Tilia cordata* and hornbeam *Carpinus betulus* are found. One of three species of conifer which are native to Britain, the yew *Taxus baccata* is generally associated with broadleaved woodlands so is included in this Statement. The conservation of native pine woodland is covered in a separate Habitat Statement. Common juniper *Juniperus communis* is a frequent component of pinewoods. Elsewhere it forms part of scrub associated with a range of different habitat patches.

Broadleaved woodlands are often noted for the wide variety of plants in the ground layer. In particular the UK is part of the Atlantic fringe of Europe and the moist, humid conditions, particularly in western parts of the country, provide ideal conditions for the growth of internationally important communities of bryophytes, lichens, ferns and saproxylic fungi and invertebrates. Another characteristic feature are the spring carpets of bluebell *Hyacinthoides non-scripta* which are unusual to Britain.

Many animal species are also found in broadleaved woodlands. Some of these including the dormouse *Muscardinus avellanarius*, nightingale *Luscinia megarhynchos* and terrestrial invertebrates including rare butterflies such as the heath fritillary *Melitica athalia*, purple emperor *Apatura iris* and chequered skipper *Carterocephalus palaemon* are both restricted in their range in the UK and on the edge of their distribution in Europe.

2. CURRENT FACTORS AFFECTING THE HABITAT

Broadleaved and yew woodlands are affected by:

- Conversion to other land uses through clearance for localised developments including roads and mineral extraction.

- Inappropriate woodland management, such as the removal of large old trees and uncontrolled grazing of deer and sheep, which leads to a decrease in the structural diversity and reduction in natural regeneration.
- Replacement of native stands by non-native trees.
- Invasion by non-native species such as rhododendron *Rhododendron* spp.
- Excessive disruption through large scale harvesting and other insensitive changes in management regime.
- Reduction of hard-wood based industries and demand for wood products through product substitution and loss of traditional markets resulting in loss of species through neglect or unsympathetic management of woodlands.
- Acid deposition, which threatens individual trees within the ecosystem and associated fungi.

3. CURRENT ACTION

3.1 Legal status

Broadleaved and yew woodland receives protection through the SSSI/ASSI series and a number of sites are NNRs. Through these networks of sites representative examples of broadleaved woodland types, throughout their geographical range, are afforded protection. EN, SNH and CCW maintain ancient woodland inventories which detail the occurrence of both designated and non-designated sites.

The international importance of broadleaved woodland is recognised through the EC Habitats Directive with seven broadleaved woodland types and one yew woodland type listed under Annex I of the Directive. The UK Government has proposed that a number of broadleaved woodland sites corresponding to the types listed in Annex I merit consideration as SACs.

National policies set out in the 1985 *Guidelines to the Management of Broadleaved Woodland*, give a presumption against clearance of broadleaved woodland for conversion to another land use. The expansion of broadleaved woodland has been substantial in recent years and the majority of planted broadleaves are of native species.

The UK signed the *Resolution for the Conservation of Biodiversity of European Forests* as agreed in Helsinki (1993). This resolution provides for the enhancement of biodiversity as part of a sustainable forest management programme by integrating the requirements of native, natural and managed woodlands.

3.2 Management, research and guidance

Ancient woodland, especially ancient semi-natural woodland, may receive policy protection in Structure and Local plans. Both ancient and ancient semi-natural woodland must be managed to maintain their special features of environmental and cultural value. The Forestry Authority has produced a series of eight advisory guides on the management of ancient semi-natural woodlands throughout Britain. The advice is intended to help owners and managers to achieve the best practice to secure the woodland's future. The Forestry Authority assesses planting and management schemes (notably Woodland Grant Scheme) against these guidelines.

Important woodland sites may be recognised by Local Authorities as Wildlife Sites and protected by relevant local planning policies which safeguard them from the effects of inappropriate development. In Wales, the broadleaved woodland element of the Habitat Scheme aims to encourage natural regeneration of native woodlands by excluding livestock.

Agricultural Departments encourage the planting of woodland on agricultural land through the Farm Woodland Premium Scheme which offers annual payments (over 15 years, for plantings with over 50% of broadleaved trees) to compensate for income loss. They also offer initial free advice to farmers considering establishing woodlands. Initiatives to create major new mainly broadleaved forests in the UK include the new National Forest, Central Scotland Forest, the Millennium Forest (Scotland) and Community forests around a number of towns and cities. These woodlands are expected to include a high proportion of native species.

Initiatives to restore local wood-based industries include the woodnet project in the West, linking wood producers to wood users, and a number of projects to reinvigorate the British-based charcoal industry, such as Cumbrian broadleaves. Small woods projects, designed to reinstate traditional woodland management in neglected broadleaved woodland are also in place. Many of these such as Sylvanus, Esus, Coed Cymru, Anglian Woodlands, Scottish Native Woods and Highland Birchwoods, are joint initiatives between the Forestry Authority and a variety of other statutory agencies.

Many woods are also retained and new areas planted due to landowners interest in game shooting or other sporting and recreation activities.

Felling licences are required for the felling of more than 5 cubic metres of timber in any one quarter. In addition broadleaved woodlands may be covered by Tree Preservation Orders, which are designed to protect individual trees and wooded areas. The Timber Industries are actively promoting the use of home-grown wood in building etc.

EN, CCW and SNH support research into management methods which will restore the conservation value of woodland, as well as more general programmes of survey and monitoring. The Forestry Commission also has a considerable research programme into silviculture and the ecology of broadleaved woods.

4. CONSERVATION DIRECTION

Maintain the extent and habitat quality, especially of ancient and semi-natural broadleaved woodland, and expand broadleaved woods, particularly with new native woodland which is linked to ancient and semi-natural woods.

Measures to be considered further include:

- Develop a strategy to implement the *Resolution for the Conservation of Biodiversity of European Forests* as agreed in Helsinki (1993).
- Restore selected ancient woodland sites that have been replanted by converting them back to semi-natural condition.
- Restrict new woodland planting on sites where this would adversely affect the existing conservation value.

- Produce advice on conservation and sustainable broadleaved woodland management for woodland managers and policy makers.
- Encourage research into the effects of natural processes of woodland disturbance and succession and the interactions between herbivores and woodland plant communities.

PLANTED CONIFEROUS WOODLAND HABITAT STATEMENT

1. CURRENT STATUS

Many woods composed wholly or mainly of conifer species, both native and introduced, have been planted on habitats which had significant biodiversity value as open grounds. Habitat Statements for other habitats such as broadleaved and yew woodland, heath, moor and bog recommend a programme of clearance of plantation woodland to allow recreation of the former habitat. This Statement considers the existing or potential importance for biodiversity of large UK plantations where wholesale restoration is not the main conservation need. It should be considered in conjunction with Statements for other habitats.

Approximately 7% (1,516,000 ha) of Great Britain is covered by conifer woodlands. The stands are usually of a single species, with approximately 40% being sitka spruce, however, at the forest scale species composition is normally mixed; in thinned older stands and at edges and glades, a variety of native trees and shrubs develop as an understorey. 775,000 ha are managed by Forest Enterprise and 741,000 ha are privately owned.

Many first rotation forests are reaching harvestable age. This provides opportunities to restructure the habitat which will lead to diversification of the plant and animal communities they contain. Second rotation forests are more likely to be planned to take account of nature conservation needs through creating internal forest diversity, in tree and stand age. Many forests also have a number of associated features and habitats that are important for wildlife. Woodland rides and glades for example can be important for vascular plants and invertebrates. They could also provide areas for targeted limited restoration of semi-natural habitat in conifer plantations. Old stands with dead and dying trees, understorey vegetation and open canopies are also important for a variety of species.

A number of GB Red Data Book bird species may occur in plantations. These include goshawk *Accipiter gentilis*, Scottish crossbill *Loxia scotica* and firecrest *Regulus ignicapillus* and in clear-felled or early growth stages nightjar *Caprimulgus europaeus* and woodlark *Lullula arborea*.

2. CURRENT FACTORS AFFECTING THE HABITAT

There is no particular threat to the conifer resource as a whole. However, some factors could either reduce the existing wildlife interest of plantations or mean that potential improvements are not realised. These include:

- Decreases in the structural diversity of stands and forests through insensitive management.
- Clear-felling and replanting that disrupts other elements of the forest ecosystem, for example through erosion or effects on water bodies.

3. CURRENT ACTION

3.1 Legal status

The overall UK policy aims are set out in *Sustainable Forestry: The UK Programme* (1994) and *Biodiversity in Britain's Forests* (1993). An expansion of planted conifer woodland is envisaged, which will increase the diverse benefits that forests can provide. The UK also signed the *Resolution for the Conservation of Biodiversity of European Forests* as agreed in Helsinki (1993). This resolution provides for the enhancement

of biodiversity as part of a sustainable forest management programme by integrating the requirements of native, natural and managed woodlands.

In 1986 the Countryside Commission for Scotland proposed that all Local Authorities should undertake the preparation of Indicative Forestry Strategies and in 1987 the Convention of Local Authorities recommended that all Regional Councils should prepare such strategies. These have been produced and are being reviewed. Essentially, Local Authorities draw up maps which direct afforestation onto areas which are known to have a low conservation interest. In England and Wales County Councils have started the process of producing Indicative Forestry Strategies.

There is a strong emphasis on wildlife conservation in management in licences and grants administered by the Forestry Authority. The Forestry Commission, through its Regional Advisory Committees and Environmental Panel, consults conservation specialists on its activities.

3.2 Management, research and guidance

Forest Enterprise is preparing Forest Design Plans with local conservation experts which are subject to Forestry Authority approval. The Forest Design Plans are the major means of delivering biodiversity gains in FE forests through promoting structural diversity and populations of key species.

The Forestry Commission has also produced document *Forest and Water Guidelines* (1993), *Nature Conservation Guidelines* (1990) and *Landscape Guidelines* (1989) which are used as the basis for prescribing management for wildlife conservation. The Forestry Commission is currently drawing together these, and other environmental guidelines, to produce standards for enhancing the biodiversity of planted forests. These standards will reflect the structural and functional elements of the forest as well as the specific interest.

Other practical examples of multi-purpose forest development exist in the National Forest and Community Forest initiatives, and in Woodland Parks, Community Woodlands and Forest Parks.

Some conifer plantations have been notified as SSSI for the bird interest and many others fall within SSSIs notified for other reasons.

Forest Enterprise has initiated a number of restorative schemes, removing trees from heathland, restructuring forests and working to restore native woodlands.

4. CONSERVATION DIRECTION

Maintain and enhance the wildlife potential of the existing conifer resource through continued restructuring and diversification.

Measures to be considered further include:

- Develop a strategy to implement the *Resolution for the Conservation of Biodiversity of European Forests* as agreed in Helsinki (1993)
- Continue to direct the expansion of planted conifers to land of low conservation value (such as derelict industrial and low grade arable land) ensuring habitats of a high nature conservation value are not further threatened - using Indicative Forest Strategies where

available.

- Promote forestry management which enhances conservation value through restructuring and diversification.
- Develop systems of monitoring the biodiversity conservation value of planted conifer woodlands, for example by assessing critical habitat features and selected key or indicator species.

NATIVE PINE WOODLAND HABITAT STATEMENT

1. CURRENT STATUS

Native pinewoods are relict indigenous forests of Scots pine *Pinus sylvestris* var *scotica*, which occur throughout the central and north-eastern Grampians and in the northern and western Highlands of Scotland. They are an important western representative of the European boreal forests in which structure and succession is determined mainly by natural fires caused by lightning. In the past native pine forests may have covered more than 1.5 million ha, however, less than 1% of the former range now remains. The remaining extent of habitat is approximately 16,000 ha.

Native pinewoods occur on infertile, strongly leached, podsollic soils. They do not support a large diversity of plants and animals compared with some more fertile habitats. However, there is a characteristic plant and animal community which includes many rare and uncommon species. The main tree species is Scots pine although birch *Betula* spp., rowan *Sorbus aucuparia*, sessile oak *Quercus petraea*, willows *Salix* spp., and bird cherry *Prunus padus* are also found. Oak occurs mainly in the north-east of Scotland. There is a rich understorey of shrubs including common juniper *Juniperus communis*, aspen *Populus tremula*, holly *Ilex aquifolium* and hazel *Corylus avellana*. Dead rotting wood supports significant bryophyte communities. The field layer is characterised by acid tolerant plants like bell heather *Erica onerea*, bilberry *Vaccinium myrtillus* and crowberry *Empetrum nigrum*. Many uncommon and rare species are found in this habitat including the specialist hoverfly *Callicera rufa* and the distinctive bird species capercaillie *Tetrao urogallus*, Britain's only endemic bird the Scottish crossbill *Loxia scotica* and rare plants such as twinflower *Linnaea borealis* and one-flowered wintergreen *Maniseta uniflora* are also found mainly in the native pinewoods.

2. CURRENT FACTORS AFFECTING THE HABITAT

The primary factor influencing native pinewoods is:

- Lack of natural regeneration due to high grazing levels.

Past threats which must continue to be avoided include:

- Inappropriate forestry management, in particular underplanting with non-native conifer species and clear felling.
- Conversion to other land uses resulting in increased fragmentation and isolation of native pine woods and the associated loss of wildlife interest.

3. CURRENT ACTION

3.1 Legal status

Many of the most important areas of native pinewoods have been notified as SSSIs. Exceptional examples of these were recently proposed by the UK Government as areas that merit designation as SACs under the EC Habitats Directive.

3.2 Management, research and guidance

In 1994 the Forestry Authority completed an inventory of the Caledonian pinewoods which registers the location of native pinewoods, the extent of the woodland and possible regeneration zones. The Report from the Cairngorms Working Party also made strong recommendations for the expansion of remnants of native pinewoods, especially in two areas - Forests of Mar and Strathspey.

A number of Forestry Authority initiatives contribute to the management and recreation of native pinewoods. These include grant aid offered under the Woodland Grant Scheme for regeneration and also for the planting of new native pinewoods within the former natural range of pinewoods. Scots pine of local origin is used for replanting and the Forestry Authority maintains a register of seed sources for use in this scheme. Forest Enterprise also runs a programme of restoration and expansion of native pinewoods and promotes recreational facilities and educational uses through this programme.

The Forestry Authority and SNH are working closely to produce a handbook on pinewood management. The Forestry Authority has also produced a set of advisory guides on the management of ancient semi-natural woodlands throughout Britain, one of which provides advice on the management of native pinewoods.

EC LIFE (Nature) programme funding has been received to assess the resource of native pinewood in Scotland, evaluate the impact of deer grazing and to carry out emergency restoration activities at Glen Affric Forest reserve. This work builds on the Forestry Authority Native Pinewoods Register completed in 1994.

4. CONSERVATION DIRECTION

Maintain and enhance the structure and wildlife interest of native pinewoods and encourage natural regeneration in core areas aiming to restore degenerated areas and to bring them into appropriate management.

Measures to be considered further include:

- Promote the expansion of existing areas of native pinewoods.
- Encourage the protection of small pinewood remnants from grazing pressure and encourage expansion, thereby addressing the historic fragmentation and isolation of pinewoods.
- Restore underplanted pinewoods.
- Follow current guidelines to conserve the genetic integrity of populations of native pinewood species.
- Take opportunities to produce useable wood.

LOWLAND WOOD PASTURES AND PARKLAND HABITAT STATEMENT

1. CURRENT STATUS

Working lowland wood pastures and parks are those where grazing is still practised at a level that sustains the special features associated with open ground. It is estimated that less than 10,000-20,000 ha of the resource remains in such a working condition. A greater amount of relict wood pastures and parklands exists, however, in either an unmanaged state or as scattered trees with arable or improved pasture around them.

Wood pastures and parklands are believed to have been widespread in lowland landscapes through the mediaeval age and up until the early 19th century, and as such are important for their landscape history and archaeological features. During the 20th century there has been a decline in sites that had survived legal enclosure. The decline is principally due to dereliction and succession to secondary woodland, or conversion to more intensive agricultural or forestry uses. The decline in lowland wood pastures and parks has occurred throughout the lowlands of western Europe. The greatest extent of this habitat in western Europe probably survives in southern England.

Wood pasture and parkland contain large numbers of very old trees particularly ancient pedunculate oak *Quercus robur* and beech *Fagus sylvatica*. They are internationally important for the rare saproxylic invertebrates such as the violet click beetle *Limoniscus violaceus* whose larvae is found inside rotten standing trunks, lichens such as *Labania*, *Lecanactis* or *Sacca* species and fungi such as the hedgehog fungus *Crotophus cirrhatus* and the giant hoof-shaped bracket fungi *Phellinus robustus*, which are associated with the mature bark and dead wood. Acid or neutral grassland also occurs and is an important feature of this habitat.

2. CURRENT FACTORS AFFECTING THE HABITAT

- Changes in rural economies have led to withdrawal of grazing from commons, former Royal Forests and parks.
- Intensification of agricultural management has destroyed the open ground interests on many sites.
- Large old trees are felled and removed from sites: cessation of pollarding may also have reduced the long term survival potential of many old trees.
- Improved recreational access often leads to the clearance, or modification, of ancient trees to make the areas safe as public places. This can also lead to severe erosion of soils and vegetation at key sites.
- On most sites there is a large "generation gap" (very old and young trees present, but few of intermediate age) which leads to a loss of habitat continuity.

3. CURRENT ACTION

3.1 Legal status

Many important wood pastures and parks have been identified as SSSI/ASSIs. Other sites are identified as Wildlife Sites. The UK Government has also set out its commitment to designating some parklands as SPAs and SACs under the EC Birds Directive and the EC Habitats Directive respectively.

3.2 Management, research and guidance

Forest Enterprise is reviewing its management of working wood pastures of the New Forest. This wood pasture system represents the majority of the actively worked resource in the UK and the most extensive area with old oak beech populations in NW Europe.

Grazing regimes are being reinstated at a number of sites including Burnham Beeches (Corporation of the City of London) and Pamber Forest (Hampshire). Plans are well advanced to reinstate grazing in other sites such as Greenham Common (Berkshire), Odiham Common (Hampshire) and Ebernoe Common (West Sussex). Tree management such as pollarding is being reinstated at some sites, including Burnham Beeches.

Providing guidance on the conservation of parkland and wood pastures is an important element of the statutory agencies' work. The Invertebrate Site Register Habitats Association Module is a key source of data on which advice is based.

EN has established a Veteran Tree Initiative through which they form working partnerships with others involved in parkland management, ensuring that conservation objectives are taken into account. A pilot inventory of the parkland resource for two counties in England has been prepared.

CCW has initiated an inventory project of all parklands in Wales. The project aims to identify parkland sites important in a national, regional or local context for their invertebrate and lichen communities. Survey work in 1994 recorded 25 invertebrate species new to Wales including the beetles *Aeletes acomarius*, *Panella limbata*, *Cryptophagus labilis* and *Scaphisoma testacea*.

4. CONSERVATION DIRECTION

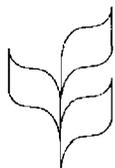
Maintain the extent of functioning wood pastures and parks ensuring that the management of important sites takes account of their biological interest. Restore, where appropriate, modified wood pasture and parkland.

Measures to be considered further include:

- Restore management regimes to selected areas of wood pasture and parkland modified by plantation forestry, scrub colonisation, or unsustainable agricultural use such as grazing.
- Protecting wood pasture from inappropriate use, including unsustainable recreation.
- Establish, where restoration of grazing is not appropriate, other systems for maintaining and enhancing the features and species associated with former wood pasture and parkland.
- Compile a UK inventory of the remaining resource of wood pasture and parklands and their associated characteristic plant and animal communities.



CBD



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/Inf.10

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY

Third meeting
Buenos Aires, Argentina
4 to 15 November 1996

**FACTORS AFFECTING TRANSFER OF ENVIRONMENTALLY-SOUND TECHNOLOGY
(NOTE BY THE SECRETARIAT OF THE WTO)**

/...

Committee on Trade and Environment

FACTORS AFFECTING TRANSFER OF ENVIRONMENTALLY-SOUND TECHNOLOGY

Note by the Secretariat

1. This paper is prepared in response to a request by the Committee on Trade and Environment for a background document on factors affecting transfer of environmentally-sound technology. That request included addressing "the issue in a more analytical framework which would complement WT/CTE/W/8" (WT/CTE/M/4, page 28).
2. Document WT/CTE/W/8 covers a number of issues relating to the environment and the Agreement on Trade-Related Aspects of Intellectual Property Rights ("TRIPS Agreement"), including the links between intellectual property rights (IPRs) and environmentally-sound technologies (EST). It mentioned that IPRs could have two types of links with EST, i.e. promotion or generation of technology, and access to and transfer of technology. Regarding the former, document WT/CTE/W/8 states that "[a] fundamental feature of IPR systems and of the TRIPS Agreement, particularly in the area of patents, is to provide incentives for the generation of new technology, by giving the inventor an exclusive right (subject to certain exceptions) over the use of his invention for a finite period of time The IPR system provides protection to the results of investment in the development of new environmentally-friendly technology, thus giving the incentive and the means to finance such research and development. A combination of a well-functioning IPR system and appropriate price signals in the market, which direct research and development effort to environmentally-sound technologies, can play a major role in developing the technologies that will respond to environmental problems" (page 16).
3. This paper focuses mainly on the issue transfer of technology. However, an important point to bear in mind is that the existence of any technology is a prerequisite to a possibility of access to that technology, i.e. if certain technologies have not been generated then their transfer is by definition not possible. Thus, the role of IPRs in providing an incentive for their generation should not be forgotten in discussions about their transfer.
4. Section I of this paper summarises the main factors that affect the transfer of EST. Since the request for this paper was made in the context of Item eight of the Committee's work programme, Section II of the paper focuses on the effects of IPRs, in particular patents, on the transfer of EST. Section II first clarifies the scope of the issue, and then summarises the different aspects of patents in the context of transfer of technology. Based on this discussion, it provides a simplified analytical framework to consider the link between IPRs and transfer of EST. Finally, Section II summarizes the empirical evidence on the importance of IPRs for technology transfer. Section III provides the conclusions.
5. The main points mentioned in this paper can be summarized as follows. There are a number of different ways in which technology transfer takes place, and IPRs are only one of the factors, and usually not the most important or dominant factor, which affect the transfer of technology. For those seeking technologies, information about the technologies, access to finance

and technological capability have been mentioned much more often than IPRs as the crucial factors determining acquisition of technologies. For those supplying the technology, an IPR regime in the host country improves the willingness of technology suppliers to provide the technology but the importance of IPRs varies across different activities and industries. In certain cases such as joint ventures or technology licensing, IPRs in the home market might also increase the willingness of those demanding the technology to acquire it. Thus, IPRs contribute positively to technology transfer in these situations both from the perspective of the technology supplier and those demanding it. However, in cases where technology can be easily copied, its protection by IPRs will mean that the authorization of the IPR owner has to be obtained to use it when in the absence of such protection it could be used without such authorization. If a voluntary transfer of such technologies is not forthcoming on reasonable terms within a reasonable period, they could be acquired under compulsory licensing, subject to the provisions of Article 31 of the TRIPS Agreement. An important point to bear in mind is that if technologies cannot be easily copied (there are a large number of such technologies), the cooperation of the technology supplier becomes essential for transferring technologies. In such cases, even compulsory licensing will not result in technology transfer unless the cooperation of the technology supplier is obtained.

1. FACTORS AFFECTING TRANSFER OF ENVIRONMENTALLY-SOUND TECHNOLOGY

6. The importance of transfer of environmentally sound technologies ("EST") has been recognized in several fora; for example, Agenda 21 (chapter 34, paragraph 34.7) states that "... access to and transfer of environmentally sound technology are essential requirements for sustainable development". Like other technology that is required to be used pursuant to technical regulations or standards, the need for the use of EST might arise due to requirements imposed by legislation, other standards or multilateral agreements. However, it is not easy to arrive at a definition of EST since most technologies produce some kind of environmental impact, and several technologies might qualify as ESTs, ranging from end-of-pipe technologies to preventive technologies of a more systemic nature such as cleaner and efficient processes of production. Thus, it is often difficult to distinguish between EST and other technologies. This, however, does not pose special problems in assessing which factors affect transfer of EST because the factors which affect transfer of EST are essentially the same as those affecting transfer of technology in general.

7. To develop a conceptual framework to identify the various factors affecting transfer of technology, it is useful to consider the different ways in which technology is transferred. Technology could be transferred through foreign direct investment, which might take the form of a wholly owned subsidiary or might involve a joint venture with host country investors. Alternatively, a person could acquire certain technologies by copying them, including through a process of reverse engineering which may not require any assistance from the supplier of the technology. Technology transfer could also take place through different contractual arrangements such as licensing, management contracts, or subcontracting, or technology could be obtained by purchasing off-the-shelf the machinery that embodies it.

8. Conceptually, the different methods of technology transfer could be considered as:

- (i) a transaction involving only the supplier of the technology, e.g. foreign direct investment in a wholly owned subsidiary;
- (ii) a transaction involving only those in the host country who use the technology, e.g. the situation where the host country national copies the technology, including through reverse engineering;

(iii) a transaction involving both the supplier and user of technology, where specific commercial conditions are stipulated with regard to the use of the technology, and/or the sales or distribution of profits by the enterprise in the host country, e.g. technology licensing or a joint venture involving foreign direct investment;

(iv) a transaction involving both the supplier and user of technology, but without any commercial conditions stipulated regarding the operations, sale or distribution of profits by the enterprise using the technology (e.g. purchase of a machine in the market, which embodies the technology).

In the different situations mentioned above, the factors which affect technology transfer could be considered from the perspectives of the supplier or the user of the technology. The perspective of the technology supplier affects its transfer in situation (i). In situation (ii), the transfer of technology depends on the possibility of technology acquisition by those demanding it in the host country. In situations (iii) and (iv), technology transfer is based on an interaction between the perspectives of the supplier and the user of the technology.

9. Technology transferred through foreign direct investment depends on several factors which affect the perceptions regarding risk and reward to foreign investors. Factors especially important for foreign direct investment are the host country's economic and political stability, well developed labour skills and technological and infrastructural base, and a well functioning regulatory framework. These factors positively affect investment decisions by improving the possibility of assessing the medium to long term economic situation in a country, and increasing the likelihood for efficiently installing and utilizing the technology.

10. Other factors which affect the profitability of investment and thus the likelihood of foreign direct investment are the availability of natural resources, market structure in the host country, access to finance, and in certain cases the extent of intellectual property protection provided in the host country. From the perspective of the supplier of technology, adequate IPRs in another country provide an incentive to transfer technology to that country by preventing unauthorized duplication in that territory (see below for more detail on this point).

11. The likelihood of licensing a technology depends on the profitability of providing a license to other investors, which in turn depends on the possibility of excluding competitors from the existing markets of the licensor. Thus, IPRs provide an incentive for licensors to supply the technology. In addition, the cost of licensing a technology is lowered if the licensor and licensee have adequate technological skills and experience, and the host country has appropriate infrastructural facilities.¹

12. For host country investors, information about the technology is a particularly important factor. Such information is required on the existence of the technology as well as on the various operational aspects of the technology. This is especially so for developing countries because transfer of technologies to these countries is usually accompanied by certain modifications to suit the different infrastructural and technical environment. Other important factors for investors in the host country include access to finance, knowledge of what to negotiate in a technology transfer package, domestic technological capability and the available infrastructure for acquiring and

¹For example, in the case of licensing and joint venture, the manufacturing experience of partners, their size of operation and R&D intensity have been mentioned as aspects which reduce the cost of technology transfer. See, for instance, D.J. Teece (1977), "Technology Transfer by Multinational Firms: The Resource Cost of Transferring Technological Know-How", *The Economic Journal*, Volume 87, pages 242-261.

utilizing the technology.³ Factors which affect the possibility of acquiring a technology by copying it include information about the particular technology, technological capability to efficiently install and utilize it, access to finance and whether or not the technology is protected by IPRs.

13. When both the foreign and host country investors are involved in the transfer of any technology, e.g. either through licensing or purchase of machinery such as in situations (iii) and (iv) above, the volume, price and type of transfer of technology will depend on an interaction between the concerns of both these types of investors. However, intellectual property rights ("IPRs") are unlikely to be a important factor affecting the acquisition of technology in situation (iv), because the machinery embodying the relevant technology is available off-the-shelf.

II. IPRs AND TRANSFER OF ENVIRONMENTALLY-SOUND TECHNOLOGY

14. As mentioned above, IPRs are among the factors affecting transfer of technology. IPRs cover copyright and related rights, trademarks, geographical indications, industrial designs, patents, breeders' rights, layout-designs related rights, trademarks, geographical indications, industrial designs, patents, layout-designs (topographies) of integrated circuits, and undisclosed information. Though it has been noted that a number of different types of IPRs could affect transfer of technology³, those referred to most often in the context of transfer of technology are patents and protection of undisclosed information. This section will therefore focus mainly on patents and undisclosed information or trade secrets.⁴

15. This section begins with a clarification of the scope of the issue, and then summarizes the various aspects to be considered in any assessment of the effects of IPRs on technology transfer. This provides a basis for a simplified conceptual framework to identify the main effects of IPRs on technology transfer, which is followed by a summary of the empirical evidence on the effects of IPRs on transfer of technology.

(a) Scope of the issue

16. An important aspect to be borne in mind regarding the effect of IPRs on transfer of technology is that generation of the technology has to precede the possibility of its transfer. A fundamental feature of IPR systems and of the TRIPS Agreement⁵, particularly in the area of patents, is to provide incentives for the generation of new technology by giving the inventor an exclusive right (subject to certain exceptions) over the use of his invention for a finite period of time. Such an exclusive right protects the results of investment in the development of new EST

³Thus, it is contended that small and medium enterprises, particularly in developing countries, are likely to face greater problems regarding technology transfer in view of their shortcomings with regard to information, expertise and finance.

⁴For example, the importance of copyright has been noted for technology transfer for software, integrated circuits are considered important for the microelectronics industry, breeders' rights for the food industry, industrial designs for industries such as clothing, automobiles, and electronics, and trademarks could have important implications for technology transfer in several industries. See United Nations Transnational Corporations and Management Division (1993), *Intellectual Property Rights and Foreign Direct Investment*, United Nations, New York.

⁵A patent provides the right to exclude others from the use of a technology for a limited time period. Protection of undisclosed information does not establish such an exclusive right, but only operates against disclosure, acquisition and use "in a manner contrary to honest commercial practices".

⁶The objectives of the TRIPS Agreement include promoting technological innovation and "the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge in a manner conducive to social and economic welfare, and to a balance of rights and obligations." (Article 7). Moreover, the TRIPS Agreement contains some specific requirements on developed country Members to provide incentives for technology transfer to least-developed country Members.

technology, and provides an incentive to conduct, and the means to finance, such research and development. This paper does not discuss the issue of the effects of IPR on technology generation, but focuses only on transfer of technology.

17. Further, the effects of IPRs on technology transfer are by definition limited to technologies subject to such rights. Most technology is in the public domain, either because protection was never sought in the first place or because any term of protection granted has expired. It should be recalled that in order to benefit from patent protection, it is necessary to obtain a separate patent in each jurisdiction and that patent is only valid in that jurisdiction. The extent to which patents are sought and granted varies greatly from country to country.⁶

18. In addition, different commercial considerations apply to technology subject to IPRs depending on whether it is under private control or under the control of a government. When an EST is under the control of a government, the government is of course free to transfer the technology on concessional terms. Even where IPRs in EST are privately-owned, such IPRs do not stand in the way of public financial assistance to enable their voluntary transfer on concessional terms.

(b) Effects of IPRs on technology transfer

19. The public policy rationale for IPR systems lies in striking an appropriate balance between the interests of producers and users of technology, which provides incentives for the generation of new technology. This means that there will be instances where the result of an IPR regime is that payment has to be made to use technology that would otherwise be available at no or little cost. This will be the case particularly where technology is easily copiable, including through reverse engineering, without the assistance of those who developed it. Where such technology is protected by IPRs, users will have to seek authorization of the IPR owner, usually in return for a consideration, when in the absence of IPR protection the technology could be used even against the will of the person who developed it. An example of such readily copiable technology would be various types of computer software.

20. However, much technology is not capable of being readily copied or reverse engineered since its effective use requires access to secret know-how in the hands of the enterprise which has developed the technology. In these circumstances, transfer of technology requires cooperation between the source of the technology and the enterprise which wishes to receive it, even in the absence of IPR protection. The likelihood of such technology being made available on reasonable terms or being made available at all is greater where adequate and effective intellectual property protection is provided. The enterprise that is the source of the technology will be concerned that the legal regime in the host country provides safeguards against the dissemination of secret know-how beyond the terms of contract into the hands of third parties⁷, since such know-how, which may be critical for its competitive position worldwide, only remains protectable anywhere to the extent that it remains secret. In the absence of such guarantees the enterprise may refuse to transfer its technology (or its most recent technology) or only do so on terms which discount the risk (i.e. at a higher price). By the same token, an enterprise that wishes to receive technology will be more reluctant to enter into a commitment to pay royalties for the use of the technology in an environment where the legal regime will not provide guarantees against its local competitors gaining access to the same technology for free. Thus, in the absence of intellectual property

⁶ See WT/CTE/W/8 for more details on this aspect.

⁷ For example through technical staff that have been trained in the secret know-how selling the information, or moving and making it available to a competitor.

protection, both the enterprise which possesses the technology and the enterprise which seeks it may be more reluctant to enter into a contract for its transfer.

21. In addition, there are other reasons why a functioning intellectual property regime will facilitate transactions for the transfer of technology.

(i) The possibility of transferring any technology depends, *inter alia*, on information about the technology and access to the technology. One of the purposes of the patent system is to encourage inventors to disclose new technology rather than attempt to keep it secret. The requirement that new technology becomes part of the common pool of knowledge of mankind has two important positive implications for the technology transfer process. First, in combination with the exception to patent rights for use for experimental purposes⁸, it ensures that the technology becomes immediately available as a basis for further technological development. Secondly, it ensures that on the expiry of the patent term, the technology falls into the public domain and its use is freely available to all.

(ii) The disclosure requirement also has a number of important consequences for the transfer of and access to technology because the resulting information, which is stored and classified in patent documentation, is accessible to anyone, including to those in countries where a patent has not been sought, and "constitutes the single most valuable and comprehensive source of technology available in the world today".⁹

(iii) Another advantage of the patent system is that, because the technology that may be the subject of a transfer agreement has already been described in an officially approved document, it obviates the need for a special detailed description in the transfer agreement and thus reduces transaction costs. Also, because the patented technology has been recognized by a patent office as technology which is new and truly inventive, it gives security to the recipient that the technology that is being transferred has these characteristics.

(iv) In the absence of effective protection for intellectual property, an enterprise which possesses technology will be reluctant to give detailed secret information about its technology to an enterprise which is considering purchasing it before that enterprise has committed itself to pay for it, since the recipient enterprise will not need to buy what it has already been told. Yet the enterprise which seeks the technology will not be prepared to make a commitment to pay for it until it has adequate information about the technology. An environment protecting intellectual property will facilitate the necessary exchanges of information required for the conclusion of a transfer of technology contract.

22. Another factor which should not be underrated is the psychological importance of IPR protection both for transfers through licensing and foreign investment. A number of empirical surveys of business attitudes have confirmed this (see below).

23. In the event that there is tension between the objectives of promoting technological innovation and the transfer of technology, patent regimes include a possibility of providing compulsory licensing (or non-voluntary licensing) and control of anti-competitive practice under specified circumstances.¹⁰

⁸See, for example, Article 29.1 of the TRIPS Agreement.

⁹WIPO, Background Reading Material on Intellectual Property, WIPO, 1988.

¹⁰For more detail on this matter, see WT/CTE/W/8.

(c) A simplified conceptual framework

24. The discussion above has highlighted the various effects of IPRs on technology transfer and that the effects of IPRs on transfer of technology differs depending on whether or not it can be copied easily. The conceptual framework in this section, based on the perspectives of the supplier and user of a technology, shows that this distinction (i.e. possibility of easily copying the technology) is crucial for determining the effect of IPRs on technology transfer. This framework emphasises only the main likely effects of IPRs on technology transfer in different situations.

25. An IPR regime in any territory is likely to enhance the willingness of a supplier of a technology to transfer it to that territory. Thus, with an IPR regime in the host country, the supplier would be more willing to transfer his technology in situations (i) and (iii) mentioned in Section I above, e.g. when there is foreign direct investment, joint venture or technology licensing.¹¹

26. Since technology transfer in situation (iii) depends on an interaction between the supplier and the user of the technology, the response of the user of the technology is also important in such situations. Those acquiring the technology through contracts with the technology supplier would prefer to have a larger market share by excluding others from using the technology in their market, especially if some investment in development work has to be made to adopt the technology to local conditions and its results could be easily copied by competitors. Thus, in situation (iii), the user of the technology might also be more willing to acquire it if he could benefit from an IPR regime in the host country, under which he could enjoy an exclusive licence.

27. If it is not possible readily to copy a technology because of aspects such as technical complexity or trade secrets, situation (ii) above, i.e. when technology can be copied, would by definition not be possible irrespective of whether or not a technology is subject to a patent. Any constraint on the user in the host country acquiring the technology in such a situation would not be due to patents because, even without any patents, the assent of technology owners would be needed to obtain the relevant technology, i.e. we are situation (iii) where technology transfer would involve a joint venture or some form of technology license. In situation (iii), the host country enterprise using the technology is likely to benefit if some form of IPR provides it with exclusive benefits of using the technology in its home market. Therefore, the user of the technology may be more willing to acquire the technology if IPRs are protected in the host country.

28. The perspective of the user of a technology is important also in situations (ii) and (iv), i.e. when a technology can be easily copied or can be obtained by purchasing machinery off-the-shelf. A significant difference between these two situations and others is that the perspective of the supplier of the technology will not be relevant in both situations (ii) and (iv). However, these two situations are themselves different because the effects of IPRs will not be the same in them. IPRs are unlikely to be important in situation (iv), and the main considerations for acquiring technology in that situation are likely to be information about the technology, its price, and the capability of operating it efficiently. In contrast, patents assume an important role in situation (ii), i.e. where the technology can be readily copied in the host country. The ease of copying would imply that the technology could be acquired at a lower cost than if it were subject

¹¹Since there are a number of factors which determine technology transfer, this effect of IPRs might be dominated by the effects of other factors. For example, if the economic and political situation in a country is not stable, foreign direct investment may not be attracted whatever the nature of the IPR regime. This aspect should be kept in mind in all considerations of the effect of IPRs on technology transfer.

to an IPR such as a patent. The existence of a patent on the relevant technology would imply the need to negotiate commercial conditions for the use of patented technology.

29. In the case of abusive anti-competitive practices or if access to technologies needed to meet some important national or international objective is not being provided on reasonable commercial terms within a reasonable period by IPR owners, it is possible to provide access to such technologies under compulsory licensing. The conditions mentioned in Article 31 of the TRIPS Agreement become relevant in that context. However, if a technology cannot be easily copied, then the co-operation of the technology supplier becomes essential for a proper transfer of technology even with compulsory licensing, i.e. without the support of the technology supplier, compulsory licensing would be sufficient to transfer only those technologies which are easy to copy.

(d) Empirical evidence

30. There is not much empirical evidence on the effect of IPRs on transfer of EST, particularly for developing countries. A summary of the main results of the empirical literature on the effect of IPRs on technology transfer is given below.¹² This section first provides some evidence on the effects of IPRs on supply of technology and then addresses the factors relevant to those demanding the technology, such as information, access to finance, and technological capability.

31. Empirical evidence shows that there is no strict relationship between the volume of direct foreign investment and IPR regime. The amount of foreign direct investment depends much more on the host country's economic and political stability, and skill and infrastructural base. However, there is some evidence that compared to decisions affecting the volume of foreign direct investment, firms tend to regard IPRs as more important for decisions regarding the type of technology to transfer through such investment. Increased technology flows of knowledge-intensive technologies are more likely with IPR protection in the host country.

32. Furthermore, evidence from some developed countries shows that foreign investors consider IPRs in the host country as an important element in their decision to invest there, but the emphasis on IPRs varies for investments in different industries or in different types of activity. IPRs are considered important for investment in research and development facilities, or in manufacturing components and complete products, but not for investment in activities such as sales and distribution, or rudimentary production and assembly facilities. Similarly, surveys of firms in the United States have revealed that IPRs are regarded as an important determinant of foreign investment in industries such as chemicals (including pharmaceuticals) and scientific instruments, somewhat less important for investment in electrical equipment, metals and

¹²For empirical evidence, see the following studies and the references cited therein: D.J. Teece (1977), "Technology Transfer by Multinational Firms: The Resource Cost of Transferring Technological Know-How", *The Economic Journal*, Volume 87, pages 242-261; E. Mansfield, M. Schwartz and S. Wagner (1981), "Imitation Costs and Patents", *The Economic Journal*, Volume 91, pages 907-918; R. Levin, A. Klevorick, R. Nelson and S. Winter (1987), "Appropriating the Returns from Industrial R&D", *Brookings Papers on Economic Activity*, Number 3; W. Siebeck, ed. (1990), *Strengthening Protection of Intellectual Property in Developing Countries. A Survey of the Literature*, World Bank Discussion Paper No. 112, The World Bank, Washington, D.C.; United Nations Transnational Corporations and Management Division (1993), *Intellectual Property Rights and Foreign Direct Investment*, United Nations, New York; J.J. Noguez (1993), "Social Costs and Benefits of Introducing Patent Protection for Pharmaceutical Drugs in Developing Countries", *The Developing Economies*, March, pages 24 to 53; E. Mansfield (1994), *Intellectual Property Protection, Foreign Direct Investment, and Technology Transfer*, International Finance Corporation Discussion Paper Number 19, The World Bank, Washington, D.C.; UNEP (1994), "Report on the Review Under Paragraph 8 of Article 5 of the Montreal Protocol", *UNEP/OzL.Pro/WG.I/111/4*, dated 19 December 1994; UNEP (1995), *Study on the Financial Mechanism of the Montreal Protocol*, a study by COWIconsult and Goss Gilroy Inc., March 1995; UNCTAD (1995), *Compendium of Documents and Reports Relating to the Work of the UNCTAD Ad Hoc Working Group on the Interrelationship Between Investment and Technology Transfer*, United Nations, New York and Geneva.

machinery industries, and little emphasis is given to IPRs when investing in certain food and transportation industries.¹³

33. A consideration of this evidence suggests that industries which rely on technological complexity to protect their technologies tend to emphasise patents much less in their investment decisions. Patents are only one form of retaining exclusive control over the technology and evidence suggests that in a number of industries, patents are rated as being less effective than trade secrets and effective sales and service as a mechanism for securing the return from R&D.¹⁴ There is also some evidence to show that several patented technologies could be imitated by working around the patent on the basis of, *inter alia*, the information disclosed in the patent about the technology.¹⁵

34. For technologies required under the Montreal Protocol, it has been found that there was no evidence of impediments in the international flow of technology, although in specific cases it was difficult to obtain production licenses for alternative substances.¹⁶ A few cases were found where technology was not available due to the unwillingness of some private sector technology owners to supply it because they wanted to avoid creating competition for their own products, and in some cases the technology suppliers withheld their technology for fear that their intellectual property rights will not be protected and their technologies will therefore be replicated without permission in the countries concerned.¹⁷

35. Information about the availability of technologies and access to finance have been shown as very important factors for acquiring technologies, especially by investors in developing countries or by small scale firms. For example, factors cited by several countries as impediments to acquiring technologies to implement the Montreal Protocol included, *inter alia*, lack of information about alternative technologies, lack of funding/capital for conversion to alternative technologies and non-availability of alternative technologies. In the context of implementation of the Montreal Protocol, UNEP (1995) noted that with project preparation gaining momentum in all implementing agencies, a serious funding shortfall was encountered for projects planned to be submitted for approval. On the other hand, factors cited as facilitating the phase-out were, *inter alia*, availability of cheaper substitutes, foreign ownership of local users of ozone-depleting substances, the presence of multinational corporations, awareness programmes, and multilateral fund support.¹⁸

¹³See for example Mansfield (1984), *op. cit.*, and Levin, et. al. (1987), *op. cit.* Also, evidence from Levin, et. al. (1987) shows that patents and trademarks are important for pharmaceuticals, protection of "know-how" is important for the chemical industry, and industrial design for the textiles and clothing industry.

¹⁴For example, a sample surveyed by Levin, et. al. (1987), *op. cit.* shows the following average score given by the sample of firms for judging the effectiveness of different means of protecting competitive advantage of new or improved processes and products, for a scale ranging from 1 (= not effective) to seven (= very effective): patents to prevent duplication 3.52 for processes and 4.33 for products; patents to secure royalty income 3.31 for processes and 3.75 for products; secrecy 4.31 for processes and 3.57 for products; lead time 5.11 for processes and 5.41 for products; moving quickly on the learning curve 5.02 for processes and 5.09 for products; and, scale or service efforts 4.55 for processes and 5.59 for products.

¹⁵Mansfield (1981), *op. cit.*, found for his sample of patented innovations that more than four years were required to imitate the patented and profitable innovations only in the case of 15 per cent of the innovations

¹⁶UNEP (1995), *op. cit.* This study also noted that while some enterprises indicated that license fee for technology transfer were high and that production licenses for alternative substances were difficult to obtain, the Study Team found no evidence of substantive impediments in international flow of technologies supported by the Multilateral Fund.

¹⁷UNEP (1994), *op. cit.*

¹⁸UNEP (1994), *op. cit.*, notes that it was unclear whether the factors mentioned by firms were actually important or whether they were considered to be of potential importance.

36. Firms have obtained information about technologies in a number of ways, including patent disclosures¹⁹, licensing of technology, technical personnel, reverse engineering, employees of innovating firms, publications or technical meetings, links with technology suppliers (including through the foreign owners of the firm) and through information provided by foreign partners in joint ventures. A number of enterprises in developing countries have received their new technologies through joint ventures with a foreign partner or by simple procurement of the new technology. There is considerable evidence that the process of identifying, evaluating, selecting, installing and maintaining new technologies often requires significant resources and skills. This has made it relatively easier for large firms to acquire the necessary technologies, and has placed small scale firms at a disadvantage.²⁰ Moreover, sometimes the available technologies were too large in scale for small enterprises in some countries to use it cost-effectively, and required complicated resources or facilities to operate.²¹

III. CONCLUSIONS

37. The factors determining transfer of EST are essentially the same as those determining transfer of technology in general. Technology transfer takes place in several ways including foreign direct investment, joint ventures, licensing of technologies, reverse engineering, and off-the-shelf purchase of machinery. A number of factors determine the transfer of technology through these different means, such as the economic and political stability of the host country, its technological and infrastructural facilities, information about the technology, access to finance, labour skills, and the IPR regime. Empirical evidence shows that an IPR regime creates a psychological sense of security for those transferring technologies. However, the role of IPRs in technology transfer varies across different activities and industries. A large amount of technology is not subject to IPRs, i.e. these technologies are in the public domain. Among the technologies subject to IPRs, patents are not the most important form of protection in many cases, especially for those technologies which are not easy to replicate. Patents are more important for technology transfer in industries whose technologies can be easily copied. For other industries, trade secrecy protection may be more important.

38. Information about technologies, access to finance, and technological capability are important factors determining the acquisition of technologies. Disclosure under patents and links with joint venture partners or foreign technology suppliers have been shown as important means of acquiring information about the technology.

39. In analysing the effects of IPRs on technology transfer, a distinction has been made between technologies that are readily copiable, including through reverse engineering, and technologies whose transfer requires access to secret know-how which can only be obtained in cooperation with the technology supplier. In the former case, IPRs mean that access, at least for commercial purposes, to technology that could otherwise be easily replicated depends on the agreement of the IPR owner, or if that is not forthcoming, on meeting the conditions necessary for obtaining a compulsory licence. The public policy rationale for imposing on the user a cost which it would not have to bear in the absence of IPR protection is that of striking a balance between the

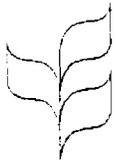
¹⁹For example, the sample surveyed by Levin, et. al. (1987), *op. cit.* shows the following score for effectiveness of different methods of learning about new processes and products, for a scale ranging from 1 (= not effective) to seven (= very effective): licensing technology 4.58 for processes and 4.62 for products; patent disclosures 3.88 for processes and 4.01 for products; publications or technical meetings 4.07 for process and 4.07 for products; conversations with employees of innovating firm 3.64 for processes and 3.64 for products; hiring R&D employees from innovating firm 4.02 for processes and 4.08 for products; reverse engineering of product 4.07 for processes and 4.83 for products; and independent R&D 4.76 for processes and 5 for products.

²⁰For smaller firms, information about the technology, financial requirements and technological capability tend to be more important factors than IPRs in determining access to technologies.

²¹UNEP (1994), *op. cit.*

interests of the creators and users of intellectual property, that provides incentives for the generation of new technology. In the latter case, i.e. technology which is not easy to copy and requires the cooperation of the supplier to be properly transferred, there are reasons that suggest that a functioning IPR system will not only make suppliers more willing to make technology available but also that, in some circumstances, even those demanding the technology might be more willing to acquire the technology.





**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/Inf.16
28 October 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Third meeting
Buenos Aires, Argentina
4 to 15 November 1996

**THE GLOBAL STRATEGY FOR THE MANAGEMENT OF FARM ANIMAL GENETIC
RESOURCES: LINKS TO THE CONVENTION ON BIOLOGICAL DIVERSITY**

Table of Contents

Preface

- I. The Roles and Values of Domestic Animals
 - A. Domestic Animals as a Source of Food
 - B. Domestic Animals as a Source of Energy
 - C. Domestic Animals as a Source of Fibers and Hides
 - D. Domestic Animals as Sources of Fuel and Fertilizer
 - E. Domestic Animals as Socio-Cultural Assets
 - F. Domestic Animals as a Source of Income
 - G. Domestic Animals and Risk Management
- II. The Current Status of Domestic Animal Genetic Resources - The Sinking Ark
- III. The Benefits of Maintaining Farm Animal Genetic Resources
- IV. Responding to the Loss of Farm Animal Genetic Resources
 - A. The FAO Commission on Genetic Resources for Food and Agriculture
 - B. Initiating the Global Strategy for Animal Genetic Resources
- V. Major Components of the Global Strategy
- VI. Key Elements of the Technical Programme

- A. Characterization - Understanding Domestic Animal Diversity
- B. DAD-IS - Domestic Animal Diversity Information System
- C. Conservation of Domestic Animal Diversity
- D. Developing a Management Capacity and Strategy for Action

VII. Priority Activities for Establishing and Implementing the Global Strategy

VIII. Linking the Global Strategy and the Convention on Biological Diversity

- A. DAD-IS and the Convention
- B. Project MoDAD and the Convention
- C. National Action Strategies and the Convention

Conclusions

PREFACE

Domestic animal genetic resources are being lost at an unacceptable and accelerating rate. FAO estimates that one breed is lost per week and that 30 percent of all domestic animal breeds are currently threatened. The main reason for the loss of domestic animal breeds is that locally adapted breeds are being replaced with high input, high output exotic breeds. Farmers are attracted to high output breeds which are common in high input developed world agriculture systems. However, in many production environments, especially in the low input environments that are common in the developing world, exotic breeds fail to increase production or productivity, under real local farming conditions. Furthermore, intensive animal production with its dependency on imported technologies is neither affordable nor sustainable for most farmers in the developing world. Thus, often the best strategy for developing sustainable food and agriculture production in low input systems is to improve or enhance indigenous breeds. Maintaining indigenous breeds allows the use of the available broad array of production environments that characterize the developing world and takes advantage of traditional knowledge, rather than relying solely on imported technology. Maintaining and developing indigenous breeds not only contributes to sustainable agriculture, it supports the maintenance of traditional lifestyles and cultures, which may be lost or eroded as a result of adoption of non-traditional agricultural practices.

Indigenous breeds are well adapted to high stress, low input production systems, many of which will remain for the foreseeable future.

What impact will the loss of domestic animal genetic diversity have? Will we be able to breed animals to respond to changes in the marketplace or to changes in the environment? When disease breaks out, will we be able to find animal genetic resources that provide resistance to such stressors? What will happen to local and indigenous communities if their livestock are replaced with breeds that they have no experience with, and which have no cultural or religious significance to them? How will people heat their homes and fertilize their crops if animals are replaced with tractors? Are there unique characteristics of some breeds that would be valuable in other breeds, environments or countries? Are there unique characteristics in breeds that farmers are not fully aware of, characteristics that could significantly increase productivity and production and thus contribute to our efforts to achieve global food security?

Given our past experience in having to develop breeds to respond to changing markets and environmental conditions, the need to breed livestock for disease and pest resistance, and the importance that domestic animals currently play in achieving food security and maintaining cultural identity, the answers to these questions are quite simple. The future with greatly reduced domestic animal genetic diversity will mean: we will be less able to respond to change, we will have reduced capacity to breed animals for desired characteristics such as resistance to disease, and we will erode our overall capacity to achieve food security. The loss of indigenous breeds will also adversely affect community identity and structure reducing the ability of local communities to maintain their traditional lifestyles.

Recognition of the very significant role domestic animal genetic resources contribute to global agriculture productivity and production, and to community identity; and the accelerating decline of these resources, led FAO to initiate the Global Strategy for the Management of Farm Animal Genetic Resources (Global Strategy). The elements of the Global Strategy and possible linkages between it and the Convention on Biological Diversity are described in this document.

I. The Roles and Values of Domestic Animals:

Domestic animals account for 30-40 percent of the total value of global food and agriculture production. This major contribution is made from 4,500-5,000 breeds, which have been developed within approximately 40 animal species over the course of the past 12,000 years. Until very recently, domestication, especially in the developing world, has been a process of developing animal genetic resources to meet local or regional needs. Animals were selected for particular characteristics or for cultural values while recognizing that they were

also being selected for local conditions, diseases, available feeds, climate, predators, and many other persistent variables imposed by the local environment. The result has been the development of indigenous breeds that contribute to local and national needs and demands, and that are adapted to local conditions. Development of breeds over time has made it possible for humans to take advantage of the diverse production environments that exist in both developed and developing countries.

The contribution of domestic animals to agriculture and overall economic development has not been adequately evaluated or appreciated. Recent estimates indicate that domestic animals account for 30-40 percent of the total value of food and agriculture production. Currently, 1.96 billion people depend at least partly on domestic animals for their livelihood, and 12 per cent of this total depends upon them almost completely.

Domestic animals have been and will continue to be essential elements in global agriculture production performing several valuable roles, including: converting forage crops, crop residues and other by-products feeds into a range of high-quality human foods, providing draught power for agriculture production, harvesting and transportation, and supplying fuel, fertilizer, hides, wool and other fibers. They also provide a valuable source of income and act as an insurance policy in case of crop failures. This latter feature is an essential risk management element and is especially valuable in small farm operations and in nomadic and semi-nomadic systems. In addition to monetary values, domestic animals have become socio-cultural and religious resources and symbols. In many communities, indigenous breeds of domestic animals not only are valuable for food and agriculture, they play a central role in community identity and well-being.

Farm Animal Genetic Resources - are the genetically unique populations formed throughout all domestication processes within each animal species used for the production of food and agriculture, together with their immediate wild relatives.

A. Domestic Animals as a Source of Food:

Domestic animals provide a wide range of food products including: a variety of meat, milk and eggs. The role of domestic animals in global food production will increase in future as the contribution of animals to total food production is increasing at a higher rate than cereal crops. In the past 20 years for example, egg production increased by 331 percent and meat production by 127 percent, while cereals increased by 78 percent.

Much of the agricultural production involving domestic animals in the developing world occurs in high stress, low-input production systems. Indigenous breeds are essential in such environments as introduced exotic breeds fail to consistently produce or can't survive in high stress, low input production environments.

Animal products provide a primary source of protein, essential amino acids and minerals such as iron and calcium. They also make a significant contribution in terms of total calories, accounting for 30 percent of the calories in human diets in the developed world and slightly less than 10 percent in the developing world. Animal products provide an essential source of amino acids that balance the largely vegetable-based protein diets that are found in many developing countries, and provide diverse food products to meet demands for variety in diets. The great variety in quality and types of food products originating from animals also enriches our daily intake of food. Much of this variety is realized through diverse genetic resources.

The Arvana-Kazakh type dromedary of Kazakhstan, is a breed that has been selected for high milk yield and is well adapted to harsh continental desert climate, lack of water and poor feed supply. Currently, there are less than 1,000 surviving animals.

B. Domestic Animals as a Source of Energy:

Draught power provided by domestic animals is an essential energy resource in many parts of the world. It has been estimated that 52 percent of land cultivated in the developing world (excluding China), is worked by draught animals. Domestic animals provide draught power to irrigate and harvest crops, transport people and agricultural products and also provide an essential source of power for many non-agricultural activities, such as hauling logs and fuel wood.

The Bolivian Pony or Sunicho is an indigenous horse to Bolivia that can survive in the harsh highland regions. They were widely used for transportation but have now been replaced by the donkey.

Draught animals provide a renewable source of energy to farm operations and avoid the large drain of capital that is required to purchase tractors, spare parts and fuel. Special genetic qualities or characteristics are needed to provide draft capability and thus many indigenous breeds have been developed specifically for draft power.

While draught power is expected to decline slightly by the year 2000, it will remain the most cost-effective power source for small- and medium-scale farms in developing countries.

Farm animals are the source of a range of food products and of power, fuel, fertilizer, and provide raw materials for manufacturing numerous products. Maintaining indigenous animal breeds is essential to continue to produce multiple benefits and diverse products.

C. Domestic Animals as a Source of Fibers and Hides:

A broad range of clothing and other non-food products used in daily living of communities of many countries are derived from the fiber and hides of farm animals.

D. Domestic Animals as Sources of Fuel and Fertilizer:

In many countries, livestock waste products are highly valued sources of fuel. Cattle, camel, yak and buffalo dung for example, are widely used fuels for cooking and heating. This fuel source is renewable and reduces expenditures on fossil fuels and the need to harvest forests for fuel wood. In treeless areas such as the tundra area of Mongolia, dung provides the only available source of fuel.

The Yakut cattle indigenous to the Siberia area of the Russian Federation are highly adapted cattle that can tolerate temperatures as low as -60 C. They survive under poor feed conditions yet yield concentrated milk with high fat content. They are considered resistant to tuberculosis, leucosis and brucellosis. Despite their highly adapted qualities, only 900 individuals can now be found in Siberia.

Biogas production from livestock manure is a proven renewable energy resource. Recently developed plastic biodigesters have made it possible for many more farmers in the developing world to use biogas as a fuel sources for lighting, heating, driving machinery and even using the gas as an insecticide to control insects in grain storage areas.

Domestic animal waste products also serve as a valuable source of fertilizer and soil conditioner. Nutrient

/...

recycling is an essential component of a sustainable agriculture system. Returning manure to crop land serves to integrate livestock and crop production, and reduces waste management problems.

E. Domestic Animals as Socio-Cultural Assets:

Another essential but often undervalued aspect of domestic animals is their socio-cultural role. Many communities have well established traditions and lifestyles that are fundamentally linked with domestic animals. While it is not always possible to assign monetary values to such linkages, the non-monetary religious and other cultural values to local community identity are essential. Replacement of indigenous breeds with exotic breeds can ultimately lead to the loss of local lifestyles.

The Navajo-Churro sheep have been re-introduced to Indian reservations in the United States. There are currently 540 animals which produce a special double coated fleece.

F. Domestic Animals as a Source of Income:

Products from domestic animals provide valuable income in both the developed and developing world. Globally, meat and milk products represent 3.5 times the value of wheat and rice. Animal products, such as meat, milk, hides, wool, manure, and fees charged for draught power, make essential contributions at the farm, community and national levels.

Domestic animals are also valuable in providing raw materials for manufacturing and in the development of medicines. Various parts of sheep for example, are used to make bone china, wax and surgery supplies. Both sheep and cattle are used as a source of insulin for the treatment of human diabetes.

It takes the pancreas of 26 cattle to provide a diabetic with a supply of insulin for one year.

At present, developing countries are major importers of animal feeds, meat and dairy products. Increasing animal production in the developing world will thus reduce foreign exchange costs and may even contribute to foreign exchange earnings. Other animal products, such as hides, offer opportunities for economic development in the developing world once the basic infrastructure is established.

G. Domestic Animals and Risk Management:

Domestic animals also provide economic security acting as a direct food resource in case of crop failure, and as liquid assets that can be sold or traded to purchase or acquire goods and services. Food security strategies require that attention be paid to both absolute levels of production and to reducing severe yearly fluctuations in levels of production and income. Farm animals serve to reduce the vulnerability of farmers to significant variations in production and incomes, and are therefore essential components of risk management strategies, especially for small farm operations. Small ruminants, pigs, rabbits and poultry are particularly valuable in this regard as farmers are able to maintain more of them than larger animals such as cattle, buffalo and camels.

Domestic animals provide a source of income, employment and are essential elements of risk management strategies for small farms that are vulnerable to crop or market failures.

II. The Current Status of Domestic Animal Genetic Resources - The Sinking Ark:

Agro-biodiversity is being lost at an accelerating and unacceptable rate as result of human population and

/...

development pressures and the rapid transformation of traditional agricultural systems which still accounts for 75 per cent of production in the developing world. This change is resulting in the decline in the use of traditional farm animal breeds, and placing many breeds at risk of extinction. Unless action is taken these breeds will be lost before their genetic contributions can be clearly understood.

Over 30 percent of all existing domestic animal breeds are now at risk of extinction and are being lost at the rate of at least one breed every week.

The latest information available from the World Watch List for Domestic Animal Diversity indicates that 30 percent of the world's domestic animal breeds are at risk of extinction, and at least one breed is lost per week. This estimate is based upon a global survey which has established a data base for 3,882 breeds. The World Watch List has made it possible for FAO to establish The Global Early Warning System for Farm Animal Genetic Resources enabling countries to plan and respond to rapid declines in their livestock populations.

The Pak Angora goat of Pakistan is a very disease resistant and heat-tolerant breed that now consists of a single herd of 380 animals.

This severe loss of animal genetic resources has significant implications for future breed development, food security and maintenance of cultural identity and traditional lifestyles. The situation with the world's population of cattle is indicative of how rapid changes can occur in agriculture and result in negative long-term impacts. The world cattle population currently consists of 800 cattle breed populations, however, given rapid changes in this sector, within one human generation, the world's cattle population will consist predominately of only twenty breeds. This will reduce genetic diversity and result in the loss of many unique characteristics, reducing our ability to develop sustainable agricultural systems, reducing our capacity to respond to future market demands, and reducing our ability to breed animals to adapt to variables such as disease, climatic shifts and other factors. Loss or the narrowing of genetic resources will also reduce our availability to use all available production environments and thus will affect both production and productivity in the long-term.

In India, 50 percent of the indigenous goat breeds face the threat of extinction, and an estimated 80 percent of all poultry produced are now from exotic breeds. China harbours the vast majority of the world's pig breeds, however, these are now very rapidly being replaced by exotic breeds.

The loss of indigenous breeds also has implications for environmental quality and the loss of biodiversity. Many existing low input, low output agriculture systems that use locally adapted breeds have relatively benign impacts on environmental quality and biodiversity at the landscape level. Many indigenous breeds are used for vegetation management particularly in mountainous regions because of their hardiness and surefootedness. Rapid transformation of traditional agriculture systems dependent upon exotic breeds can result in: increased pollution, conversion of natural landscapes to produce livestock feeds, increased predator control programs and other impacts to ecosystems. Thus, development approaches in agriculture must occur with a full understanding of the production system, the role and value of indigenous breeds, impacts to local cultures and impacts to environmental quality and biodiversity.

Animal genetic resources contribute to both improved production (overall increases in agricultural output) and lifecycle productivity (efficiency - outputs relative to inputs). Improving productivity may in future become the most desirable strategy to increase agricultural outputs given the limited availability of agricultural lands, increasing costs of inputs, and concerns regarding the loss of biodiversity.

III. The Benefits of Maintaining Farm Animal Genetic Resources:

There are numerous benefits to maintaining a wide-range of animal genetic resources using a combination of active *in-situ* and *ex-situ* measures. The benefits include:

- a) being able to develop genetic resources that are adapted to a wide-range of agro-ecosystems to meet demands for food and other products;
- b) being able to access genetic resources to develop or enhance characteristics necessary to respond to changes in production environments, such as resistance to diseases or adaptability to climatic changes and changing consumer preferences;
- c) being able to respond to our improving understanding of human nutrition needs;
- d) being able to develop a variety of foods and other products to suit a range of post harvest processing and local cuisine needs;
- e) maintaining traditional cultures, lifestyles and religious beliefs and responding to lifestyle changes;
- f) taking advantage of research opportunities including genetic and physiological comparative studies; and
- g) providing educational opportunities that historical development of breeding programs and farm management in a variety of production environments provide.

The Banaba chicken of the Philippines is a native chicken breed that can protect itself from many predators and is resistant to respiratory diseases, and Fowl Pox. Despite these valuable traits only 1000 Banaba chickens remain.

While it is impossible to predict the future, we can quite safely conclude that: environmental stressors; disease, pests, climate change and other stressors will be significant factors in agricultural systems. We can also predict that consumers will demand a variety of agricultural products, and that by the year 2050, food production from animals must be doubled to meet demands. In addition, consumers are increasingly seeking more natural products which can be developed from diverse animal genetic resources.

In the past, our ability to respond to environmental and market changes, was possible because farmers had access to enormous animal gene pools in both natural ecosystems and agro-ecosystems. These reservoirs or genetic insurance policies must be maintained if we are going to be able to effectively respond to future needs and demands.

The small number of commercial breeds which are suited to high input production systems do not offer an adequate genetic reservoir to provide farmers with the resources they will need to meet future needs and demands in quantity and qualities of agricultural products.

IV. Responding to the Loss of Farm Animal Genetic Resources

A. The FAO Commission on Genetic Resources for Food and Agriculture:

FAO has a long history of involvement in the conservation and sustainable use of genetic resources of value to agriculture. In the field of plant genetic resources, for instance, FAO has, since 1961, organized a series of

International Technical Conferences, that have helped mold international opinion and define strategies for action. In past decades, there has been a growing realization of the need to consider agro-biodiversity holistically, within ecosystem and farming system approaches to sustainable agriculture.

Most nations of the world signaled their awareness of the loss of biodiversity and the need for action, by signing the Convention on Biological Diversity in 1992. The Convention rapidly came into force in 1993, an indication of the high priority countries place on conserving biodiversity, sustainably using biological resources, and adopting measures to equitably share the benefits arising from the use of genetic resources.

In 1994, partly in responses to the holistic treatment of biodiversity in the Convention, FAO member countries began discussing the need to broaden the mandate of the FAO Commission on Plant Genetic Resources to cover all genetic resources relevant to food and agriculture. The FAO Council concluded that:

- a) an intergovernmental framework for dealing with animal genetic resources for food and agriculture was urgently needed;
- b) duplication of function with Conference to the Parties to the Convention on Biological Diversity should be avoided; and
- c) current activities on plant genetic resources should not be affected by widening the Commission's mandate.

The FAO Conference in 1995 accordingly resolved that:

- a) the mandate of the Commission on Plant Genetic Resources should be broadened to cover all components of biodiversity relevant to food and agriculture;
- b) the Commission would now be known as the Commission on Genetic Resources for Food and Agriculture; and
- c) implementation of the broadened mandate of the Commission should be carried out in a step-by-step approach, beginning with animal genetic resources, in a manner that did not adversely affect the negotiations underway for the revision of the International Undertaking on Plant Genetic Resources, and in harmony with the Convention on Biological Diversity.

B. Initiation of the Global Strategy for Animal Genetic Resources:

The FAO Conference in 1989 began the critical examination of the status of domestic animal genetic resources and the need for conservation of these resources. This process led to the acceptance of The Global Strategy for the Management of Farm Animal Genetic Resources in 1995. The framework for the Global Strategy comprises four major components and several key elements, which are described in the following sections and summarized in Figure 1.

V. Major Components of the Global Strategy:

1. **The Commission for Genetic Resources for Food and Agriculture has been established as the intergovernmental mechanism**, to provide for direct government involvement and opportunities for participating governments to provide policy advice and other support for the strategy.
2. **A country-based global infra-structure**, has been designed to assist countries to develop, implement and maintain comprehensive national strategies for the management of their farm animal genetic resources.

/...

3. A **technical programme**, has been developed and is aimed at supporting effective management action at the country level. The technical programme is comprehensive and is designed to improve understanding of farm animal genetic resources, increase management and policy capacity, provide training within countries, encourage and facilitate communication, assist with development and implementation of essential activities of characterization, and *in-situ* and *ex-situ* conservation.
4. A **cadre of experts**, have been identified to guide the strategy and to ensure that it is technically sound and cost-effective.

VI. Key Elements of the Technical Programme:

A. Characterization-Understanding Domestic Animal Genetic Diversity:

Little information exists on performance, product, and adaptive qualities of most animal species of interest to agriculture. Even more critical, there is no complete, worldwide inventory of domestic animal genetic resources, nor a comprehensive system of monitoring, by which farm animal breeds at risk of extinction may be identified and monitored.

Characterization of domestic animal breeds is necessary to plan the effective utilization of genetic resources, and to identify breeds most at risk in order to determine conservation priorities and approaches. Characterization requires: national inventories of animal genetic resources, ongoing monitoring of these resources, comparative evaluations to increase knowledge of the unique qualities of breeds in order to better utilize these traits and determine appropriate production environments, and comparative molecular descriptions using gene markers and genetic distancing measures to establish the comparative uniqueness of breeds and the genetic diversity they harbour.

Indigenous livestock breeds often possess valuable traits such as disease resistance, high fertility, good maternal qualities, unique product qualities, longevity and adaptation to frequent bouts of harsh conditions and poor quality feed, all desirable qualities for low-input, sustainable agriculture.

Project MoDAD - Measurement of Domestic Animal Diversity, is an essential activity of FAO's characterization strategy. The magnitude of the accelerating loss of domestic animal genetic resources is so great that it is unrealistic to devote scarce international financial resources to a few breed rescue projects, or to hope to maintain all remaining breeds in perpetuity. Project MoDAD has been designed to better target conservation efforts in order to use scarce financial resources effectively. It is based on a rigorous experimental design where blood would be collected from the 14 domestic animal species that are most important to agriculture. DNA extracted from the blood would be subjected to molecular techniques to establish the extent of diversity within a species by quantifying the genetic distance between breeds, based on differences in genetic makeup. To obtain full utility of results, the sampling, laboratory assaying and advanced statistical analysis must be coordinated globally for each species. If funded and implemented, MoDAD would greatly support efforts to identify breeds which harbour the most significant genetic diversity and assist all countries to better target efforts in the management of their farm animal genetic resources. MoDAD would also provide repositories of DNA and detailed genetic data, that would support research, training and teaching.

Project MoDAD would be conducted with the full involvement of host countries to ensure that access to genetic resources is according to mutually agreed terms and prior and informed consent. Countries of origin will also obtain data and information that result from testing and research.

B. DAD-IS - Domestic Animal Diversity Information System:

DAD-IS, is the virtual element of the strategies country-based global structure. DAD-IS is a multi-language, multi-faceted, computerized information system that is accessible to anyone who has access to a computer and Internet access to the World Wide Web, or a CD-ROM reader. This tool has been designed for country use and will help updating country data and ensure country-based data and information security.

DAD-IS is being developed to link all parties to the Global Strategy for the Management of Farm Animal Genetic Resources. It is the window of the world for the management, teaching and research for animal genetic resources. It is the primary element of a clearinghouse mechanism for the farm animal sector of biological diversity.

DAD-IS has been designed to facilitate many activities necessary to implement all programme elements of the Global Strategy, and is now available to countries.

DAD-IS will:

- **Assist countries to design, implement and maintain cost-effective action plans** for animal genetic resources for all domestic species, support efforts to develop and monitor action plans for each species, and will assist in developing status reports.
- **Enhance in-country breeding strategies** by helping countries to secure, validate and organize data and information on current breed population size, location, production and performance characteristics and appropriate production environments.
- **Act as a clearinghouse mechanism** providing developing country farmers with access to experts and information from around the world, including information on breeds that may be of interest to local farmers.
- **Assist in setting country and regional conservation priorities** by providing a catalogue of breeds not currently in demand, those that are being conserved using *in-situ* and/or *ex-situ* measures, and will support global conservation efforts by supporting the early warning system for domestic animal genetic resources.

DAD-IS provides instant information to support effective utilization of genetic resources. For example, breed X in country Y is rapidly declining due to displacement by the imported exotic breed Z. However, breed Z suffers periodic high mortality and low productivity due to stress and disease. DAD-IS can provide information needed to determine whether to take steps to halt the decline of breed X, improve the resistance of breed Z, or embark on another management option.

C. Conservation of Domestic Animal Diversity:

Conservation of agro-biodiversity is the third key element of the Global Strategy and is a low-cost way of achieving food security. This is particularly true in the developing world where diversity provides a greater assurance of food. It enables farmers to select and develop livestock breeds that are adapted to specific environmental and production conditions.

Indigenous breeds commonly exhibit very high between-animal differences in low-fitness production traits, resulting in very rapid genetic development of these traits when effective *in-situ* breed development schemes are implemented and maintained.

Encouraged by promises of increased production, farmers in recent years have come to rely upon imported exotic breeds which are rapidly displacing indigenous breeds. All too often however, productivity and sustainability are reduced as the exotic breeds are intolerant of local climate, lack resistance to local diseases, exhibit low reproductive rates and high death rates, and do not perform well in nutrient-poor environments that are common in the developing world.

An effective conservation strategy is required utilizing and integrating both active *in-situ* and *ex-situ* measures. Conserving breeds with unique characteristics is an investment that is necessary to ensure the long-term viability of many agro-ecosystems, and will support efforts to achieve global food security.

Exotic breeds often lack resistance to local diseases and climatic conditions, produce poorly and lack persistency without considerable high-quality feeds.

The Global Strategy for the Management of Farm Animal Genetic Resources includes a strong conservation element. It proposes to assist participating countries to manage and conserve irreplaceable domestic animal genetic resources. The Global Strategy emphasizes wise use of animal genetic resources to achieve food security and sustainable development imperatives. With one of every three breeds of domestic animals threatened, the conservation challenges are very significant. In addition to the large number of threatened breeds, several other challenges exist, which include:

- Over 60 percent of animal breeds are in developing countries that lack the financial resources to establish and maintain domestic animal conservation programmes.
- Conservation of breeds that are not of current interest to farmers receive very little attention.
- There are no systematic monitoring programmes in place for breeds that are at high risk.
- There is inadequate descriptive information for the vast majority of animal genetic resources.
- There is a lack of awareness of the long-term value of indigenous breeds as many countries and their farmers are attracted to imported breeds to increase yields, even though they require high-input production systems that are most often not available nor sustainable in the developing world.

Conservation programmes are lacking for over two thirds of breeds that are at risk of being lost.

The following steps are required to effectively determine conservation priorities and sustainable management approaches for domestic animal genetic resources:

- Identification, description and monitoring of all breeds with special attention to breeds most at risk.
- Development and use of a wide spectrum of breeds with an adequate understanding of production environments.
- Integration of active *in-situ* and *ex-situ* measures including the storage of adequate samples of

genetic materials of breeds at risk.

- Country, regional and global cooperation and coordination in the development of management strategies and relevant policies.
- Programmes of research and training in areas related to the conservation and management of domestic animal resources.
- Education and awareness to promote understanding of the roles and values of indigenous breeds.
- Maintenance of traditional knowledge and lifestyles that are necessary to conserve and use indigenous breeds.

Little use has been made of the earth's total animal genetic diversity. Of 50,000 known avian and mammalian species, only about 40 have been used for agriculture and of these just 14 species contribute 90 percent of agriculture and food production under current systems of farming.

D. Developing a Management Capacity and Strategy for Action:

The final key element of the Global Strategy for the Management of Farm Animal Genetic Resources is enhancing country capacity to conserve and use domestic animal genetic resources, and for each participating country, develop and implement a Strategy for Action.

The proposed Global Strategy provides a mechanism for national and international planning, communication, cooperation, technical activities and policy development in managing animal genetic resources. To be able to fully take advantage of the Global Strategy, countries are advised to establish a **Management Capacity or Focal Point**. This should consist of a programme coordinator and an advisory committee. The focal point will act as the contact between the country and FAO and will thereby greatly facilitate rapid implementation of the strategy.

Countries are becoming increasingly dependent upon access to unique genetic resources which often exist in other countries. Effective national conservation efforts and international cooperation are the foundations to the global management and conservation of animal genetic resources.

Each participating nation will also be encouraged to prepare a **Strategy for Action** as the conservation and sustainable use of domestic animal genetic resources requires the setting of goals and operational objectives based upon local needs and capacities. The Strategy for Action should be integrated with national biodiversity and sustainable development strategies.

The main activities that are required to prepare and implement a Strategy for Action are:

- Inventory and characterization actions for each breed.
- Preparation of comprehensive action plans for each important species including determining required resources, costs and time schedules.
- Determining highest priorities for training, technical development and other aspects of capacity building.
- Implementing action plans in the most efficient and effective way while providing opportunities for

/...

stakeholders to participate.

- Monitoring, evaluating and reporting progress towards objectives.

Detailed guidelines for preparing National Action Strategies for the management of domestic animal genetic resources are available from FAO, via the Internet or in hard copy form.

VII. Priority Activities for Establishing and Implementing the Global Strategy:

1. Develop the global surveys for all domesticated animal species (commenced for 28 species) and establish ongoing monitoring programmes for all animal genetic resources determined to be at risk.
2. Update and maintain the Global Databank for animal genetic resources and update the World Watch List for Domestic Animal Diversity.
3. Further develop and fully implement the Domestic Animal Diversity Information System (DAD-IS).
4. Establish effective National, Regional and Global Focal Points.
5. Undertake regional pilot projects to assist countries to assess and promote conservation of farm animal genetic resources and encourage the use of these resources in appropriate production environments.
6. Prepare for and rapidly implement intergovernmental discussions on policy matters relating to domestic animal genetic resources.
7. Facilitate characterization to better understand the qualities of resources, and particularly, to facilitate and coordinate the development of the MoDAD project.
8. Examine and promote cost-effective performance recording and active *in-situ* breeding strategies for low to medium input, high stress production environments.
9. Continue to examine and promote *in-situ* conservation measures for breeds not currently of wide interest to farmers.
10. Continue to examine and promote cost-effective *ex-situ* measures for unique, rare and threatened domestic animal resources, including the establishment of Global Repositories of Last Resort.
11. Develop and implement a global communications strategy incorporating basic training, reporting and public awareness.
12. Further develop and implement comprehensive guidelines for the development of National Farm Animal Genetic Resources Management Plans.
13. Mobilize donor involvement and support and, at the request of member governments, provide assistance with technical coordination for the range of funded activities. Also, mobilize and assist in coordinating the support of the spectrum of other stakeholders.

VIII. Linking the Global Strategy and the Convention on Biological Diversity

Both the Global Strategy and the Convention arose as result of the accelerating loss of biodiversity. As a result, both initiatives are complementary and mutually supportive. The origins and mandate of both initiatives requires international and national coordination to implement them effectively and efficiently, and to avoid duplication.

The following section describes three opportunities for immediately linking three key elements of the Global Strategy with Convention activities.

A. DAD-IS and the Convention:

DAD-IS is a critical and high priority component of the Global Strategy, that will contribute to achieving all three objectives of the Convention. DAD-IS will support **conservation** of agro-biodiversity by providing databases, cataloguing all domestic animal breeds and aiding in monitoring those most at risk and in the range of activities underway for each breed; thereby acting as a comprehensive early warning system. This will enable countries and international institutions to set conservation priorities and respond before highly endangered levels occur which results in crisis management responses.

DAD-IS is a communications tools which will provide information to countries and farmers, it will also support conservation by communicating the values and roles of domestic animal genetic resources and especially the need to conserve indigenous breeds. DAD-IS will act as a global network by putting countries and their farmers in contact with other farmers, agricultural research, training and education institution, and scientists from around the world. Developing and sharing public information is an important requirement of the Convention; DAD-IS provides an efficient means to do this for the domestic animal sector.

DAD-IS will support efforts to use domestic animal genetic resources in a **sustainable manner**. Information will be communicated to countries and farmers to assist them to develop and implement appropriate management regimes for their local conditions. DAD-IS will contain comprehensive guidelines for developing National Strategies for Action and detailed guidelines designed to assist countries and farmers to implement specific elements of the Global Strategy, such as characterization and information on animal genetic resources that will be valuable in developing country-based breeding strategies.

Farmers urgently need access to practical guidelines to assist them to develop effective *in-situ* breeding programmes and to allow them to take advantage of appropriate technologies.

Within countries, DAD-IS will provide a database to maintain the range of essential descriptive data and information on breeds including performance and production attributes, and environmental parameters. This system will assist countries and their farmers to better use their genetic resources.

Through its cascade of security protocols, DAD-IS can be used by countries as their own communication and information tool for facilitating, coordinating and monitoring management of their animal genetic resources. DAD-IS is also able to accommodate confidential data to maintain a validation mechanism and permit the release of particular data internationally, as determined by each country.

The objectives of DAD-IS are to involve, co-ordinate and assist governments, non-governmental organizations, international agencies, training and research groups in all countries to achieve better management of animal genetic resources used to produce food and other agriculture products.

The Convention requires contracting parties to facilitate access to genetic resources for environmentally sound uses by other contracting parties. DAD-IS will assist countries to **provide access to genetic resources** under mutually agreed terms and with prior and informed consent.

DAD-IS also provides a mechanism to support the **fair and equitable sharing of benefits arising from the use of genetic resources**. The contribution of DAD-IS to this objective is two-fold. First, DAD-IS can provide the necessary information base for countries to agree mechanisms for the fair and equitable sharing of the burdens and the benefits derived from the conservation and sustainable use of animal genetic resources for food and agriculture.. Secondly, one form for sharing benefits under the Convention is technology transfer. Thus, transfer of DAD-IS as a technology supports the achievement of this very important objective of the Convention.

B. Project MoDAD and the Convention:

The Convention requires contracting parties to conserve their biodiversity at the ecosystem, species and genetic levels. Biodiversity conservation and sustainable use efforts are usually directed at the ecosystem or species levels, with occasional theoretical observations being made about genetic conservation requirements. **Project MoDAD** offers a practical opportunity to investigate biodiversity conservation and sustainable use at the genetic level. The relatively low number of species of domestic animals and the fact that domestic animals are also relatively easy to sample, makes **MoDAD** technically and financially feasible.

Enhanced understanding of the relative uniqueness of domestic animal genetic resources is required to facilitate objective priority setting in the conservation and use of these resources.

The results of genetic diversity studies of domestic animals will provide direct benefits to both conservation and sustainable use. **MoDAD** will determine levels of rarity. This will provide an objective basis to set conservation priorities, both *in-situ* and *ex-situ* measures, and will also provide some added information to countries and farmers on the use of genetic material.

MoDAD will provide benefits beyond the agriculture sectors as it could have the additional benefit of providing a basis for genetic level studies in wild animal populations, both in terms of experimental design and use of technology. This could be extremely useful to many countries as they struggle to set conservation priorities with very limited financial resources.

C. National Action Strategies and the Convention:

The Convention requires contracting parties to develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans and programmes which shall reflect, *inter alia*, the measures set out in the Convention (Article 6a).

The Convention on Biological Diversity recognizes the importance of genetic resources to agriculture and the need to identify and monitor species and genomes that are valuable to agriculture, including wild relatives of domesticated species.

Given the need for a National Biodiversity Strategy and the need for a National Strategy for Action as part of the Global Strategy for the Management of Farm Animal Genetic Resources, countries may choose to integrate these obligations. The Farm Animal National Strategy of Action could be a subcomponent of the National Biodiversity Strategy. This level of integration would ensure coordination between the Animal Genetic Resources National Focal Point and the National Biodiversity Unit and would effectively coordinate activities such as: developing sectoral and cross-sectoral plans; identification and monitoring of components of biodiversity; *in-situ* and *ex-situ* conservation; adopting sustainable use and incentive measures; establishing and maintaining research and training programmes; and promoting and encouraging public awareness of the importance of measures required to conserve and sustainably use biodiversity.

Conclusions:

1. Agro-biodiversity is an integral component of global biodiversity and must be maintained in order to enhance global food security and to maintain traditional cultures and lifestyles. Domestic animal genetic resources are a crucial element of agriculture and food production, locally, nationally and globally.
2. Domestic animal genetic resources, especially indigenous breeds that are adapted to low to medium input production, high stress environments, are being lost at an unacceptable and accelerating rate, and will continue to do so unless effective and immediate action is taken locally, nationally and internationally. Indigenous breeds allow farmers to take advantage of a wide range of production environments and provide the foundation for improved animal agricultural production and productivity in most developing countries.
3. Response to the global loss and decline of domestic animal genetic resources must be comprehensive and integrated; the Global Strategy for the Management of Farm Animal Genetic Resources has been designed with an understanding of these requirements. Management of agro-ecosystems must emphasize long-term and sustainable approaches through integrated resource and land management approaches, and the full involvement of all stakeholders.
4. Further development and implementation of the Global Strategy will require partnerships to fund elements of the programme with FAO leading, coordinating and providing core funding.
5. The Global Strategy is fully in harmony with the Convention on Biological Diversity, and will facilitate its implementation. It puts major emphasis on the need for international and national coordination for efficient management of farm animal genetic resources and to avoid duplication of efforts.
6. Parties to the Convention should consider funding implementation of elements of the Global Strategy, in particular: support to enable rapid and effective establishment of national and regional focal points, supporting the development of DAD-IS and Project MoDAD, and assistance to countries to develop their National Action Strategies for animal genetic resources.



CONVENTION ON
BIOLOGICAL DIVERSITY

Distr.
GENERAL

UNEP/CBD/COP/3/Inf.19
29 October 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY

Third meeting
Buenos Aires, Argentina
4 to 15 November 1996

ACCESS TO MICROBIAL GENETIC RESOURCES

1. **Introduction**

1. This document has been prepared by way of information for the Conference of the Parties at its third meeting, in relation, in particular, to item 9 (conservation and sustainable use of agricultural biological diversity) and item 12 (access to genetic resources) of the provisional agenda. The document describes some special characteristics of microbial genetic resources, a number of which are relevant to the issue of access to genetic resources. In particular, it focuses on issues relevant to access to microbial resources in ex-situ collections. It is not the purpose of this document to draw specific conclusions or to make specific recommendations, but rather to raise awareness of issues concerning microbial diversity which might otherwise be overlooked.

2. This document draws heavily upon a document prepared by the World Federation for Culture Collections (WFCC) entitled "Access to Ex-Situ Microbial Genetic Resources within the Framework of the Convention on Biological Diversity", which is being made available by the WFCC at the third meeting of the Conference of the Parties. In drawing upon that document, which has been utilised by the Secretariat only as a source of information, the Secretariat does not express any view as to any conclusions or recommendations contained therein.

2. **Significance of microbial diversity**

3. Microorganisms include bacteria (including archaea and cyanobacteria), fungi (including micro- and macrofungi) and algae. The inclusion of microorganisms in the Convention (Article 2) demonstrates recognition of the fundamental role played by microbial diversity in the maintenance of the biosphere and as a

resource for humankind. Without microbial activity, life on Earth would not be possible. Microorganisms are to be found in every ecological niche, performing essential recycling roles and interacting with other living forms in ways that are only now beginning to be understood. Their total numbers are unknown and their study *in situ* is difficult.

4. Microorganisms are essential to the functioning of the ecosystems which the Conference of the Parties are addressing under the medium-term programme of work. For example, document UNEP/CBD/COP/3/14 (Consideration of Agricultural Biological Diversity under the Convention), in paragraph 42, highlights the role of soil microorganisms in maintaining nutrient cycling, soil structure, moisture balance and the fertility of soils. Mycorrhizae, fungi that live in symbiosis with plant roots, are essential for nutrient and water uptake by plants.

5. As well as their role in ecosystem functioning, microorganisms provide basic material for the development of many pharmaceutical drugs, agrochemicals, bioremediation and biocontrol agents, food/drink agents, toiletries, and products for other industries. Scientists isolating microorganisms may have a variety of objectives: they may be involved, for example, in environmental, taxonomic, agricultural or biochemical research; or may be interested in screening for novel products that may have commercial value.

3. Access to ex-situ microbial resources

3.1 Culture Collections

6. Microorganisms that are isolated from the natural (or man-made) environment are typically conserved in culture collections (whether public service centres or specialised research collections). These isolates form the basis of much of our present knowledge of microbial diversity and constitute archival material for future study. The conservation and accessibility of type strains (those on which the taxonomic description is based) and other representative isolates are fundamental for the purposes of describing new taxa, for reference standards, and to form the necessary basis for future study and use. This forms the major purpose for the deposit of cultures with culture collections. In addition, cultures may also be deposited, for example, for safe keeping (so that they may be properly maintained), or for patent purposes (see below).

7. 484 culture collections from 58 countries are registered with the World Data Centre for Microorganisms (WDCM), the database of WFCC. This database is accessible on the Internet. Registered culture collections may be public, private, academic, governmental or industrial, and one is intergovernmental. All culture collections operate according to their own institutional or governmental policies and provide a number of professional services, including: preservation and maintenance of isolates for long-term access; distribution; characterisation and identification; deposit facilities for patent strains; supply of standard strains; quality control testing; research; and training. In 1994, the registered collections held some 815,568 cultures of microorganisms. Many other culture collections exist which are not registered within the WFCC database.

8. Not all countries have culture collections competent to maintain all types of microorganisms, and therefore microbial genetic resources isolated in one country may be deposited in a culture collection in another. Moreover, some culture collections specialise in certain taxonomic groups or technical skills and play an international role in these areas.

9. Some culture collections are International Depository Authorities (IDAs) for the purposes of the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure (Budapest Treaty). In order to be recognised as an IDA under the Budapest Treaty, a culture collection has to meet a number of quality requirements.

10. The WFCC is a multidisciplinary federation within the International Union of Microbiological Societies and the International Union of Biological Societies of the International Council of Scientific Unions (ICSU). It has as its objectives the overall support of the activities of microbial resource centres (culture collections), and the promotion of a world network for information, communication and exchange of microbial genetic resources. The WFCC, in collaboration with other organisations, has been active in raising awareness of the Convention among microbiologists (e.g. WFCC, 1994).

3.2 Research, training and capacity building by culture collections

11. Culture collections carry out research in the fields of taxonomy, systematics, culture preservation and database software development, as well as in areas relevant to the parent organisations where, for example, plant pathology control, health surveillance or marine microbiology may be important. Staff therefore need a high level of training and technical skill. Collaborations between culture collections and other research groups are common and are often based on regional or international programmes. Culture collections run training courses at the national or international level, at their own institutes or in other countries under the sponsorship of such organisations as UNESCO, UNEP and other funding organisations or from private sponsorship, and often in collaboration with the WFCC or regional culture collection federations.

12. Databases and networks are well established and in the major culture collections information is organised at a high technical level. Catalogue information of some culture collections is available on the World Wide Web, and data on strain properties is increasingly computerised and networked.

3.3 Administrative and distribution procedures of culture collections

13. Current operating practices in culture collections demonstrate some common features. These are dictated mainly by scientific requirements relating to the microorganisms held, but also depend on the policy of the parent organisation. The WFCC has published Guidelines to the Establishment and Operation of Collections of Cultures of Microorganisms, and runs training programmes on collection management.

14. Each microorganism held in major culture collections is allocated a unique identifying code. However, once the culture is distributed by a culture collection to a third party, there is no control over the continued use of its identity code, which could be changed by the recipient for internal reasons. Information normally supplied to culture collections upon deposit of a strain is quite limited, and would not presently seem to be adequate for effective implementation of the Convention's access and benefit-sharing provisions.

15. Users of culture collections include research scientists in universities and institutes, educational establishments and industrial users. Existing legislation affecting access to and distribution of ex-situ microorganisms relates primarily to the control of hazards to people and the environment, to the transport of microorganisms, and to quarantine regulations. Subject to such safety regulations, and with certain exceptions (see below), essential research material held in public collections is currently made available to

/...

any applicant, regardless of country and usually without knowledge of the ultimate use. It is uncommon for material transfer agreements to be made (although some of the major collections are introducing general sales agreements). The principal categories of microbial resources subject to distribution restrictions are:

- strains that have been deposited for patent purposes, or for safe-keeping as industrial production strains;
- pathogens; and
- strains collected by culture collections for their own internal purposes.

16. The final uses to which a distributed microbial genetic resource may be put is generally not known to culture collections and may not be known to the end user at the time of request, since the importance of a strain may only be recognised following further study on it or on related isolates.

3.4 Special characteristics of microbial genetic resources which may affect implementation of Article 15

17. Microorganisms have some distinctive features which may raise issues other than those which arise in relation to plant or animal genetic resources. These characteristics may suggest the need for policies, agreements and institutional arrangements for access and benefit sharing specifically tailored to microbial resources. Specific characteristics of relevance include:

- Microbial genetic resources replicate frequently (sometimes every thirty minutes), leading to changing populations both in the environment and during conservation. If not preserved expertly ex-situ this can lead to genetic and phenotypic instability ("strain drift") and a failure to conserve the original sample;
- Because of their microscopic nature, microbial genetic resources cannot be tracked and monitored conventionally; they cannot yet be readily fingerprinted for authentication purposes, although this technology may become available in the future;
- The occurrence of many bacterial and yeast species is recorded in a number of geographical locations, and few such species occur in one country alone; and
- Within a population of microorganisms in the environment, each isolate of a species may show slight genetic variation from isolates of the same species from similar habitats in other countries - or even from isolates from the same habitat at different times. The isolate is therefore often of considerable significance in terms of genetic expression and many isolates of the same species may be held in a collection for taxonomic or screening purposes.

3.5 Policy considerations arising from the Convention with respect to access to ex-situ microorganisms and their distribution

18. Microbial genetic resources acquired prior to the Convention's entry into force and those provided by a country of origin that is not a Party to the Convention are not covered by the Convention's access and

benefit sharing provisions (Article 15(3)). However, there may be some practical difficulties in ascertaining which ex-situ microbial genetic resources are covered by the Convention. The uncertainty arises because of the need to know both the status of each country of origin regarding ratification of the Convention, and the date on which a microorganism was collected, isolated and/or deposited in a culture collection for conservation. Because of nomenclatural changes, transfers between scientists, and the longevity of many of the deposits in culture collections, the necessary information may not always be easy to track and may not be available to the culture collection whose role it will be to decide whether or not a particular deposit is covered by the Convention and what distribution policies apply.

19. The Convention acknowledges sovereign rights of a Party over genetic resources within its jurisdiction. While it is necessary to be able to ascertain the country of origin of isolates that may lead to benefits for that country, the question of ownership of genetic resources is not addressed by the Convention. It is not clear to what extent national laws presently cover the ownership of microbial genetic resources, but this is likely to vary from country to country (see UNEP/CBD/COP/2/13), and may not always be explicitly dealt with in national legislation.

20. Given the importance of the reference and type strains held in culture collections to further research, culture collections are concerned that distribution of this essential research material should not be unnecessarily restricted in implementing the provisions of the Convention.

21. A number of points arise out of these considerations:

- As only microbial genetic resources provided by culture collections in states Parties will be affected, the situation which applies when microbial genetic resources are provided from a Party to a non-Party or from a non-Party to a Party needs to be clarified;
- It will be necessary to determine whether ownership of microorganisms is covered by national law in the countries of origin, and to make this information widely available;
- It will be necessary for depositors and culture collections located within Parties to provide and keep accurate and complete records of dates of deposit and origin of isolates so that the requirements of the Convention are not inadvertently violated. Attention will need to be given to the development of appropriate and practicable procedures and documentation for the collection and distribution of microbial resources. Specific consideration may need to be given as to the types of benefit-sharing arrangements which might be appropriate in relation to microbial genetic resources.
- It will also be necessary for procedures to be adopted in the case of the death of a microorganism covered by the Convention, and any need for it to be replaced. As with the Budapest Treaty, such requirements need to recognise the fact that it is often difficult to maintain certain microorganisms ex-situ. Account must also be taken of the difficulties arising with contaminated or mixed cultures. Furthermore, culture collections need to retain the right to cease to maintain a deposit, and provision must be made to allow for the notification of such action and the implementation of appropriate transfer arrangements;

4. Specific issues regarding in-situ microbial genetic resources

22. The distinctive features of microbial growth and activity are such that in-situ conservation is difficult and uncertain. Microbial populations are dynamic and continually responding to environmental changes on a far greater scale than other organisms. It may therefore not necessarily be productive to try specifically to conserve such populations, particularly in the case of prokaryotes, even if this were possible. However, there are cases where conservation in-situ will be of greater importance than ex-situ conservation, particularly in the case of habitat-dependent species. The major need with regard to microorganisms in the environment is for greater study and an increase in knowledge of the interactions between the micro- and macroflora of the environment. Consideration should be given to microbial diversity in implementation of Article 7 (Identification and Monitoring), as well as more generally in implementation of Articles 6 and 8 of the Convention (Glowka, 1996).

23. For many bacterial, viral, micro-algal or yeast species, it seems unlikely that sampling in situ would lead to species depletion. However, the loss of hosts on which microorganisms depend could lead to the loss of the dependent microbial species. Moreover, the depletion of certain fungal species occurring in unique habitats is known to have taken place and eight per cent of fungal species are endangered.

5. Conclusions

24. Given the essential role played by microorganisms, as well as their potential uses, it is important that work under the Convention does not neglect consideration of microbial diversity. The COP may wish to consider what steps, if any, it may need to take in order to ensure that this does not occur. For example, the COP may wish to consider issues relating to microorganisms within its discussions of particular ecosystems, or it may wish to consider requesting the SBSTTA to consider the need to add microbial diversity as a specific item to the programme of work of the Convention.

25. In relation to taxonomy and capacity-building, the COP may wish to consider, for example, recommending that appropriate partnership arrangements between established and emerging culture collections be encouraged, with emphasis on training in technical and administrative capacity, and with the development of agreements to ensure benefit sharing between the partners.

26. Furthermore, the COP may wish to encourage the continued participation of the microbiological community, through organisations such as the WFCC, in future discussions at the national and international level on the implementation of the Convention.

27. In relation specifically to the issue of access to microbial genetic resources, the COP may wish to initiate a process of clarifying some of the issues raised above, and of raising the awareness of ex-situ culture collections of the provisions of the Convention. In particular, the COP may wish to encourage the establishment of a multidisciplinary expert group to consider a number of issues regarding access to microbial resources in ex-situ collections. For example, such a group might:-

- provide assistance and expertise in drawing up operational guidelines (or a voluntary code of conduct) for culture collections to incorporate access and benefit sharing procedures
- develop model agreements, such as model prior informed consent acquisition agreements and

material transfer agreements, which could be helpful to culture collections, reducing unnecessary duplication of effort and minimising costs;

- consider how to establish management and information systems to track to acquisition and transfer of microbial genetic resources, including identifying minimum items of information which should be maintained by culture collections with regard to the acquisition and distribution of microbial genetic resources; and
- consider the desirability of establishing registered culture collections to meet the access and benefit sharing provisions within the framework of the Convention. Such a system of registration might require that certain standards were met and confer certain obligations upon culture collections, but at the same time could provide a number of benefits in terms of, for example, pre-arranged export/import authorisations and pre-negotiated benefit arrangements. Parties might draw upon the experience, standards and quality controls of International Depository Authorities to establish and operate such a system.

REFERENCES

World Federation for Culture Collections, Information Document on Access to Ex-Situ Microbial Genetic Resources within the Framework of the Convention on Biological Diversity, 1996.

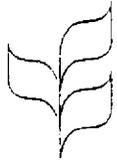
World Federation for Culture Collections, Biodiversity of Microorganisms and the Role of Microbial Resource Centres, 1994.

Glowka L., The Convention on Biological Diversity: Issues of Interest to the Microbial Scientist and Microbial Culture Collections. Paper presented at the Eighth International Congress for Culture Collections, 26 August 1996.

- - - - -



CBD



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/Inf.21

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Third meeting
Buenos Aires, Argentina
4 to 15 November 1996

**WETLANDS AND BIOLOGICAL DIVERSITY:
COOPERATION BETWEEN THE CONVENTION ON WETLANDS OF INTERNATIONAL
IMPORTANCE ESPECIALLY AS WATERFOWL HABITAT (RAMSAR, IRAN, 1971) AND
THE CONVENTION ON BIOLOGICAL DIVERSITY**

/...

WETLANDS AND BIOLOGICAL DIVERSITY

COOPERATION BETWEEN

**THE CONVENTION ON WETLANDS OF INTERNATIONAL IMPORTANCE
ESPECIALLY AS WATERFOWL HABITAT (Ramsar, Iran, 1971)**

AND

THE CONVENTION ON BIOLOGICAL DIVERSITY

October 1996

Ramsar Convention Bureau

Acknowledgement:

This paper was prepared by the Ramsar Convention Bureau, with considerable input from Dr David Stone, under a consultancy generously funded by the World Wide Fund for Nature (WWF).

Table of Contents

Executive Summary.....	1
1. INTRODUCTION	
1.1 International programmes for wetland conservation and the Convention on Wetlands or Ramsar Convention.....	3
1.2 National initiatives for conservation of wetlands	4
1.3 Cooperation between CBD and the Ramsar Convention.....	5
2. WETLANDS AND BIOLOGICAL DIVERSITY	
2.1 What are wetlands?	5
2.2 Filling many roles.....	6
2.3 Productive ecosystems	7
2.4 The biological diversity of wetlands	8
2.5 Assigning values to wetlands	9
2.6 Managing wetlands.....	9
2.7 Diminishing resources worldwide.....	10
2.7.1 Water management problems	11
2.7.2 Introduced species.....	12
2.7.3 Natural changes.....	12
3. THE RAMSAR CONVENTION.....	13
4. THE RAMSAR CONVENTION AND THE CONVENTION ON BIOLOGICAL DIVERSITY: COMMON CONCERNS AND POSSIBLE JOINT ACTIONS	
4.1 Identification and monitoring of wetlands	14
4.2 <i>In-situ</i> conservation	15
4.3 Wise use of the components of wetlands	16
4.4 Raising awareness.....	16
4.5 Fair and equitable sharing.....	17
4.6 Exchange of information and cooperation	17
4.7 Funding mechanisms	18
4.8 Reporting	18
REFERENCES AND FURTHER READING.....	19

EXECUTIVE SUMMARY

Wetlands - including (*inter alia*) rivers, lakes, marshes, estuaries, lagoons, mangroves, seagrass beds, and peatlands - are among the most precious natural resources on Earth. These highly varied ecosystems are natural areas where water accumulates for at least part of the year. Driven by the hydrological cycle, water is continuously being recycled through the land, sea and atmosphere in a process which ensures the maintenance of ecological functions.

Wetlands support high levels of biological diversity: they are, after tropical rainforests, amongst the richest ecosystems on this planet, providing essential life support for much of humanity, as well as for other species. Coastal wetlands, which may include estuaries, seagrass beds and mangroves, are among the most productive, while coral reefs contain some of the highest known levels of biodiversity (nearly one-third of all known fish species live on coral reefs). Other wetlands also offer sanctuary to a wide variety of plants, invertebrates, fishes, amphibians, reptiles and mammals, as well as to millions of both migratory and sedentary waterbirds.

Wetlands are not only sites of exceptional biodiversity, they are also of enormous social and economic value, in both traditional and contemporary societies. Since ancient times, people have lived along water courses, benefiting from the wide range of goods and services available from wetlands. The development of many of the great civilisations was largely based on their access to, and management of, wetland resources.

Wetlands are an integral part of the hydrological cycle, playing a key role in the provision and maintenance of water quality and quantity as the basis of all life on earth. They are often interconnected with other wetlands, and they frequently constitute rich and diverse transition zones between aquatic ecosystems and terrestrial ecosystems such as forests and grasslands.

Despite their importance, wetlands are among the most impacted and degraded of all ecological systems. In the past few centuries, they have been commonly regarded as unproductive, unhealthy lands. Many countries, often with government support and backing, have made considerable efforts to convert them from a "worthless" existence to economically viable systems for agriculture or fisheries production. Many have been filled with domestic and industrial wastes (some of which have been of a toxic nature), while others have been drained to create additional land for development.

In the past 50 years the rate of wetland loss has increased dramatically, and is still continuing. Agriculture has been one of the main reasons for this: persistent agricultural subsidies and surpluses have led to the transformation of hundreds of thousands of hectares of wetlands in the developed world. Elsewhere, the construction of dams has radically altered the water regime of many rivers. It seems likely that more than half of the world's wetlands may have been destroyed this century.

A renewed interest in the biological significance of wetlands has, in recent years, led to a better understanding of the economic and cultural value of many of the world's wetlands. As a result, more and more people are beginning to realise that, in their natural state, wetlands offer numerous benefits to society, for example, by providing clean water to towns, by protecting shorelines from storms, by sustaining a large proportion of the world's fisheries, and by providing valuable amenities such as recreational activities.

To maintain wetland ecosystems, and the many roles which they fulfil, an integrated approach to managing water resources is needed - one which accounts for the needs of all water users, and which achieves the conservation and wise use of wetland biodiversity. The challenge is to develop practical solutions for meeting this goal. One significant tool at the disposition of governments is the Convention on Wetlands of International Importance

especially as Waterfowl Habitat (Ramsar, Iran, 1971). This international treaty, often known simply as the "Ramsar Convention" (after its town of adoption), is designed to assist countries in managing their wetland resources in a manner that will lead to environmental benefits and improved living standards.

It is clear that the broad objectives of the Convention on Biological Diversity and the Ramsar Convention are mutually compatible and that there is considerable scope for close cooperation between the two agreements at all levels (Contracting Parties, technical bodies and secretariats). The secretariats have already started the process by signing in January 1996 a Memorandum of Cooperation (MoC), whilst the two Conventions' technical bodies (SBSTTA and STRP) have built upon the MoC by establishing practical working relations.

This paper responds to Decision II/13 of the Second Conference of the Parties to the Convention on Biological Diversity on "Cooperation with other biodiversity-related conventions" and to the Ramsar Convention's Strategic Plan (1997-2002), and represents a further step in the ongoing process of working together.

Only through cooperation aimed at synchronising their actions to implement both treaties, will the Conventions' Contracting Parties achieve the long-term conservation and wise use of wetlands and their biodiversity world wide.

1. INTRODUCTION

1.1 International programmes for wetland conservation and the Convention on Wetlands or Ramsar Convention

1. Wetlands have aroused considerable attention in recent years as appreciation of the direct and indirect benefits of these ecosystems has increased. This awareness has taken place not only among the general public but also at the highest political levels. Individuals, backed by national and international non-governmental organisations, have taken up the environmental cause and pressed governments for action. As a result, more and more governments have subscribed to legally binding conventions or treaties on environmental matters.

2. During the 1960s, European scientists and conservationists linked the decline of waterfowl populations with wetland habitat loss, drainage, pollution and excessive hunting, and recognised the need for an international treaty which would protect wetland ecosystems. Meanwhile, in North America, there had been considerable efforts to maintain and enhance wetlands, even prior to World War II. However, it was not until 1971, in the Iranian city of Ramsar, that the text of the Convention on Wetlands of International Importance especially as Waterfowl Habitat was adopted, following several years of international discussions. Since it entered into force in 1975, a total of 94 states have become Contracting Parties to the Convention on Wetlands or "Ramsar Convention" as it is often known. More details of the Ramsar Convention are given in Section 3.

3. Development and implementation of the Ramsar Convention has been greatly assisted by the continuing role and support of a number of organisations, including BirdLife International (formerly ICBP - International Council for Bird Preservation), IUCN - The World Conservation Union, Wetlands International (formerly IWRB - International Waterfowl and Wetlands Research Bureau, AWB - Asian Wetland Bureau, and WA - Wetlands for the Americas) and WWF - World Wide Fund For Nature. In addition to their support of the Ramsar Convention, many of these organisations operate independent international programmes in support of wetland conservation and the wise use of wetland biodiversity.

4. In addition to these partner organizations, the Ramsar Convention works closely with other international bodies dealing with wetland matters; these include a number of UN organisations, and in particular the UNEP "Regional Seas" initiatives, notably in the Caribbean and the Mediterranean, and the Food and Agriculture Organization (through its Wildlife Division). In addition Ramsar works with the 'MedWet' initiative for conservation and wise use of Mediterranean Wetlands, the International Coral Reefs Initiative, and the North American Waterfowl Management Plan. The European Commission has recently published a comprehensive "Communication on the wise use and conservation of wetlands".

5. The original focus of the Ramsar Convention was on wetlands as a habitat for waterfowl. But, over the years, it has developed into an international instrument dealing with wetlands from a broader point of view. Ramsar's Strategic Plan (1997-2002)¹, adopted in Brisbane, defines a number of new orientations for the future, including greater emphasis on education and public awareness in order to generate support for wetland conservation. (The Ramsar Strategic Plan is being distributed at the third Conference of the Contracting Parties to the Convention on Biological Diversity in English, French and Spanish as document INFO. 41). Attention is also given to capacity building through support and training programmes, especially in developing countries and those whose economy is in transition. The greatest emphasis will be placed on establishing National Wetland Policies, while implementation of the Ramsar Convention will place higher priority on land use planning, especially at the coastal zone and catchment levels, in the context of wetland

conservation and wise use. Special attention will be given to the relationship between wetlands and water resource management. The actions defined under the Ramsar Strategic Plan are thus entirely in conformity with Article 6 of CBD ("General measures for conservation and sustainable use") and can contribute to the implementation of Article 6.

6. A resolution adopted at the 6th Meeting of the Conference of the Contracting Parties to the Ramsar Convention in Brisbane, Australia, in March 1996 welcomed the "Memorandum of Cooperation between the Ramsar Convention Bureau and the Secretariat of the Convention on Biological Diversity signed on 19 January 1996".² This resolution also requested that the Ramsar Bureau "give priority in its programme of work to the implementation of the [above-mentioned] Memorandum of Cooperation", and invited the Third Meeting of the Conference of the Contracting Parties to the Convention on Biological Diversity, to be held in Argentina from 4-15 November 1996, to include in its agenda a report on "progress achieved and problems encountered in implementation of the Ramsar Convention for conservation of wetland biodiversity, thus noting the complementarity of interests of the two Conventions".

1.2 National initiatives for conservation of wetlands

7. Recommendation 4.10 of the Ramsar Convention calls on Contracting Parties to formulate National Wetland Policies³. This is seen as an important step towards facilitating conservation and wise use of wetlands and the implementation of the Wise Use Guidelines of the Ramsar Convention. Such broad approaches are needed in order to go beyond site-specific policies towards a more integrated national framework. Such National Wetland Policies may be formulated in a manner appropriate to a given country's national institutions and may be part of the country's national environmental policy for conserving biological diversity. To assist with development and co-ordination of such policies, the Ramsar Bureau will prepare a framework report for development and implementation of National Wetland Policies for use by Contracting Parties who, as yet, have no policy of this nature.

8. Several countries have already completed, or are in the process of completing, National Wetland Policies or similar instruments, while some, such as Canada and Uganda, have already formally adopted these policies. No National Wetland Policies have yet been finalised in the Asian region but considerable progress has been made by various Contracting Parties.

9. Countries are committed to developing management plans for all Ramsar sites. Many such sites already have management plans in place, and some countries are undertaking land-use planning exercises at coastal and catchment area levels, often applying the guidelines⁴ developed under the Ramsar Convention. Financial constraints remain a major problem for many countries - especially developing countries - in undertaking the preparation of management plans and their implementation. In this regard, the Operational Strategy of the Global Environment Facility⁵ recognises that enabling activities may help to prepare the foundation for design and implementation of effective response measures required to achieve Convention objectives.

10. Contracting Parties to the Ramsar Convention have undertaken national and or sub-national wetland inventories, and some of them are putting into place monitoring programmes to identify any changes in the ecological character of their Ramsar sites, an obligation accepted under Article 3. In many countries, especially developing countries, availability of funding is as serious a constraint as the often inadequate number of professionals in the field. Training of personnel in the field of conservation and wise use of wetlands is an obligation accepted under Article 4 by Contracting Parties to the Ramsar Convention. This activity still requires further attention, although it has been specially emphasised in recent years with support from several countries such as the USA, the

Netherlands, Japan, and others, either directly or through donations to the Ramsar Small Grants Fund and Wetlands for the Future initiative.

11. National Ramsar Committees are being established, and most countries already have some sort of national committee dealing with wetland or environmental issues, which also deals with the implementation of the Ramsar Convention in the country concerned.

1.3 Cooperation between CBD and the Ramsar Convention

12. Many of the objectives of the Ramsar Convention are in keeping with those of the CBD, both at the level of management of natural resources, in the quest to achieve wise (sustainable) use of natural resources (especially water), and in the conservation of wetland biodiversity. There is therefore much potential for closer integration between these two international treaties. Section 4 provides a broad overview of selected articles of the CBD, together with some of the actions already taken under the Ramsar Convention; the purpose of this analysis is to demonstrate areas of common concern between these two treaties and identify other aspects of mutual interest where combined efforts between the two Conventions might be of benefit to each other, specially to Contracting Parties.

13. The broad objectives of the Convention on Biological Diversity and the Ramsar Convention are mutually compatible and there is considerable scope for close cooperation between the two agreements at all levels (Contracting Parties, technical bodies and secretariats). The secretariats have already started the process by signing the January 1996 Memorandum of Cooperation (MoC), whilst the two Conventions' technical bodies (SBSTTA and STRP) have built on the MoC by establishing practical working relations.

14. The present paper responds to Decision II/13 of the Second Conference of the Parties to the Convention on Biological Diversity on "Cooperation with other biodiversity-related conventions" and the Ramsar Convention's Strategic Plan (1997-2002) and represents a further step in the ongoing process of working together.

15. Only through cooperation, aimed at synchronising their actions to implement both treaties, will the Conventions' Contracting Parties achieve the long-term conservation and wise use of wetlands and their biodiversity world wide.

2. WETLANDS AND BIOLOGICAL DIVERSITY

2.1 What are wetlands?

16. According to the Ramsar Convention, wetlands are defined as "areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres" (Article 1.1). In addition, the Ramsar Convention (Article 2.1) provides that wetlands "may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within the wetlands". As a result, coverage of the Ramsar Convention may be extended to include not only obvious freshwater resources such as rivers and lakes, but also coastal and shallow marine ecosystems, including coral reefs, artificial water bodies and underground water resources.

17. Wetlands are dynamic, complex habitats. Many wetland sites are either continuously submerged or intermittently inundated by seasonal flooding or daily/seasonal tides. They exhibit enormous diversity in size and shape according to their origins and geographical location, their physical structure, as well as their chemical composition. Characteristic flora and fauna are largely defined by the water depth, current and intensity, underlying

soil structure, sediment composition, water temperature and, in coastal regions, reach of the tide.

18. Wetland classification frequently refers to their fertility, which is in turn a reflection of their nutrient content. This ranges from the poorest, ultra-oligotrophic and oligotrophic waters which are clear and highly oxygenated, through mesotrophic, eutrophic and hypereutrophic waters, the latter being characterised by high levels of nutrients, low levels of oxygen and high algal levels. Eutrophic waters support few higher plants or animals.

19. Definitions of wetlands vary considerably: a classification of wetland types was adopted by the Ramsar Convention in Recommendation 4.7.⁶ Several broad wetland types can, however, be identified: lacustrine (wetlands associated with lakes), riverine (wetlands along rivers and streams), palustrine (marshes, swamps and bogs), marine (coastal wetlands, including rocky shores and coral reefs), estuarine (including deltas, tidal marshes and mangroves), and artificial water bodies (fish ponds, reservoirs and artificial lakes).

20. While most wetlands are natural sites, artificial water bodies are also included under the Ramsar definition in view of their ecological and cultural importance. Artificial lakes and other impoundments created by the strategic blocking of a river or stream may give rise to life-supporting ecosystems that can, if properly managed, benefit people and wildlife.⁷ During the Middle Ages, French monks created artificial lakes to produce fish: Brenne, Bresse, Champagne, Dombes and Sologne are among the regions which owe their landscape, culture and part of their economy to ancient, 800 year old man-made wetlands.

21. Wetlands occur in every country - from the tundra to the tropics. The World Conservation Monitoring Centre has suggested an estimate of about 5.7 million square kilometres - roughly 6% of the Earth's land surface.⁸ The greatest proportion is made up of bogs (30%), fens (26%), swamps (20%) and floodplains (15%), with lakes accounting for just 2% of the total. Mangroves (with some 80 species of trees and shrubs) cover about 240,000km² of coastal area and an estimated 600,000km² of coral reefs remain worldwide.

2.2 Filling many roles

22. Wetland ecosystems, by definition, depend on water to maintain their ecological functions. The hydrological cycle renews the flow and quantity of water in rivers, aquifers, lakes and all other freshwater ecosystems. These are complex ecosystems, the boundaries of which are often in a state of flux. Wetlands are therefore easily affected by external events. Nutrient and sediment loads, for example, are frequently moved from one site to another, and from one habitat to another. Thus, nutrients obtained in the headwaters of a stream may find their way into lakes or fens. Minerals and nutrients not absorbed by living freshwater organisms may find their way into the marine ecosystem, often thousands of kilometres from where they first entered the water. While the fluid nature of such exchanges guarantees a continued renewal of energy, it also represents a major potential hazard since many harmful agents (pesticides, fertilisers or other chemicals) can also be easily and rapidly transported to other areas where they might have an adverse impact on the environment.

23. Different categories of wetlands perform different functions, many of which are not immediately obvious: coastal wetlands (mangroves, estuaries, salt marshes, seagrass beds, coral reefs and mudflats) are vital spawning and nursery areas for large numbers of fish. Inland wetlands - rivers and lakes - not only provide abundant food and income for millions of people, but also serve as an essential lifeline for communications: goods have been traded along all major rivers for centuries. They are the natural storehouses of considerable levels of biological diversity and provide the life support systems for much of humanity. They play a vital role in sediment and erosion control, flood control, maintenance of water quality and abatement of pollution, maintenance of water supplies (including groundwater) and support for fisheries.

24. While no single wetland fulfils all of these functions, wetlands do yield multiple benefits. Mangroves, for example, serve as natural breakwaters, shielding tropical shorelines from cyclones and hurricanes. The trees also yield valuable timber and fuel wood; thatch for building; fibres for textiles and paper; tannins, resins, dyes and oils; as well as medicines from the bark and leaves. A range of fruits, fish and shellfish are also collected, many of which are of importance to local communities in terms of subsistence and income-generating opportunities.

25. People do not always appreciate the range of services provided by wetlands. Reed beds, for example, act as natural filters purifying water that flows through. They also provide habitat for many species: fish and birds breed among the roots and stems. The reeds themselves are often cut and dried to make baskets or are used as roofing materials. In South America, vast shallow wetlands such as the Pantanal in Bolivia, Brazil and Paraguay slow the flow of water in the Paraguay River, thus avoiding catastrophic flooding downstream. The loss of this natural "sponge" function would result in extensive damage downstream.

26. In addition to their ecological importance, wetlands are indirectly responsible for considerable economic and social benefits, including maintenance of fisheries, provision of water supplies (maintenance of quality and quantity), support to agriculture, wildlife resources and timber production, providing energy resources (peat and plant matter), transport, and supporting important recreational and tourism opportunities. Wetlands also contribute to climatic stability through their role in global water and carbon cycles.

27. In some areas rural economies and human well-being are closely dependent on freshwater resources. Riverine floodplains are of considerable local and national importance on almost every continent. Commerce in the Inner Delta of the Niger River, Mali, illustrates how closely humans depend on such habitats. Covering an area of 30,000km², this delta supports more than half a million people; its post-flood grasslands provide grazing for about two million head of livestock and the region is of major importance for seasonal transhumance practices. In 1985 alone, export of cattle, sheep and goats accounted for US\$8 million. In addition to agricultural practices, some 80,000 fishermen depend on the floods: more than 60,000 tonnes of fish were landed in 1986. The delta also accounts for more than half of the country's rice growing area. Interruption or loss of these services would represent considerable economic and social hardships.⁹

28. Despite these values, human societies have had considerable impacts on wetlands throughout history. The services provided by wetlands have long been taken for granted and, as a result, maintenance and management of natural wetlands has been a low priority. Emphasis must now be placed on sustainable productivity rather than short-term increases in production, with long-term costs.

2.3 Productive ecosystems

29. Wetlands can be highly productive ecosystems. Soils are often rich in minerals and other nutrients and may produce more than 50 times as much plant material as a similar area of grassland, or eight times as much as a cultivated field. Estuarine ecosystems, which include mangroves and seagrass beds are among the most productive ecosystems on Earth.

30. The main primary producers of energy in wetlands are plants and microscopic plankton, whose output is directly related to sunlight and the availability of nutrients. These components serve as the foundation for broad, complex food webs, the nature of which differs considerably between and within different habitats. Numerous species of fish breed and mature in rivers and estuaries, or among mangroves, before going to sea for much of the remainder of their lives; around two-thirds of all fish consumed by people depend on coastal wetlands at some stage of their life cycle. The high concentrations of

animal and plant life in such ecosystems are often exploited by local communities and represent important sources of food as well as a means of income generation.

31. The high productivity of wetlands also provides support for large numbers of birds, many of which depend on a network of wetland sites during long seasonal migrations, or as breeding or overwintering grounds. The importance of these habitats for bird diversity is further illustrated by the high dependence of threatened and endangered species present. In the United States, for example, even though wetlands comprise less than 5% of the total land area, 70% of the federally listed threatened bird species and 40% of the federally listed endangered species are wetland-dependent.

2.4 The biological diversity of wetlands

32. Wetland ecosystems are cradles of biological diversity, providing the water and primary productivity upon which countless species of plants and animals depend for survival. They support high concentrations of birds (especially waterfowl), mammals, reptiles, amphibians, fish and invertebrate species. Levels of species diversity do, however, vary considerably between different wetland ecosystems: some lakes display high levels of diversity and endemism, whereas others support little life. Unlike terrestrial ecosystems, the richness of freshwater biodiversity is still poorly known. Identification and classification of wetland species is hampered by the fact that many species may spend part of their life cycle in both freshwater and marine ecosystems.

33. Wetlands are an important storehouse of plant genetic materials. Rice, a common wetland plant, is the staple diet of more than half of the world's population. West African rice (*Oryza glaberrima*), for example, was domesticated over 2000 years ago and wild rice from other wetlands continues to be an important source of new genetic materials in developing disease-resistant and higher-yield strains. A wide range of important woody species are also found in wetlands: many bear adaptations to changing hydrological conditions (changes in water regimes or increased salt levels) and may be of value in the context of global climate change and rising sea levels. Conserving the genetic variability of such plant resources is therefore essential.

34. Of the 20,000 species of fish in the world, more than 40% (approximately 8500 species) live in freshwater. Diversity amongst these species is highest in the tropics: South America has the most species (2220 species, of which more than 1000 are in the Amazon River basin). Africa is home to at least another 2000 species, with more than 700 occurring in the Zaïre River basin. Asia has an estimated 1600 species, but this number is increasing as additional research is undertaken.¹⁰ The importance of these figures is only fully appreciated when compared with the relatively meagre number of species in Europe (about 200). More than 4000 species of amphibians have been described, virtually all of which are dependent on the availability of water for breeding and larval development. Many reptiles (turtles and alligators) are also dependent on wetlands for feeding and breeding.

35. Wetlands are renowned for their high levels of endemic species, especially fish and invertebrates. Nowhere is this more obvious than in the East African Rift Valley lakes (Victoria, Tanganyika, Malawi) which support exceptionally high levels of endemic fish: more than 700 endemic species of cichlids have been recorded. Some 80% of the cichlids in Lake Tanganyika are endemic. A survey conducted by the World Conservation Monitoring Centre showed that 18 "hot spots" for biodiversity contained 737 species of amphibians alone, clearly demonstrating the importance of wetlands in maintaining biological diversity.¹¹ Many wetland species are now threatened as a result of habitat loss and/or hunting. Crocodiles have been especially impacted: of the 21 known species, seven are endangered worldwide and an additional three considered vulnerable. One of the most

seriously threatened is the Orinoco crocodile (*Crocodylus intermedius*), which is now reduced to a few hundred animals in Colombia and Venezuela.

36. Wetlands are also home to many highly specialised species; for example, in Africa, the common hippopotamus (*Hippopotamus amphibius*) has evolved eyes, nostrils and ears on the top of its head to enable long periods of submersion in water to avoid exposure to the sun of its sensitive skin. Some flamingo species (*Phoenicoparrus sp*) in South America are adapted to live in hyper-saline lakes at altitudes above 3000 m above sea level, where they feed on microscopic organisms sieved with a highly specialised curved bill. Cave-dwelling fish are among the most restricted of all wetland species in view of their confined habitats. A few species have functional eyes but, for the majority, vision is of little use. Almost 50 species (13 families) of cave-dwelling species have been identified in some 40 sites worldwide.¹² At any one site, however, neither the number of individuals or species is high: most often just a single species is represented. These species face a wide range of threats: drainage, water diversion schemes, habitat destruction, pollution and pet trade.

37. One of the most impressive concentrations of wetland fauna is the number of migrating waterfowl that visit these sites during annual migrations to and from feeding and breeding grounds. These flyways are not just international but inter-continental. Seven million shorebirds breeding in northern Eurasia winter along the Atlantic shores of Africa. Individual wetlands, such as those of the Inner Niger or Senegal deltas are especially important as these are some of the first freshwater bodies south of the Sahara: more than three million migrants, mainly ducks and waders, use these deltas every year. In North America, over 12 million ducks breed each year in the northern USA: these wetlands, together with those of the Canadian prairies, host over 60% of the continent's breeding duck population.

2.5 Assigning values to wetlands

38. Putting an economic tag on wetlands and the many functions they provide has proven very difficult, but has become increasingly necessary. Recommendation 6.10 of the Ramsar Convention¹³ recognises that it is "vital that all wetland economic values be identified, measured and reported upon to increase national and international awareness of the needs for and benefits of wetland conservation". Appreciation of the "real" value of wetlands is now growing, partly because of the realisation of the costs involved in providing alternative services if those of wetlands are destroyed or degraded. The value of wetlands in maintaining global fisheries is one such example: two-thirds of the fish caught worldwide hatch or spend part of their life cycle in tidal areas; an estimated 90% of the fish harvested in the Gulf of Mexico (worth US\$700 million each year) consist of species dependent on coastal mangroves; shrimp fisheries in Thailand have been valued at US\$2000 per hectare; the value of annual scallop harvests on the Niantic River, Connecticut, USA, is greater than that of prime beef on an equivalent area of grazing land.¹⁴

39. The economic value of wetland conservation is also being appreciated: in the United States, the value of wetlands in preventing serious flooding has been put at US\$13,500 per hectare per annum. Fur trapping in North American marshes is thought to be worth from US\$151-401 per acre¹⁵, while reed cutting in East Dongting Lake, China, generates about US\$1.25 million each year.¹⁶ A study of recreational values of wetlands in England has suggested that they are worth from US\$100-210 per visitor each year.¹⁷

40. Economic realisations such as those noted above are now proving powerful incentives for protecting wetlands. Wildlife-based tourism accounts for a considerable proportion of this: in the United States, five million Americans spend more than US\$638 million a year visiting waterfowl refuges. Wildlife safaris in the Okavango Delta, Botswana, are worth about US\$13 million a year, while more than half of the GNP of the Bahamas comes from

people holidaying on its coasts. Australia earns some US\$90 million each year from visitors to the Great Barrier Reef. At the same time, however, many countries are unwittingly destroying these resources: of the 109 countries with significant coral reef communities, 93 are damaging them. In over 50 countries, coral is being smothered by silt; in nearly 70 countries, corals have been affected by dredging and land reclamation.¹⁸ Mining corals for building materials and the use of dynamite and other explosives for fishing has caused irreparable damage to many coral ecosystems.

2.6 Managing wetlands

41. Humans have a long history of manipulating water resources for their own needs. Many former civilisations, such as those of the Nile Delta and Far East, were based on control and sharing of the annual floodwaters. Irrigation tanks of South India and Sri Lanka have served communities for 2000 years; ancient complex irrigation systems were developed in the Yemen. In ancient Mesopotamia, irrigation supported a population of 17-25 million some 4000 years ago; the population is now 10 million and food has to be imported. Civilisations of the Peruvian deserts disappeared when their irrigation systems failed. Rice cultivation on the River Niger has for centuries been closely adapted to the annual flood regime. In Guinea Bissau, the effectiveness of the hydraulic systems created by the Balanta and Feloupe people for rice cultivation in saline areas is still unequalled by modern methods.

42. In Europe, people have a long tradition of farming the floodplains of many large river basins. Such practices were carried out in a consistent, regulated manner in keeping with seasonal water cycles and respect for natural resources. Each year, fodder and grazing rights would be decided and respected; fallow periods were common and extensive. This allowed the development of characteristic rich assemblages of plants and animals. Changing practices, however, have meant a reduction (and loss) of such fallow periods, with increased agriculture and altered flood regimes as a result of dams and canalisation projects upstream.

43. Locally-based initiatives have often proved to be effective means of regulating and managing natural wetland resources. Lessons learned from these suggest that maintenance of traditional practices, combined with new technology and small-scale development, is vital in order to meet increased demands of growing populations. Responsibility for, or ownership of, resources and the right to use and benefit from them often form a better basis for sustainable use than free use open to everyone. Local concerns have also proved important in preventing certain development schemes which would have resulted in the destruction of important biological and cultural sites.

2.7 Diminishing resources worldwide

44. The rate of wetland loss cannot be quantified for most countries, but it is believed that more than half of the world's wetlands may have been destroyed this century. In the USA, at least five States (California, Ohio, Iowa, Indiana and Illinois) have lost more than 85% of their wetlands since the 1780s. Drainage - one of the most common actions - has been carried out to counteract flooding, reclaim land and add to food production, and combat diseases (although the latter has not been a successful measure and has even led to the introduction of other diseases). Many northern countries have developed policies that promote the destruction of wetlands: a French Government study has found that 86% of the most important wetland sites in France have been degraded as a result of official public policies imposed from 1964-1994 which encouraged drainage and wetland conversion. The European Common Agricultural Policy has resulted in significant loss of wetlands in western Europe: turloughs - seasonal lakes in limestone regions - have almost been eliminated in Ireland, while many important nature reserves have been destroyed in the United Kingdom. Spain has lost an estimated 60% of its original wetland area, while 73%

of the marshes in northern Greece have been drained since 1930. As a result of such actions, wetlands are now probably the most threatened habitats in Europe.¹⁹

45. The ecological, social and economic consequences of such losses are considerable: in the Philippines some 300,000 hectares (67% of the country's mangrove resources) were destroyed from 1920-1980, 170,000 hectares being converted to fish ponds.²⁰ Habitat losses of this nature and scale could easily result in the local or global extinction or reduced performance of a large number of species. In Nigeria, the floodplain of the Hadejia river has been reduced by more than 300km² as a result of dam construction, reducing the area of fertile land. Fish catches and floodplain harvest declined over 50% in an area extending 200km downstream of the Kainji Dam in Nigeria: losses of yam production were reported at 1000 tonnes.²¹

2.7.1 Water management problems

46. Many countries experience prolonged periods of drought, leading to crop failure and loss of human life. Years of drought are often followed by floods and, while some countries suffer from repeated devastating droughts, neighbouring countries may have to deal with excess supplies of water. In an attempt to guarantee regular water supplies, people have intervened in many parts of the world to alter the natural water cycle through the construction of dams for irrigation and hydro-electric power. The environmental impacts of these structures has been a cause of increasing concern.

47. As of 1988, some 39,000 large dams had been constructed.²² In the majority of cases, the construction of such dams has had significant, and usually negative, impacts on the local environment through loss and alteration of habitat, displacement of people, and altered agricultural and fishing practices. Blocked by dams and diverted to cities and farmland, the flow of the Colorado River into the Gulf of Mexico dropped from an average of 20 billion cubic metres at the beginning of this century to almost zero in all but flood years. Such changes in flow rates can have significant effects on certain species - by interrupting breeding cycles - the effects of which will later be multiplied through the ecosystems by a series of knock-on effects.

48. In many countries, wetlands have disappeared when river waters have been diverted for agricultural use (for irrigation), or to supply large cities. Excessive water withdrawal from the Aral Sea catchment area, mainly for irrigation purposes, is largely to blame for the serious reduction in size of this once important water body. Formerly identified as being the fourth largest lake in the world, it now ranks sixth. The volume of water entering the lake has dropped from 55 million cubic metres a year to about seven million cubic metres, leading to increased salinity. Biological productivity has also declined: 20 of the lake's 24 native fish species have disappeared. In the 1950s, fish catches were of the order of 44,000 tonnes a year and supported 60,000 jobs: the local fishing industry has now been almost wiped out.

49. Although some improvements have taken place in the manner in which water is used in many countries, this is far from being standard. One of the reasons why water is commonly wasted is because it is under-priced: subsidies are still commonly applied in developed and developing countries, particularly within the agricultural sector. Increases in the human population and level of economic development have meant that the demand for fresh water has continued to grow. Global water withdrawals are estimated to have increased by a factor of four in the period 1940-1990.²³ Current patterns of freshwater use cannot be sustained if human populations reach 10 billion by 2050 and it is likely that serious water shortages will be encountered in certain countries. One study has estimated that 13-20% of the world's population will live in water-scarce countries by 2050.²⁴

50. Irrigation and waterlogging may also lead to salinisation of soils and loss of productivity, as water near the surface evaporates and leaves behind a damaging residue of

salt. Some 17% of the world's agricultural land is irrigated: some countries rely almost entirely on irrigation - Pakistan (77%) and Egypt (100%), for example. According to some estimates, waterlogging and salinisation may be sterilising some 80 million to 110 million hectares of fertile soil worldwide.²⁵

2.7.2 Introduced species

51. The translocation of exotic species - plant and animal - may affect indigenous wildlife communities (and even entire populations) by displacing native species and genotypes, or by becoming pests or pathogens of species with which they did not co-evolve. A predatory cichlid (*Cichla ocellaris*) was introduced to Lake Gatun in Panama as a food fish but, as its population grew, it eliminated many native species and caused a reduction in overall biodiversity of the lake. There has since been a resurgence of malaria in this region as many of the fish that would have consumed mosquito larvae have been displaced by the introduced species. Other exotic species introduced as "sport" fish to Lake Titicaca have decimated populations of endemic *Orestias* fishes. Brown trout introductions in South Africa would likewise have caused the extinction of the endemic *Oreodaimon quathlambae* if a waterfall had not prevented the trout from moving upstream. In addition to the ecological changes which may develop from such introductions - which may be deliberate or accidental - local culture and economies may also be impacted. The introduction of the Nile perch (*Lates*) to Lake Victoria resulted in significant revenue loss to local communities as the artisanal fisheries on which these people depended were decimated as a result of altered species diversity and the introduction of modern trawling vessels.

52. Such experiences are not confined to fishes. Water buffalo introduced to Australia's Northern Territory in the early 1800s have caused enormous damage to fragile wetland ecosystems, particularly waterholes and floodplains. Destruction of native vegetation by trampling and grazing has allowed introduced weeds to become established.

53. Introduced plants can have similarly disastrous long-term effects on local economies and biological diversity: among the most notorious species are the water lettuce (*Pistia stratioides*), water fern (*Azolla nilotica*) and water hyacinth (*Eichhornia crassipes*). All of these species are adaptable, growing rapidly and, in the absence of natural predators, are capable of spreading quickly, forming large floating masses that interrupt navigation, clog the machinery of dams, impede drainage and fisheries, result in lowered oxygen levels in the water, and promote the development of habitats conducive to diseases such as bilharzia-carrying snails and malaria-transmitting mosquitoes. The water hyacinth, for example, is native to South America but has spread to more than 80 countries in the past century. Control of these species has proved difficult and expensive. Techniques applied have ranged from manual clearance of vegetation, to aerial spraying with herbicides and to the use of manatees and weevils which eat the foliage. Some of these applications have negative biological implications.

2.7.3 Natural changes

54. Wetlands are also subject to extreme natural events. Wetland ecosystems can be created, shaped and destroyed by floods, drought, storms and changes in atmospheric temperature. Lake Chad, for example, was much more extensive 3000 years ago: its geological records indicate an irregular pattern of expansion and contraction for most of its history. In a similar manner the water level of Lake Chilwa in Malawi has had a fluctuation of up to two metres in the past 40 years: in 1967 a slight change of rainfall and evaporation resulted in the lake drying out. Natural events can also result in the establishment of new water bodies, such as the creation of Lake Kivu which was formed by a volcanic barrier in relatively recent times.

3. THE RAMSAR CONVENTION

55. The Convention on Wetlands of International Importance especially as Waterfowl Habitat, more commonly known as the Convention on Wetlands or the Ramsar Convention, celebrated its 25th anniversary in February 1996. From its initially rather narrow focus, the Ramsar Convention has developed a thematically and geographically holistic approach to wetland issues. Since it entered into force in 1975, a total of 94 States have become Contracting Parties to the Ramsar Convention; more than 800 wetland sites (covering more than 500,000km²) have been included in the *Ramsar List of Wetlands of International Importance* by Contracting Parties.

56. The Ramsar Convention is the only global convention devoted to a specific ecosystem - wetlands. Over 25 years, it has made a significant contribution to increased recognition and understanding of the role of wetland functions and values. The Ramsar Convention provides a framework for international cooperation for the conservation and "wise use" (a term synonymous with sustainable use) of wetlands.

57. The broad objectives of the Ramsar Convention are to ensure the long-term conservation and wise use of wetlands. To meet its objectives, the Ramsar Convention places a number of obligations on States which are Contracting Parties, relating to the conservation of wetlands throughout their territories. Upon joining the Ramsar Convention, each Contracting Party is required to:

- designate at least one wetland for the *Ramsar List of Wetlands of International Importance* (Article 2.1), on the basis of established Ramsar criteria, and promote its conservation (Article 3.1);
- formulate and implement planning so as to ensure the wise use of wetlands, whether or not they are included in the *List* (Article 3);
- promote the conservation of wetlands in their territory through the establishment of nature reserves, and promote training in the fields of research, management and wardening (Article 4); and
- consult with other Contracting Parties about implementation of the Ramsar Convention, especially as regards trans-frontier wetlands, shared water systems, shared species and development aid for wetland projects (Article 5).²⁶

58. The first meeting of the Conference of the Contracting Parties (COP) in 1980 identified the need for promoting the wise use of wetlands, a practice intended to maintain their ecological character as a basis not only for nature conservation, but also for sustainable development.

59. In 1990, at the 4th COP, guidelines for the implementation of the wise use concept were adopted. These call for the establishment of national wetland policies covering all problems and activities related to wetlands, including institutional and organisational arrangements, legislative and government policies, increasing knowledge and awareness of wetlands, and a review of wetland priorities in the national context.

60. The 6th COP, held in Brisbane Australia in March 1996 adopted a *Strategic Plan 1997-2002*²⁷ which defined the Convention's mission as "The conservation and wise use of wetlands by national action and international cooperation as a means to achieving sustainable development throughout the world". The Strategic Plan builds on recent initiatives which have developed from international fora such as Agenda 21, the Global Environment Facility (GEF), and the Convention on Biological Diversity, as well as the growing concern for environmental issues at all levels of government. In particular the Plan represents a new challenge which will require closer working relations with non-

governmental organisations, community groups and others interested in conserving wetlands. Among the priorities established in the Plan are the needs for education and public awareness programmes; strengthened partnerships with other agencies and conventions; the inclusion of wetlands in planning and policy-making decisions through active and informed participation of local communities and the private sector; the need to activate funding for wetland conservation in developing countries and countries with economies in transition; and strengthened capacity of national agencies for better planning and management of important wetland sites. Implementation of the Plan is, naturally enough, primarily the task of the Contracting Parties.

4. THE RAMSAR CONVENTION AND THE CONVENTION ON BIOLOGICAL DIVERSITY: COMMON CONCERNS AND POSSIBLE JOINT ACTIONS

4.1 Identification and monitoring of wetlands

61. Identification of the various components of biodiversity important for conservation and sustainable development, and the development of means of monitoring biological diversity is the main thrust of Article 7 of the CBD.²⁸ Parties agree to identify and monitor the components of biodiversity important for conservation and sustainable use, and to identify and monitor activities which have, or are likely to have, significant adverse impacts on biodiversity. To ensure that the maximum benefit is gained from such analyses, information should be arranged and maintained in a national (or equivalent) database.

62. Ramsar partner organisations, particularly IUCN - The World Conservation Union, Wetlands International (formerly IWRB) and WWF, have undertaken a systematic review of wetlands in several geographic regions. The findings have been published in a series of directories. The broad objectives of these wetland inventories are to: identify important wetlands; identify priority sites for conservation; identify the functions and values of each wetland site - ecological, economic, social and cultural; establish a baseline for measuring future changes in wetland characteristics; provide a tool for planning and management; and permit comparisons at national and international levels.

63. In 1993, the Ramsar Convention published a Directory of Wetlands of International Importance for each of the following regions: Africa, Asia and Oceania, Europe, and the Neotropics and North America.²⁹ These directories were prepared with the data provided by Contracting Parties and provide an overview of the status of all Ramsar sites. An update to these directories was prepared in 1996.³⁰

64. The Ramsar Database (established in 1990), managed on behalf of the Ramsar Convention by Wetlands International and containing information on all Ramsar sites, provides support towards the implementation of the Ramsar Convention. For each site the Database includes both technical and administrative information provided by the Contracting Parties, and constitutes the baseline for identifying and measuring ecological change at sites. Objective 5 of the Strategic Plan highlights the need to "obtain regularly updated information on wetlands of international importance" and identifies the need for continuous updating and monitoring of the content and structure of the Ramsar database.

65. Designation of a wetland for the Ramsar List is only the first step towards meeting a Contracting Party's obligation to conserve and make wise use of its wetlands. Ongoing monitoring is essential to ensure that the ecological characteristics of wetland sites do not change adversely, and to assist with the implementation of management plans.

66. In 1990, the Ramsar Convention established the Montreux Record and the Management Guidance Procedure (formerly Monitoring Procedure). The Montreux Record enables Contracting Parties to draw attention to sites in their territories whose ecological character has changed, is changing or is likely to change as a result of technological

developments, pollution or other human interference. The Management Guidance Procedure is a tool already used by several countries to obtain technical advice from experts on issues related to the restoration or rehabilitation of wetlands included in the Montreux Record.

4.2 In-situ conservation

67. *In-situ* conservation (Article 8 of the CBD) is widely viewed as being the principal means of conserving biodiversity. Effective *in-situ* conservation demands that ecosystem functioning and processes, as well as genetic diversity, are maintained in a network of sites which are comprehensive and representative in terms of all levels of ecological organisation - genetic, species and ecosystem. Parties to the CBD are requested to establish, strengthen and maintain networks of national protected areas in order to protect species, habitats, representative ecosystems and genetic variability within species.

68. The designation of wetlands for the Ramsar List has proved to be an effective tool for wetland conservation and wise use, particularly in cases where sites have not yet been formally designated as protected areas at the national level. Over 800 sites have already been designated by the Contracting Parties themselves (covering more than 500,000km²). The Strategic Plan recognises the need to designate additional sites, especially in developing countries, in order to ensure a representative range of wetland types, and to ensure better management and protection of existing sites. Priority in new designations should be given to sites from wetland types currently under-represented in the Ramsar List (coral reefs, mangroves, seagrass beds and peatlands) as well as to sites that are currently not protected, as a first step towards developing measures for their conservation and wise use at the national level. Designation of trans-frontier wetland sites has also been recognised as a priority issue, particularly given the mobility of freshwater and coastal animals, the high levels of genetic flow between populations, and the considerable exchange of nutrients between linked ecosystems.

69. Criteria for identifying wetlands of international importance have already been adopted by Ramsar's COP, thus meeting some of the requirements of the CBD that Parties should "develop, where necessary, guidelines for the selection, establishment and management of protected areas or areas where special measures need to be taken to conserve biological diversity". Ramsar sites need to fulfil at least one of the following criteria; the uniqueness or ecological significance of the site; the biological importance of plant or animal species; the importance of the site for waterfowl; or the importance of the site for fish.

70. Many wetland sites of ecological, social and cultural importance are not designated under the Ramsar Convention, but may receive some other form of national or international protection. Many national parks and other reserves contain important watersheds or water bodies and the management of such areas is therefore crucial to the conservation and wise use of wetland resources.

71. Attention should also be given to addressing the need for, and importance of, rehabilitating and restoring degraded wetland ecosystems (Article 8f of the CBD) which could promote the recovery of certain threatened species, but which might also be of considerable benefit to local communities. Operational Objective 2.6 of Ramsar's Strategic Plan seeks to "identify wetlands in need of restoration and rehabilitation, and to implement the necessary measures".

72. Species introductions/invasions have had a wide range of impacts on wetland communities and ecosystems: they represent a major threat to the ecological integrity and functioning of such ecosystems. Preventing introduction, or controlling or eradicating alien species which threaten ecosystems, habitats or species is an important element of the CBD (Article 8h) with relation to long-term management and wise use of wetland ecosystems.

For a given wetland system, the ecological impact of exotic species may be difficult to predict, and worse still, these species could have free passage to other wetlands. Nutrient recycling, production rates, species compositions and other factors may be altered. There is a need for a clear, consistent strategy between Contracting Parties on the ways and means of addressing the issue of exotic species, minimising the potential negative impacts of such introductions/invasions, and establishing clear mechanisms and infrastructures which could serve as an early warning system against further introductions/invasions of harmful exotic species (Article 8g of the CBD).

4.3 Wise use of the components of wetlands

73. The sustainable use of components of biological diversity (Article 10 of the CBD), together with measures to promote *in-situ* conservation, is one of the most important practical components of the CBD. This Article commits Contracting Parties to consider conservation and the sustainable use of biological resources in national decision-making processes, and encourages them to develop and adopt measures which would avoid or minimise adverse impacts on biodiversity. Moreover, in recognition of communities' traditional rights of access to biological resources, it stipulates that each Contracting Party should "Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements".

74. The concept of "wise use" was already incorporated into the text of the Ramsar Convention adopted in 1971. However, it was not until 1987, with the establishment of a Working Group on the issue, that guidelines were developed to assist Contracting Parties. Since then, the Ramsar Convention has continued to refine its work on wise use, incorporating new concepts through links with current, wider conservation thinking and practices.

75. Wise use of wetland resources is a key element of the Ramsar Convention and has a broad coverage. Some wetlands, for example, contain vast potential energy sources in the form of peat. When this is used in a sustainable manner, its use can form part of an integrated management scheme for the wetland. The whole ecosystem can easily be destroyed if its natural exploitable resources are not used sustainably. Similar circumstances surround the use of other resources. Operational Objective 2.2 of the Ramsar Strategic Plan seeks to "integrate conservation and wise use of wetlands in all Contracting Parties into national, provincial and local planning and decision-making on land use, groundwater management, catchment/river basin and coastal zone planning, and all other environmental planning and management".

76. The importance of local community involvement is now well recognised in long-term conservation and management programmes. Experience has shown that management regimes which involve a community tend to be more sustainable than those which are imposed on a community. Ramsar's wise use provisions and the Strategic Plan reflect the Convention's recognition of the need for empowerment of local communities, including indigenous people and paying particular attention to the role of women, in the conservation and wise use of wetlands. The *Ramsar Wise Use Guidelines* and *Additional Guidance* indicate the importance of considering traditional use of natural resources as an important component of the conservation and wise use strategies for wetlands.

4.4 Raising awareness

77. The CBD repeatedly mentions the need for greater cooperation between States and organisations, particularly in the domain of public education and awareness (Article 13). This need is also recognised by the Ramsar Convention which states that the value of wetlands in terms of conservation and economic values "have not been communicated

effectively to decision-makers, stakeholders, community leaders and the public at large" (Resolution VI.19). It is furthermore acknowledged that only a few education and public awareness programmes have been organised at either national or international levels in support of wetland conservation. Increasing public awareness is therefore a recognised priority in Ramsar's Strategic Plan. Specifically it asks that Contracting Parties, Bureau and Partner organisations "support international programs that encourage transfer of information, knowledge and skills between wetland education centres and educators."

4.5 Fair and equitable sharing

78. Provisions of the CBD clearly emphasise that people who have traditionally relied on using natural resources should be included in consideration of future developments. It also provides essential guidelines governing access rights and benefit sharing opportunities to people at all levels of the community. Article 15, for example, represents an important step in helping to ensure that benefits are more evenly shared, as it recognises the principle of national sovereignty over genetic resources and the resulting authority to regulate and control access to those resources. In this respect, benefit sharing is not only encouraged between countries, but also between users and local and indigenous communities. Elsewhere in the CBD, Parties are required to respect the knowledge, innovations and practices of indigenous and local communities and to encourage fair and equitable benefit sharing with them (Article 8j). The creation of incentives for local communities and encouragement of their participation in benefit sharing are supported in a number of other provisions (Articles 10c and 18.4).

79. Although this issue has not received much direct coverage under the Ramsar Convention, there are many areas where concerns have been expressed, and where experience gained under CBD could provide useful guidance. For example, it is widely recognised that questions of equitable access to and sharing of water resources are a critical issue. Ramsar should be more widely recognised as a useful tool for helping to resolve potential conflicts.

4.6 Exchange of information and cooperation

80. The text of the CBD includes many references to encouraging information exchange (Article 17), as well as the promotion of technical and scientific cooperation (Article 18). These themes are also expressed by the Ramsar Convention. Under Article 5, for example, Contracting Parties accept an obligation to consult one another over implementation of the Ramsar Convention. It is increasingly being recognised that there are major needs for managing water and other wetland resources in a more efficient manner through international cooperation.

81. Nearly 47% of the land area of the world (excluding Antarctica) falls within international water basins that are shared by two or more countries.³¹ The development and management of water and other wetland resources poses a particular challenge, not only in view of the political issues at stage but also with relation to the sharing of benefits from the use of a country's resources. The promotion of an "Environmentally Sound Management Programme for Inland Waters" was first developed by the United Nations Environment Programme (UNEP) in 1987. Successful models of cooperation are reflected by the Rhine Commission in Europe, the Wadden Sea Joint Declaration between Denmark, Germany and the Netherlands, the Great Lakes Water Quality Agreement between the USA and Canada, and the Global Binational Master Plan for Lake Titicaca between Bolivia and Peru.

82. Action 7.2.3 of the Ramsar Strategic Plan is of direct relevance to the CBD and states that Ramsar should "Strengthen cooperation and synergy with the Convention on Biological Diversity, in particular as regards inclusion of wetland concerns in national biodiversity strategies, and planning and execution of projects affecting wetlands". The

two Conventions' scientific bodies, the CBD Subsidiary Body for Scientific, Technical and Technological Advice, and the Ramsar Scientific and Technical Review Panel, have already established links and are co-operating through attendance of representatives at each other's meetings.

83. Ramsar's Resolution VI.10 encourages cooperation between the Ramsar Convention, the GEF and its implementing agencies - the World Bank, United Nations Development Programme (UNDP) and UNEP. It directs its Scientific and Technical Review Panel to "exchange information and cooperate with the GEF's Scientific and Technical Advisory Panel (STAP)" and further calls upon the GEF to provide direct support to eligible Ramsar Contracting Parties in order to assist them in national implementation of the Strategic Plan. Ramsar Resolution VI.10 also notes that three of the four focal areas of the GEF's Operational Strategy are directly related to wetlands: biological diversity, climate change and international waters. Coastal, marine and freshwater ecosystems are already targeted under GEF's operational programme for long-term biological diversity protection and sustainable use, which draws attention to the need to strengthen the classification system and means of assessing the global significance of biodiversity sites such as those listed in the Directories of Wetlands of International Importance.

4.7 Funding mechanisms

84. Conserving biological diversity relies not only on accessing and sharing scientific and management skills, but is dependent on having adequate funds available to support action programmes. In this respect, each Contracting Party of the CBD is requested to provide "financial support and incentives in respect of those national activities which are intended to achieve the objectives of the Convention in accordance with its national plans, priorities and programmes". Several provisions of Ramsar's Strategic Plan address the need to help developing countries and countries whose economies are in transition to obtain funds to fulfil obligations contracted under the Ramsar Convention. These include maintaining close working relations with bilateral and multilateral agencies, and mobilising funding support from such agencies to developing countries in support of conservation and wise use of wetlands and in the implementation of the Strategic Plan.

85. In 1990, Ramsar established a "Small Grants Fund" for wetland conservation and wise use. The resources for this Fund come from the Ramsar Convention's core budget as well as from voluntary contributions. The Fund is targeted at supporting small-scale initiatives. Applications for support by the Small Grants Fund are solicited annually by the Ramsar Bureau. Recipient states are required to report on progress achieved as a result of the grant.

86. In 1995 the Ramsar Convention established the "Wetlands for the Future" initiative thanks to the financial support of the Government of the USA. Money available covers projects on capacity building and professional training in the Neotropical Region.

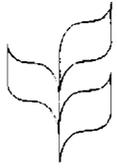
4.8 Reporting

87. Reporting by Contracting Parties on implementation of international agreements is increasingly important. Under the Ramsar Convention, Parties report every three years using a standardised form. The need to provide separate reports to related international environmental agreements may represent an administrative burden. Efforts should be made to ensure, that, as far as possible, there is compatibility between the reporting requirements of the Convention on Biological Diversity and the Ramsar Convention for matters relating to wetlands. Contracting Parties should also make efforts to ensure full co-ordination when different national focal points are responsible for compiling reports under the two Conventions.

REFERENCES AND FURTHER READING

- ¹ Ramsar 1996 (A). Convention on Wetlands: Strategic Plan 1997-2002. Ramsar Convention Bureau, Gland, Switzerland.
- ² Ramsar 1996 (B). Convention on Wetlands: Resolutions and Recommendations. Ramsar Convention Bureau, Gland, Switzerland.
- ³ Davis, T.J. (Ed.) 1994. The Ramsar Convention Manual. A guide to the Convention on Wetlands of International Importance especially as Waterfowl Habitat. Ramsar Convention Bureau, Gland, Switzerland.
- ⁴ Davis 1994.
- ⁵ Global Environment Facility 1996. Operational Strategy. Global Environment Facility, Washington USA.
- ⁶ Davis 1994.
- ⁷ WWF-India 1993. Directory of Indian Wetlands. WWF-India.
- ⁸ WCMC 1992. Global Biodiversity. Status of the Earth's Living Resources. World Conservation Monitoring Centre, Cambridge, UK.
- ⁹ Dugan, P.J. (Ed.) 1990. Wetland Conservation. A review of Current issues and Required Action. World Conservation Union, Gland, Switzerland.
- ¹⁰ WCMC 1992.
- ¹¹ WCMC 1992.
- ¹² WCMC 1992.
- ¹³ Ramsar 1996(B).
- ¹⁴ Maltby, E. 1986. Waterlogged Wealth. Why waste the world's wet places? Earthscan.
- ¹⁵ UNEP 1995. Global Biodiversity Assessment. University Press, Cambridge.
- ¹⁶ Chen, K. and Yan, C. 1996 (in press). East Dongting Lake. In: Wetlands, Biodiversity and the Ramsar Convention. Ramsar Convention Bureau, Gland, Switzerland.
- ¹⁷ UNEP 1995.
- ¹⁸ WCMC 1992.
- ¹⁹ Baldock, D. 1984. Wetland Drainage in Europe. IIED/IEEP, London.
- ²⁰ Dugan 1990.
- ²¹ Dugan 1990.
- ²² UNEP 1995.

- ²³ WRI 1996. World Resources. A Guide to the Global Environment. World Resources Institute, Washington, D.C.
- ²⁴ Engelman, R. and LeRoy, P. 1995. Sustaining Water: An Update. Population Action International, Washington, D.C.
- ²⁵ WRI 1996.
- ²⁶ Davis 1994.
- ²⁷ Ramsar 1996 (A)
- ²⁸ Anon. 1994. Convention on Biological Diversity. Text and Annexes. Interim Secretariat for the Convention on Biological Diversity, Geneva, Switzerland.
- ²⁹ Jones, T.A. (Compiler) 1993. Directory of Wetlands of International Importance. Ramsar Convention Bureau, Gland, Switzerland.
- ³⁰ Frazier S. (Compiler) 1996. Directory of Wetlands of International Importance - An Update. Ramsar Convention Bureau, Gland, Switzerland.
- ³¹ Tolba, M.K., El-Khaly, O., El-Kinnavi, E., Hoidgate, M.W., McMichael, D.F. and Munn, R.E. The World Environment 1972-1992. Two decades of challenge. UNEP. Chapman and Hall, London.



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/Inf.22

31 October 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Third meeting
Buenos Aires, Argentina
4 to 15 November 1996
Item 18 of the provisional agenda

**STRATEGY AND ACTIVITIES IN THE FIELD OF
COASTAL AND MARINE BIOLOGICAL DIVERSITY
IN RELATION TO DECISION II/10 OF THE CONFERENCE OF THE PARTIES
TO THE CONVENTION ON BIOLOGICAL DIVERSITY**

Note by the Intergovernmental Oceanographic Commission

INTRODUCTION

Through this document we wish to inform the Third Conference of the Parties to the Convention on Biological Diversity (COP-3) (Buenos Aires, Argentina, 4-15 November 1996) on how the Intergovernmental Oceanographic Commission (IOC) of UNESCO is responding to Decision II/10 on Conservation and Sustainable Use of Marine and Coastal Biological Diversity ("The Jakarta Mandate"), as adopted by COP-2 in Jakarta, Indonesia, November 1996.

The active participation of the IOC in the efforts of Member States to implement the Convention, as well as the timely development of an IOC framework strategy to assist the implementation process of the Convention, have allowed IOC to gradually associate itself with this important international legal instrument, as IOC already is with FCCC and UNCLOS. However, the relationship between IOC and the Convention on Biological Diversity has to be seen as a process, which is gradually developing, as we learn while proceedings.

THE IOC "RESPONSE" TO THE JAKARTA MANDATE

The institutional frameworks of IOC, CBD and the institutional framework for co-operation

IOC, through the IOC-NOAA *Ad Hoc* Consultation on Marine Biodiversity (3-5 May 1995), has reviewed its programmes with a view to developing actions to promote the conservation and sustainable use of marine biological diversity. This is particularly relevant to Paragraph 13 of Decision 10 of COP-2 - "The Jakarta Mandate". These actions constitute the IOC Marine Biodiversity Work Plan 1995-97, as developed by the IOC-NOAA Consultation and approved by the IOC Assembly at its Session in Paris (IOC-XVIII) in June 1995. In that occasion the IOC Assembly adopted Resolution XVIII-9 on Marine Biological Diversity, which is particularly relevant to Paragraph 13 of the Jakarta Mandate and especially to the part dealing with co-operation between the Convention on Biological Diversity and the international and regional bodies identified in the Paragraph. Both IOC Resolution XVIII-9 and the IOC Marine Biodiversity Work Plan are provided in Annex I.

Decision II/10 states that "*The Conference of the Parties (...) supports the recommendations in paragraphs 10-19 of [SBSTTA] recommendation I/8, subject to Annex I of the present decision [\"Additional conclusions on Recommendation I/8\", adopted by SBSTTA at its First Meeting] and its further elaboration by the Subsidiary Body on Scientific, Technical and Technological Advice and the Conference of the Parties.*" Also, in Annex II to Decision II/10 "Draft programme for further work on marine and coastal biological diversity" it is stated that "*The Executive Secretary may interact with a wide range of agencies and organizations competent in the aspects of marine and coastal biodiversity under deliberation to avoid unnecessary duplication and ensure effectiveness and cost-effectiveness.*"

The IOC "response" to the Jakarta Mandate

IOC may contribute, through its relevant programmes and activities as well through the expertise provided by relevant IOC Groups of Experts, to some of the issues identified in paragraphs 10-19 of SBSTTA Recommendation I/8 as well as co-operate with the CBD Secretariat with respect to some of the aspects of marine and coastal biodiversity, within IOC's mandates and competence.

The following possible thematic areas of co-operation between IOC and CBD are proposed:

- * Promotion of integrated marine and coastal area management (ref.: SBSTTA Recommendation I/8, paragraph 10 (a) and (b));
- * Promotion of rapid appraisal techniques (ref.: SBSTTA Recommendation I/8, paragraph 10 (e)) (within the IOC training courses);
- * Addressing impacts of land-based activities on marine and coastal biological diversity and identifying methodologies and research to assess these impacts (ref.: SBSTTA Recommendation I/8, paragraph 10 (f));
- * Provision of best available and sound scientific knowledge, research and information, taking into account ecosystem impact, on which to base management decisions ((ref.: SBSTTA Recommendation I/8, paragraph 12 (b));
- * Use or establishment of monitoring mechanisms to assist sustainable management of marine and coastal living resources (ref.: SBSTTA Recommendation I/8, paragraph 12 (g));
- * Provision of knowledge and information on ecosystem functions and processes identifying and

targeting critical processes for the conservation and sustainable use of biodiversity (ref.: SBSTTA Recommendation I/8, paragraph 14);

- * Identification of types of alien species organisms with the greatest potential to be dangerous; monitoring to identify the establishment of alien species (ref.: SBSTTA Recommendation I/8, paragraph 16 I (b));
- * Establishment of baseline data and level of risk associated with introductions through ballast water, including on the effects of introduction of harmful algal species through ballast waters (ref.: SBSTTA Recommendation I/8, paragraph 16 II (a)).

Decision II/10 states that "*The Conference of the Parties (...) encourages the use of integrated marine and coastal area management [ICAM] as the most suitable framework for addressing human impacts on marine and coastal biological diversity and for promoting conservation and sustainable use of this biodiversity.*"

The provision on behalf of IOC of technical assistance in the field of ICAM are of relevance to the above. Examples are given by: (i) the recently held Workshop on Integrated Coastal Area Management in Madagascar (Nosy Be, 14-18 October 1996), jointly with the World Bank, Sida/SAREC (Sweden) and the National Office for the Environment (ONE); (ii) the foreseen publication (1997) on behalf of IOC/UNESCO of a book entitled "Integrated Coastal Management: Concepts and Practice". Workshops (including training ones) are also being organized in Comoros, China, Korea.

THE IOC STRATEGY IN THE FIELD OF MARINE AND COASTAL BIODIVERSITY

The IOC Marine Biodiversity Strategy, as developed by the IOC-NOAA *Ad Hoc* Expert Consultation on Marine Biodiversity (hereafter called 'the Expert Consultation), focuses mainly on building local human capacity, e.g., through the organization of training courses on a regional basis and field studies on a pilot scale. The Strategy recognizes the importance of research efforts within as well as besides the Convention, such as the DIVERSITAS Programme, which is co-sponsored by UNESCO, and with which IOC is being associated through the organization of joint activities. In addition to research and human capacity building, an important element is represented by considerations in relation to monitoring biological diversity.

Research

Concerning research, the Expert Consultation recognized the increasing importance of DIVERSITAS as a comprehensive international research programme on biodiversity. This research exercise as well as other related efforts, such as the Programme on Global Investigation on Pollution in the Marine Environment (GIPME) and the World Climate Research Programme (WCRP), could also provide support to the implementation of the Convention on Biological Diversity.

The research activities within the IOC Marine Biodiversity Work Plan include two activities of particular importance:

- * The identification of parameters and development of methodologies for the assessment of coastal and marine biodiversity and the monitoring of its changes (including low-technology

methodologies);

- * The identification of a global network of representative ecosystems for future projects for the integration of baseline inventories, research activities, methods for monitoring (including low-technology approaches), comprehensive management for sustainable use and conservation of marine biodiversity, and community level education (in collaboration with UNESCO-MAB).

The need for an integrated approach in research related to marine biodiversity, according to the priority research areas established within the Convention framework, led to the elaboration within UNESCO of actions jointly undertaken by the Intergovernmental Oceanographic Commission and the Division of Ecological Sciences, with respect to coastal area biodiversity problems. These activities focus on:

- * The role of soil and sediments for benthic systems supporting biodiversity in the coastal area (in co-operation with DIVERSITAS);
- * The ecological role and the resilience of seagrass beds, mangroves and seaweed systems;
- * The assessment of impacts on coral reefs of marine changes and factors, through the Global Coral Reef Monitoring Network, in co-ordination with the International Coral Reef Initiative;
- * The assistance of UNESCO to its Member States as well as to the Parties to the Convention on Biological Diversity in the development of nationally-driven projects within the context of the Convention on Biological Diversity, with a view to developing agreed methods for the compilation of biodiversity inventories, with a solid scientific basis;
- * Methodologies for the handling of information and data concerning biodiversity.

Other research activities in the context of the Convention in which IOC could assist are mentioned on page 2, within "The IOC 'response' to the Jakarta Mandate".

Monitoring

Monitoring is specifically called for in Article 7 of the Convention on Biological Diversity and its Annex I.

The lack of specific monitoring systems, which would focus not only on biological parameters but above all on those relevant to assess biodiversity, represents a major problem. It is expected that the Global Ocean Observing System (GOOS) (of IOC, WMO, UNEP and ICSU) and, in particular, its Module on Living Marine Resources (GOOS-LMR) may be useful in this regard. GOOS is intended to monitor the world ocean, including by using existing monitoring stations and by helping establish, through co-operative actions among countries, monitoring facilities where they do not yet exist. GOOS' modules on climate, health of the ocean, coastal zone, ocean and marine meteorological services and living marine resources *inter alia* aim at a global coverage from a topic viewpoint. The LMR Module is presently under design, including through a joint GOOS-Global Ocean Ecosystems Dynamics (GLOBEC, of IGBP) *ad hoc* group of experts. As it has already been done for the other activities under GOOS that have been implemented up to the present, particular care will be given to the standardization of methodologies, for the sake of data exchange and comparison. The data obtained should be such so that they can provide useful information for the management of coastal and marine living resources and

for the conservation and sustainable use of coastal and marine biodiversity.

Capacity building

The need to build capacity in the field of coastal and marine biodiversity was one of the major recommendations of the Expert Consultation. The IOC strategy in the field of marine biodiversity includes training as a major element. This requires international co-operation, especially aimed at building capacity in the field of marine biodiversity. The Strategy stresses that the most pressing capacity building goal could be achieved *inter alia* through short-term training in para-taxonomy, short-term training in taxonomy. However, in the long-term high-level education in taxonomy is also required.

Capacity building and provision of assistance at the national level is imperative because, while different organizations are coming together well, which reflects the intergovernmental and international nature of the Convention, it is on the development of successful nationally-driven projects that the full implementation of the Convention's objectives depends, namely the sustainable use, equitable sharing and conservation of marine genetic resources.

Training in coastal and marine taxonomy is provided by IOC to its Member States on a regional rotating basis. Those training courses and other kind of activities (workshops, training coupled with ground-truthing activities) are also available to scientists and technicians from developing countries that are not members of IOC. An example in this respect is given by the numerous training activities on phyto-plankton species within the Harmful Algal Bloom Programme; training is also available in indirectly biodiversity-related fields like marine pollution (e.g. on nutrient analysis) and climate variability (e.g. on sea-level measurement techniques).

As part of the present efforts which are undertaken individually or through joint actions by international organizations, IOC is also elaborating tools for nomenclature and classification of marine species and related training to assist taxonomists' efforts to fulfil the commitment the Parties to the Convention have made towards compiling national biodiversity inventories. This is especially relevant to those countries which have difficulties in accessing taxonomic reference texts. The major product in this respect is represented by the UNESCO-IOC Register of Marine Organisms (URMO), a description of which is provided in the Annex II to this document.

CO-OPERATION

Co-operation between IOC and CBD and the two respective Secretariats

Inputs to the activities of the Convention have been forwarded by IOC through its participation at COP-1, SBSTTA-1, COP-2, SBSTTA-2 (chronologically).

The IOC Secretariat has regularly informed the CBD Secretariat about its activities related to coastal and marine biodiversity as well as on the status of their implementation. The two Secretariats have corresponded on a number of technical issues related to coastal and marine biodiversity.

IOC Resolution XVIII-9 acknowledges the spirit of co-operation between IOC and CBD. This is in line with the willingness expressed by COP-2 as to co-operation between CBD and other biodiversity-related organizations (ref.: Decision II/10, paragraph 13). UNESCO and its Intergovernmental Oceanographic Commission are specifically mentioned in the list of international and regional bodies invited to co-operate with the Convention and we are responding. Decision II/13 of COP-2 also calls for

enhanced cooperation with relevant international biodiversity-related bodies.

IOC Resolution XVIII-9 and Decision II/10 of the Second Conference of the Parties to the Convention provide a very important basis for co-operation between the two Organizations in their whole but also between the two respective Secretariats. The CBD Secretariat is in the process of elaborating general modalities for co-operation with other relevant international biodiversity-related bodies, and IOC has sent the CBD Executive Secretary proposed elements from IOC's perspective, to be considered for the formalization of the co-operation between the two Secretariats, possibly through a Memorandum of Understanding. A central element would be coordination, so as to ensure that the IOC actions can be of most. Focus should be put on critical marine and coastal habitats as well as integrated coastal area management. The two Secretariats are now in the process of elaborating elements and modalities for further co-operation. Additional elements might arise during COP-3, which would be considered in the light of the above-mentioned co-operation agreement.

Co-operation with other entities

IOC has always been most willing to inform the whole biodiversity community with respect to its coastal and marine biodiversity activities and to exchange views with other institutions. This has been achieved up to the present quite successfully, including through IOC's participation in the various sessions of the Global Biodiversity Forum. In those occasions, IOC has regularly invited the whole biodiversity community to take knowledge of, and familiarize with, its activities in the field of coastal and marine biodiversity. This is very important to guarantee transparency in the implementation process of the Convention on Biological Diversity. Information is regularly provided in updated form on the IOC Homepage.

Targeted co-operation in the field of coastal and marine biodiversity is going on between IOC and the following organizations/programmes: UNESCO's Man and Biosphere Programme; the DIVERSITAS Programme; GESAMP; IUCN; and, other international biodiversity-related NGOs (such as the World Research Institute).

ANNEX I

IOC RESOLUTION XVIII-9 ON MARINE BIODIVERSITY
(as adopted by the IOC Assembly at its Eighteenth Session, Paris, June 1995)

The Intergovernmental Oceanographic Commission,

Recognizing the great importance of conserving marine biodiversity, including the need for research in the subject area,

Taking into account that successful implementation of the Convention on Biological Diversity will address the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources,

Taking into account the United Nations Convention on the Law of the Sea,

Noting that the Convention on Biological Diversity calls on the assistance, where appropriate, of competent international organizations to the Contracting Parties to the Convention, for its implementation,

Noting also that the First Meeting of the Conference of the Parties to the Convention on Biological Diversity adopted decision I/7 pertaining to the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), which, *inter alia*, states that at its first ordinary meeting, SBSTTA shall consider its *modus operandi* as well as the need to draw on relevant existing institutional structures; and, that the provisional agenda for SBSTTA's first ordinary meeting, as reported in decision I/7, will *inter alia* deal with provision of advice on the scientific, technical and technological aspects of the conservation and sustainable use of coastal and marine biological diversity (priority item),

Emphasizing the importance of re-evaluating the IOC existing programmes and activities to review the scope for enhancing marine biodiversity study as an IOC activity,

Recognizing that IOC has a substantial role to play in providing the Conference of the Parties to the Convention on Biological Diversity, through its Subsidiary Body on Scientific, Technical and Technological Advice, with advice on scientific issues concerning marine biodiversity,

Decides to continue the *Ad Hoc* Consultation of Experts on Marine Biodiversity as needed, drawing on other relevant programme activities of the IOC for implementation of its recommendations;

Instructs the Executive Secretary IOC to communicate with the Chair of SBSTTA on: the submission on behalf of IOC to the First meeting of SBSTTA of the report of the IOC-NOAA *Ad Hoc* Consultation on Marine Biodiversity; and, the identification of specific needs and requirements of SBSTTA for scientific input which can be provided by IOC;

Instructs the Executive Secretary IOC to interact with the International Sea-Bed Authority on matters of the effects of possible future exploitation of sea-bed resources and dumping on marine biodiversity, as well as to discuss the possibility for IOC to provide scientific input to the International Sea Bed Authority in this respect;

Instructs also the Executive Secretary IOC to strengthen links with the Man and Biosphere Programme in order to develop joint activities in the field of sustainable use and conservation of marine biodiversity;

Urges Member States to undertake efforts at the national and regional levels to compile inventories of their marine flora and fauna, building on existing data bases, containing *inter alia* species description and figures, ecological information and distribution and economical importance;

Takes note of activities listed in Annex 1 attached to the Executive Summary of the *Ad Hoc* Consultation (Document IOC-XVIII/2 Annex 9), and particularly encourages the pursuit of those activities which can be conducted at no cost to the IOC.

APPENDIX TO ANNEX I

IOC MARINE BIODIVERSITY WORK PLAN 1995-97

ACTIVITY	FOCAL POINT	TIME FRAME	IMPLEMENTATION STATUS
Valuation of BD in cost-benefit analyses	IOC Secretariat in co-operation with UNEP-Water	1996	Not-implemented
Appraisal of the stat of marine BD	IOC Secretariat in co-ordination with the Secretariat of the CBD	1996-...	On-going
Identification of parameters and development of methodologies for monitoring changes in marine BD (including low-tech methodologies)	GEEP	1996	Under implementation
Identification of a global network of representative ecosystems for future projects for integration of baseline inventories, research activities, methods for monitoring (including low-technology approaches), comprehensive management for sustainable use and conservation of marine biodiversity, and community level education	IOC Secretariat in collaboration with MAB	1996-97	Workshop under consideration

Further implementation of
the UNESCO-IOC Register
of Marine Organisms and
its integration with the
IUBS-ICSU-IUMS Species
2000 Programme

IOC Secretariat in
co-ordination with
the Editor of the
Project

1996-97

On-going

ACTIVITY	FOCAL POINT	TIME FRAME	IMPLEMENTATION STATUS
Training on development of national inventories and management of biological data (on a rotating basis among the IOC Regional Bodies)	IOC Secretariat	1996-97	On-going
Establishment of networks (or regional inventories of) taxonomists through the IOC Regional Bodies	IOC Regional Bodies	Start in 1995	Under development
Short-term training in para-taxonomy	IOC Secretariat	1995-97	Under development
Upgrading expertise through training courses, study grants and exchange of scientists	IOC Secretariat	continuous activity	On-going
Long-term high level education in taxonomy (fellowships for Master and Ph. D. programmes in taxonomy)	IOC Secretariat	To start in 1996	Under consideration
Pilot projects on PA/EE concerning marine BD	IOC Secretariat in collaboration with UNESCO-EPD	1996-97	Implemented

ANNEX II

**BRIEF DESCRIPTION OF THE UNESCO-IOC
REGISTER OF MARINE ORGANISMS (URMO)**

A UNESCO-IOC Register of Marine Organisms (URMO) has been developed and is now available on Internet (at <http://www.unesco.org:80/ioc/oslr/taxon.htm>).

URMO is an important tool for marine biodiversity purposes, to check taxonomic lists. It also provides a bibliography of the most important works and will allow taxonomists to have access to more specific lists/databases.

The Register extends, at the present time, to the family level. IOC, Dr. van der Land (URMO Editor) of the National Museum of Natural History of Leiden, Netherlands, and the Expert-center for Taxonomic Identification (ETI) in Amsterdam - the three partners of the project - are now expanding the Register down to the species level. Taxonomists can help in this respect by making available their lists of species. At this end, the software "Linnaeus II" can be used, which is available on ETI's website at <http://145.18.162.199/default.html> or on diskette (free of charge) at ETI Headquarters in Amsterdam.

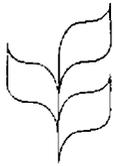
This will lead to a product - the CD-ROM version of the Register (scheduled for the end of 1997) - which will also include tools as a guidance for identification. Computer assisted taxonomy is, in fact, most relevant to those countries where libraries are scarce or absent, and the CD-ROM version of the Register will assist in particular those countries that have not access to Internet.

For non-specialists, the Register will provide explanations on categories and classification, thus introducing the user gradually but quickly to the world of taxonomy and systematics.

The Register represents a co-operative effort among taxonomists as well, since it provides a basis to build up internationally agreed taxonomic terminology of marine organisms, as a co-ordinating mechanism to stabilize nomenclature.

The US National Oceanographic Data Center (NODC) Taxonomic Code (a hierarchical system of numerical codes used to represent the scientific name of organisms) has been introduced in the Register. This will allow users to easily digitize their data: once a coding system has been introduced, the records can be easily manipulated for statistical analysis, etc.

Some four-hundred taxonomists worldwide have been involved in the first phase of this project. The whole marine biodiversity community is invited to benefit from URMO and, if possible, contribute to its further development.



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/Inf.33
28 September 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Third meeting
Buenos Aires, Argentina
4 to 15 November 1996
Items 10.1 and 11.1 of the provisional agenda

**TRADITIONAL FOREST-RELATED KNOWLEDGE
AND THE CONVENTION ON BIOLOGICAL DIVERSITY**

**Contribution by the Executive Secretary to the preparation of
the Report of the Secretary-General for Programme element 1.3 of the
Intergovernmental Panel on Forests**

Note by the Executive Secretary

1. In paragraph 2(a) of decision II/9, the Conference of the Parties requested the Executive Secretary to provide advice and information pertaining to the relationship between indigenous and local communities and forests, as invited by the Inter-Agency Task Force of the Intergovernmental Panel on Forests.
2. Such advice and information would contribute to the preparation of the Report of the Secretary-General 'Traditional forest-related knowledge' to be considered by the Intergovernmental Panel on Forests, under Programme element 1.3 of its programme of work.
3. In early 1996 the Secretariat assisted the secretariat of the Ad Hoc Intergovernmental Panel on Forests in the Division for Sustainable Development of the Department for Policy Co-ordination and Sustainable Development of the United Nations Secretariat with the preparation of document E/CN.17/IPF/1996/9 ('Traditional forest-related knowledge') for the initial discussion of this Programme element by the Panel at its second session (Geneva, 11-22 March 1996).
4. At its second session, the Panel undertook an initial discussion of this Programme element, considered the report contained in the document E/CN.17/IPF/1996/9, and provided guidance on the

focus of the substantive discussion at its third session and on specific matters that should be addressed (document E/CN.17/IPF/1996/24, paras.83-95).

5. In accordance with decision II/9, and noting the guidance provided by the Panel at its second session, the Secretariat has prepared a further background document on traditional forest-related knowledge as a contribution to the preparation of the Report of the Secretary-General for the substantive discussion of this Programme element by the Panel at its third meeting (Geneva, 9-20 September 1996).

6. This background document is contained in the Annex to the present note.

7. The Report of the Secretary-General, as submitted to the third session of the Intergovernmental Panel on Forests, is contained in document E/CN.17/IPF/1996/16.

ANNEX

TRADITIONAL FOREST-RELATED KNOWLEDGE

Contribution by the Executive Secretary to the preparation of
the Report of the Secretary-General for Programme element 1.3 of
the Intergovernmental Panel on Forests

CONTENTS

Paragraphs	Page
EXECUTIVE SUMMARY	4
A. INTRODUCTION	5
B. GENERAL OVERVIEW	8
a) The nature of traditional knowledge	8
b) Traditional knowledge and property rights.....	11
c) Key distinctions in forest management	13
C. RECENT PROGRESS AND STATUS	16
a) Direct management of forests	16
b) Biodiversity prospecting	19
c) Sharing good ideas	23
D. OBSTACLES TO FURTHER PROGRESS	24
E. CONCLUSIONS AND RECOMMENDATIONS	26
ENDNOTES	29

LIST OF FIGURES

- Figure 1: Key distinctions in forest management
- Figure 2: Managing inhabited forested landscapes
- Figure 3: One way to classify traditional knowledge
- Figure 4: Pathways to biodiversity prospecting

LIST OF ANNEXES

- Annex 1: Sources of information
- Annex 2: Working definitions
- Annex 3: Network access points

EXECUTIVE SUMMARY

1. Traditional forest-related knowledge (TFRK) is made up of the following linked features:
 - * information about the various physical, biological and social components of a particular forested landscape;
 - * rules for using them without damaging them irreparably;
 - * relationships among their users;
 - * technologies for using them to meet the subsistence, health, trade and ritual needs of local people; and
 - * a view of the world that incorporates and makes sense of all the above in the context of a long-term and holistic perspective in decision-making.
2. These aspects of TFRK have various kinds of meaning and potential usefulness to global society, but most of the knowledge concerned cannot, and the rest should not, be taken from its owners without their consent. It must therefore be accessed through negotiation and partnership. Most TFRK will mean little outside the environment where it arose, however, and is likely to be most valuable only as a means to achieve on-site sustainable forest management. To do this requires that the owners of TFRK are involved in:
 - * ownership partnerships, in which local people and the state agree ownership regimes for forest land;
 - * planning partnerships, in which traditional and other forms of knowledge are used together in making decisions on the use of forests; and
 - * management partnerships, in which the partners collaborate to put their plans into effect.
3. Stumbling-blocks here include misunderstandings arising from cultural differences, and solutions include mutual respect and shared learning, aided by mechanisms for conflict resolution. The process requires that certain kinds of authority over forest resources are re-distributed to allow local participation, as is now happening in some countries.
4. Some forms of TFRK have meaning outside their local context and can have a role in commercial biodiversity prospecting. They can be made available on a contract basis between the owners and prospectors. National framework laws and international agreements are required to render such contracts enforceable, and to establish fair and equitable benefit-sharing arrangements. Patent laws can then continue to protect the investments required to develop new products.
5. Other forms of TFRK, including plant varieties, planting and harvesting systems, technologies and world-views have less or no commercial potential but are nevertheless the intellectual property of their originators and owners. To protect this interest, an holistic approach to intellectual property is needed, the aim of which would be to ensure a fair return rather than to

exclude or monopolise. National framework laws and international agreements are needed to establish the right of collective ownership of such knowledge. Further study and consultation is needed to define the wording of such laws and agreements, but once they are in place the owners of TFRK can then make their own choices about whether, when and how to share it with others.

6. Since most TFRK cannot usefully be digitised, the role of computer database technology will be limited mainly to the sharing of anecdotal information through the Internet, and certain specific tasks linked to biodiversity prospecting. In these cases, translation and data security are respectively the main design issues. Digital mapping (using GIS and GPS) combined with social mapping will have an important role in establishing forest ownership, planning and management partnerships, and anecdotal information can be culturally and geographically located in the same system to assist in forest management tasks. Precise design specifications await further study and consultation with TFRK owners and potential users.

7. It is suggested that governments give priority to finding ways to ensure:

- * that groups possessing TFRK are recognised in law so that they can enter into access agreements concerning TFRK;
- * that the TFRK concerned is recognised in law as the common property of the group entering into the access agreement;
- * that all access to TFRK is through an access agreement with its owners, where these can be identified;
- * that access agreements define terms for the three main circumstances in which access to TFRK might be sought, these being: (a) where the aim is to manage a forest by partnership between the people who live there and the government; (b) where the aim is to invent patentable products for commercial use; and (c) where the aim is to share knowledge freely with others.

8. The main obstacle to achieving such settlements is likely to be a reluctance to recognise the ownership of TFRK because of the need then to negotiate consensual agreements with its owners. International fora, including the Intergovernmental Panel on Forests, provide an opportunity for governments that have taken this path to reassure others that TFRK is indeed useful in managing forests sustainably and in locating valuable new products, and that accessing it on fair and equitable terms can only benefit each country in its efforts to achieve sustainable development.

A. INTRODUCTION

9. By its decision 1995/226, the Economic and Social Council decided, upon the recommendation of the Commission on Sustainable Development, to approve the establishment of an open-ended ad hoc intergovernmental panel on forests. The Panel is to pursue consensus and formulate co-ordinated proposals for action to support the management, conservation and sustainable development of forests.

10. The Commission included as element 1.3 of the programme of work for the Panel:

"Consistent with the terms of the Convention on Biological Diversity, encourage countries to consider ways and means for the effective protection and use of traditional forest-related knowledge, innovations and practices of forest-dwellers, indigenous people and other local communities, as well as fair and equitable sharing of benefits arising from such knowledge, innovations and practices."

11. The first session of the Panel decided that "[preparation] for this programme element should take the broadest possible view and should address the full mandate assigned to the Panel by the Commission on Sustainable Development. Preparations for the documentation to the Panel should have the full benefit of, and should establish links with, the work of the second and third sessions of the Conference of the Parties to the Convention on Biological Diversity" [ref-IPF1 report].

12. The second meeting of the Conference of the Parties to the Convention on Biological Diversity, in its decision II/9, invited its President to transmit to the Panel a statement on biological diversity and forests, and requested the Executive Secretary to "provide advice and information pertaining to the relationship between indigenous and local communities and forests" to the Panel. Accordingly the secretariat to the Convention on Biological Diversity, in consultation with the secretariat of the Panel, prepared the document 'Traditional forest-related knowledge' (E/CN.17/IPF/1996/9) for the initial discussion of this programme element at the second session of the Panel. The statement for the Conference of the Parties to the Convention on Biological Diversity to the Panel was also transmitted to the second session (E/CN.17/IPF/1996/9, Annex).

13. At its second session the Panel emphasised that the substantive discussion should focus principally on the terms of reference for this programme element as determined by the Commission on Sustainable Development, taking into account the relevant paragraphs of the Forest Principles and the relevant chapters of Agenda 21, as well as taking account of other relevant intergovernmental processes, in particular the Convention on Biological Diversity (E/CN.17/IPF/1996/24, paras.83-95).

14. Relevant chapters of Agenda 21 include chapters 11 ('Combating deforestation') and 26 ('Recognising and strengthening the role of indigenous people and their communities'). The following principles of the Forest Principles are also relevant:

2(d): "Governments should promote and provide opportunities for the participation of interested parties, including local communities and indigenous people, industries, labour, non-governmental organisations and individuals, forest dwellers and women, in the development, implementation and planning of national forest policies".

4: The vital role of all types of forests in maintaining the ecological processes and balance at the local, national, regional and global levels through, inter alia, their role in protecting fragile ecosystems, watersheds and freshwater resources and as rich storehouses of biodiversity and biological resources and sources of genetic material for biotechnology products, as well as photosynthesis, should be recognised.

5(a): "National forest policies should recognise and duly support the identity, culture and the rights of indigenous people, their communities and other communities and forest dwellers. Appropriate conditions should be promoted for these groups to enable them to have an economic stake in forest use, perform economic activities, and achieve and maintain cultural identity and social organisation, as well as

adequate levels of livelihood and well-being, through, inter alia, those land tenure arrangements which serve as incentives for the sustainable management of forests".

12(d): "Appropriate indigenous capacity and local knowledge regarding the conservation and sustainable development of forests should, through institutional and financial support, and in collaboration with the people in local communities concerned, be recognised, respected, recorded, developed and, as appropriate, introduced in the implementation of programmes. Benefits arising from the utilisation of indigenous knowledge should therefore be equitably shared with such people".

15. Recalling the terms of reference given by the Commission on Sustainable Development for this Programme element, the following Articles of the Convention on Biological Diversity are also relevant. By these, Parties agree, as far as possible and appropriate, and subject to national legislation, to:

8(j): "respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilisation of such knowledge, innovations and practices".

10(c): "protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements".

18(4): "encourage and develop methods of co-operation for the development and use of technologies, including indigenous and traditional technologies, in pursuance of the objectives of this Convention".

16. The Preamble to the Convention similarly recognises:

"the close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components".

17. At its third meeting in November 1996 the Conference of the Parties to the Convention on Biological Diversity will consider ways and means to implement Article 8(j). It will also examine the links between forests and biological diversity in accordance with its decision II/9, paragraph 2(b).

18. The present report, prepared by the secretariat of the Convention on Biological Diversity, in consultation with the secretariat of the Panel, seeks to provide the basis for substantive discussion of this programme element by the Panel at its third session, in accordance with the guidance provided by the Panel at its second session (E/CN.17/IPF/1996/24, paras.83-95). Documents and other data referred to in the preparation of this report are listed in Annex I. The secretariats also received

valuable contributions in the form of submissions from governments, from other organisations with relevant expertise, and from individual experts.

19. The report seeks to provide further information on those matters identified by the Panel at its second session as being of special relevance to the substantive discussion of this Programme element, in particular those referred to in paragraphs 89 and 90 of its Report (E/CN.17/IPF/1996/24). The approach assumes that no ecosystem can be managed sustainably without ecological knowledge and clear management aims. The knowledge involved may be drawn from global or local experience, while the management aims are determined by the society doing the managing, based on its own sense of priorities. The members of each such society can be thought of as partners in a common endeavour. Where people belonging to different societies influence forest management aims at the same time, the clarity of those aims can be lost unless partnerships exist among relevant stakeholders. How to create and operate such partnerships is thus just as critical an issue in sustainable forest management as how to obtain and use knowledge, whether traditional or otherwise.

20. Partnerships by definition are based on free negotiation, informed consent and agreement among equals. The focus in this report on a partnership-based approach follows the presumption in favour of participatory management regimes adopted by the Forest Principles, by Agenda 21, and by the Convention on Biological Diversity, among others, and also by the growing recognition that non-participatory management regimes have a poor record of maintaining viable forest ecosystems.[1] The range of possible partnerships in forest management include those between nations, nations and corporations, nations and local people, or between other combinations of stakeholders depending on circumstances.

21. Section B of the report provides a general overview, including a review of technical, economic and social issues arising. Sections C and D provide a review of progress and status, and obstacles to further progress. Section E recalls the issues that the Panel, at its second session, identified as meriting further development and that should be addressed during substantive discussion, and offers conclusions and a set of recommendations for specific action. Working definitions of terms used in this report are contained in Annex 2.

B. GENERAL OVERVIEW

a) The nature of traditional knowledge

22. Traditional forest-related knowledge (TFRK) is a sub-set of traditional ecological knowledge (TEK), which is in turn a sub-set of traditional knowledge (TK), all these terms being commonly used. Knowledge is the information held in human memories that is accessible, by recall and the practice of learned skills, in a useful way in day-to-day life. In the context of TK it is often used to mean wisdom, which implies a blend of knowledge and experience integrated with a coherent world view and value system. Traditional means handed down from one generation to another, and in the case of TK usually means knowledge that has been accumulated by societies in the course of long experience in a particular place, landscape or ecosystem. It can be contrasted with cosmopolitan knowledge, which is drawn from global experience and combines 'western' scientific discoveries, economic preferences and philosophies with those of other widespread cultures.

23. The open-endedness of these words helps to explain the diversity of the literature on TFRK, which encompasses the spiritual experiences, philosophies, politics, technologies, subsistence activities and external relations of all forest-dwelling peoples whose lifestyles are strongly influenced by their own traditions, and who are often included within the broad category of indigenous people. (However, not all those who possess TFRK are indigenous in the sense implied here and in the usage of other fora. Principle 5(a) of the Forest Principles recognises this when it distinguishes between 'indigenous people [and] their communities' and 'other communities and forest dwellers'. This distinction will be explored below.) From an ecological point of view, a key distinction is that between ecosystem people and biosphere people. Ecosystem people draw resources from a limited area using their own muscles or those of their livestock, while biosphere people draw resources from all over the world, using other sources of energy.[2]

24. TFRK is chiefly an attribute of ecosystem people, who are intimately associated with particular forested landscapes and have had the opportunity to learn about them over time. Cosmopolitan knowledge, by contrast, is associated with biosphere people, and is their main tool for using the world's resources. The replacement of ecosystem people and traditional cultures by biosphere people and cosmopolitan cultures has been a major world-wide theme of the last 10,000 years, and especially of the last 500. Ecosystem people often become ecological refugees once displaced from the environment to which their culture is adapted.[3] Meanwhile, biosphere people have tended to replace local species and cultivars with a limited number of homogeneous crop plants, resulting in the erosion of biological diversity that is now underway.[4]

25. Working definitions of traditional knowledge stress the links among traditionality, cultural distinctiveness and the local environment to which each culture is adapted. To clarify this linkage, we can imagine a semi-isolated forest-dwelling population developing an increasingly distinctive set of cultural features over time. This process is driven partly by the group responding to its environment, and partly by the insights and creativity of its members. Embedded in the distinctive culture will be much information concerning the physical and biological processes of the landscape, its seasons, soils, plants and animals, and their relationships, behaviours and forms of usefulness.

26. The most valued kinds of knowledge will be those that help people feel secure by meeting subsistence needs or by explaining phenomena that would otherwise be mysterious and threatening. This information will mostly be collected by direct careful observation, but without access to cosmopolitan forms of equipment, experimentation or techniques of data analysis. Even so, few mistakes will be made because of the long investment in observation, and also because of the strong incentive to discover truths that result in subsistence or social opportunities. These incentives will also encourage people to invent new techniques and new perceptions of how phenomena relate to one another, including the use of dreams, trances and other forms of spiritual exploration.

27. As people use a forest ecosystem they may learn how to harvest its resources without destroying it as a whole, even while changing its structure and species composition through selective planting, weeding, coppicing, burning and fallowing. For each place and level of technology, a stable relationship may arise between forest and society, but this stability will not survive the introduction of new hunting techniques (e.g. firearms), tree-felling equipment (e.g. chainsaws), or trading opportunities (e.g. roads and markets). Traditional forest-dwelling people, however, use many species in many different ways, according to many different social rules. Some aspects of each approach are likely to be more resilient than others, and these will tend to have most to teach other societies about sustainable forest management.

28. For any given level of technology, resources that are exclusively used by small numbers of people who cooperate with one another are safer than those used by many, competing people. Thus, any measure that limits to a particular group the right to exploit a living resource will tend to promote its sustainable use. This is because the group with access to the resource will have more opportunity than others to learn about it and how to use it productively. That group will also have an incentive to use it for their own long-term benefit and hence cautiously and more- or-less sustainably. Exclusive access, knowledge and a long-term perspective are the key ingredients that may allow the sustainable use of resources. This depends, however, on the social rules that govern access remaining in force, and on the technology changing no faster than the social rules can adapt to it.

29. As a group accumulates TFRK, they will develop a culture that is increasingly distinct from all others. Many similarities will persist, however, due to common cultural and genetic inheritance from other peoples, and adaptation of other groups to the demands of similar ecosystems. Each culture thus contains some traditional knowledge that is uniquely local, and some that is shared widely. The two kinds are deeply intermingled and embedded in the culture as a whole. Most elements will make little sense if they are removed from a cultural context, for example when stored in a computer database. Many can pass easily into new cultural contexts, however, if the recipient culture is open to new ideas and particularly if it has grown up in a similar environment in which the imported concepts make sense. Thus, cultures in contact with one another often exchange fragments of their traditional knowledge, especially if the cultures concerned are supported by similar ecosystems and have friendly relations with one another. Transmission is more difficult where the environment differs considerably, as between urban or agricultural societies and forest-dwelling ones, or where hostility between cultures exists.

30. Thus, in summary, it is suggested that TFRK is made up of the following linked features:

- * information about the components of a particular forest ecosystem, such as its soils, trees, animals, streams, hunting grounds, old fallows and sacred sites;
- * rules for using them;
- * relationships among their different users;
- * technologies for using them to meet the subsistence, health, trade and ritual needs of local people;
- * a view of the world that makes sense of such information, rules, relationships and technologies in the context of a long-term and holistic perspective in decision-making.

31. These aspects of TFRK have different kinds of meaning for global society, and can be used in various ways. New data about forest ecology or the behaviour and growth rates of forest organisms, for example, might suggest new ways to design, implement and monitor forest management systems. Sharing TFRK might help forest managers avoid procedures that impact unnecessarily on local social systems. Rules on how to grow and harvest forest organisms or to use forest soils without damaging them might improve forestry and agroforestry systems. Clues on how to keep harmonious social relations among competing groups might help relieve stresses in other societies, including urban societies. Traditional technologies may be more benign environmentally or

/...

socially than newer ones, and might be used more widely. Finally, a world view that stresses linkage among natural and human phenomena and that values inter-generational equity and future well-being can only promote sustainable development.

32. All this raises three issues for nations that wish to find ways to use TFRK in forest management:

- * First, little of the knowledge will be meaningful outside its local context, so only some is likely to be helpful in solving practical problems elsewhere.
- * Second, most TFRK is so deeply embedded culturally that it can only be retrieved by traditional means such as the trances of shamans, healing rituals, dances, stories, initiations and other practices that are not amenable to scientific study.
- * Finally, the aim of promoting cultural transmission of TFRK from traditional societies to cosmopolitan ones requires that the former are willing to give and the latter to receive new ideas. This requires mutual respect and understanding, and cannot occur while feelings of inequality persist between the two kinds of society.

b) Traditional knowledge and property rights

33. An increasingly large part of the global economy is now based on buying and selling information, so the nature and future of intellectual property is often considered a central issue. This can obscure the fact that all economic activity rests ultimately, and for most people directly, on management of real ecosystems, the abuse of which has real rather than virtual consequences for real people. Even so, intellectual property is an important issue that impacts on the use of TFRK in several ways.[5]

34. There are two main themes within the cosmopolitan approach to intellectual property. First, patent laws have been devised to create temporary monopolies in the supply of certain novel goods and services. The aim of these is to safeguard the investments that often lead to technical and product innovation in an industrial context. Patent laws typically require that to be eligible for protection an invention must be new, useful and non-obvious, and it must be described in detail in the application. These requirements appear to rule out the patenting of naturally-occurring items that have not been modified by people, but this exclusion is narrowing in the light of court rulings and international agreements. The Trade-Related Intellectual Property Rights agreement within the General Agreement on Tariffs and Trade, for example, allows countries to exclude "plants and animals other than micro-organisms" from patentability (Article 27(3b)), but this sub-paragraph will be reviewed in 1999.

35. The second theme involves the creation of rights to plant varieties that have arisen as a result of selection by people. The different, but complementary in intent, concepts of 'plant breeders' rights' and 'farmers' rights' are designed to protect a general interest in the use of varieties. This intent is not to exclude or monopolise, but rather to promote sharing, use and further development of the varieties concerned while recognising the original source of materials.

36. Alternative intellectual property rights regimes suitable for the needs of local communities that collectively possess TFRK have been proposed, taking into account the way in which traditional

knowledge is acquired as common property of a people and is hence an integral and inalienable feature of their culture. One such proposal[6] rejects the application of industrial patent law to innovations based on TFRK, and seeks to resist the turning of traditional knowledge into a traded commodity because this can erode community solidarity. It asserts that commercial use of TFRK can occur but only at the absolute discretion of its owners, and that the state's main role is to safeguard and protect the rights of those owners. It also describes a Community Intellectual Rights Act to cover all uses of traditional knowledge. This and other proposals show the extent to which current views on property, innovation and trade may have to be reconsidered if the views of indigenous and traditional communities are to be reflected in global agreements. The balance of opinion is to reject the application of patent law to TFRK itself, while accepting its usefulness and suggesting improvements where particular inventions are based on TFRK and developed to marketability (e.g. in the case of certain pharmaceutical products).

37. It is also suggested that the concept of plant breeders' rights be revised and extended to apply to traditional knowledge systems, creating national sui generis (unique) arrangements for recognising a general interest of the owners in each knowledge system as a whole. Several authors stress that such rights must reside in groups rather than individuals, since traditional knowledge arises through the efforts of past, present and future members of a particular society. The concept of 'farmers rights' as defined in FAO Resolution 5/89 and the provisions of the Convention on Biological Diversity support this view. Furthermore, it would not be ethical to employ an individual to reveal traditional knowledge without the consent of the society involved. Since TFRK cannot otherwise be taken from its owners involuntarily, and the owners are the group, it must be correct for group ownership to be recognised in law and for access to TFRK to occur only by agreement between the owners as group and the person or institution seeking to obtain access.

38. If TFRK is to have a role both in maintaining the way of life of the people who possess it, and in managing forests sustainably, then certain conclusions follow and need to be translated into both policy and practice. Since TFRK cannot reasonably be taken from people without their consent, and is the common property of distinct groups of people, this should be acknowledged by governments and others who wish to use such knowledge. This means that governments should recognise TFRK-owning groups as being legally able to enter into agreements by which their knowledge can be accessed, and encourage the negotiation and operation of such agreements.

39. The three areas in which access agreements seem necessary are as follows:

- * First, if forest-dwelling people are to be involved other than as labourers in managing the forests where they live (as must be the case if TFRK is to have a role), this should be based on partnership agreements. Since the use of any resource needs clarity concerning its ownership, plans for its use, and management of that use, managing an inhabited forest will require ownership, planning and management partnerships.

- * Second, if forest-dwelling people are to be involved in biodiversity prospecting (as they must be if TFRK is to be used to identify materials with commercial potential), this should be based on agreements that guarantee a fair return from any resulting commercial application.

* Finally, if forest-dwelling people are to share their ideas and experiences with others, this should be based on agreements that allow them to control the release of information and that acknowledge their contribution.

40. Partnerships involve agreement and co-operation between people who are equals but have complementary needs, so the negotiation of partnership agreements for managing forests has the implication that local people, governments, researchers, interested public and private sector enterprises and all other interested relevant parties will treat one another respectfully. This applies equally to biodiversity prospecting and other research contracts. In any contractual arrangement it is up to the parties to decide what is 'fair', but minimum standards can be mandated by law, and communities and governments can cooperate to enforce the contracts and to deter unethical practice.

41. The issues of forest management partnerships, biodiversity prospecting and information-sharing are discussed below. Meanwhile, the general role of national governments in this system can be identified as being to formulate framework legislation to establish:

- i) procedures for recognising and establishing group identity and group ownership;
- ii) the need for access agreements;
- iii) the nature and minimum terms of those agreements, including that access be on mutually agreed terms and subject to prior informed consent. National framework legislation should also clarify such matters as jurisdiction and procedures for enforcement and the settlement of claims. The role of the global community, meanwhile, would be to agree on measures by which nations can cooperate to facilitate the operation of access agreements to universal advantage.

c) Key distinctions in forest management

42. In its recommendation to establish the Panel, the Commission on Sustainable Development recognised that a central concern is to avoid further damage to natural forests by unsustainable human activities (E/1995/32, para.200). As the Panel noted at its second session, the underlying causes of such damage are diverse, inter-related and rooted in social, economic and political events that extend beyond the forest management sector or the locations of forests themselves. Enough is known about the causes of forest damage to define a simple framework that takes into account the nature and potential role of TFRK as well as contemporary forest science. Thus, a country's forest estate can in principle be divided into inhabited and uninhabited areas, though this may be difficult in practice (Figure 1).

43. Inhabited forest areas are subject to customary rights, located within indigenous lands and territories, or are used by forest-dwelling people, while uninhabited ones are not encumbered by such usage or ownership claims. However the notion of uninhabited forest areas should be viewed with extreme caution for two reasons. Firstly, there continue to be cases of national governments becoming aware of the existence of isolated indigenous forest-dwelling communities in areas considered uninhabited. Secondly, the areas effectively utilised by many indigenous and traditional communities for hunting, collecting or ceremonial purposes are often far more extensive than governments and planners recognise.

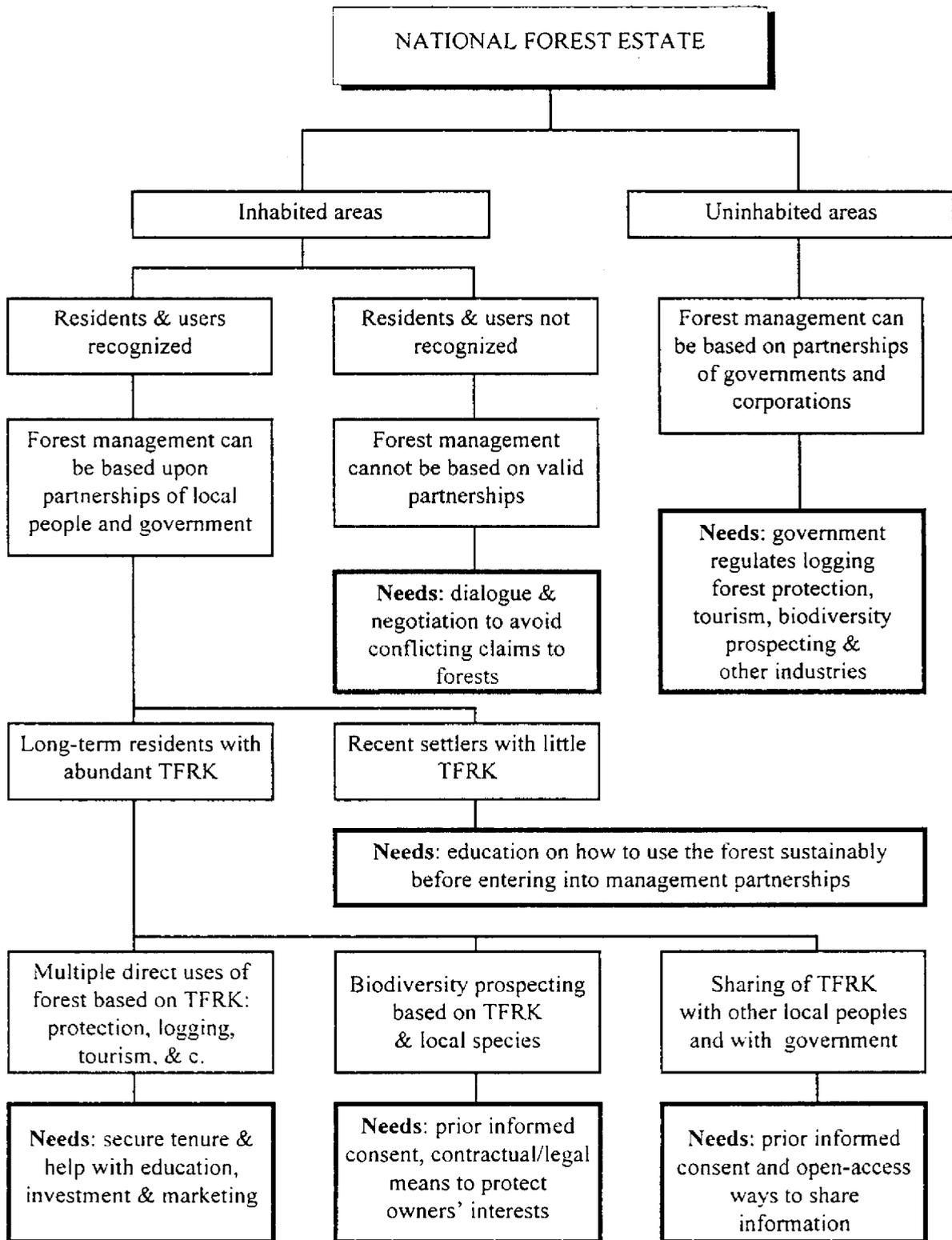


Figure 1: Key distinctions in forest management.

44. If such uninhabited areas exist, the nation as sole owner of the resource could, if appropriate, enter directly into planning and management partnerships with other actors (national or international) in order to use the forest in accordance with its national policies and with internationally agreed guidelines and best practice.[7] The aim of such partnerships would be:

- * to allocate forests to different kinds of use (the spatial planning process);
- * to manage them for protection, production of timber, watershed benefits, tourism revenues or for biodiversity prospecting (the management process); and
- * to ensure that the planned use of one area does not adversely affect the use of other areas (the environmental impact assessment or EIA process)

45. If areas that a state sees as uninhabited are claimed by others as inhabited, a conflict of interest will occur if the state then allows the forest to be used in ways that are incompatible with the needs of claimant groups. Such conflicts involve competition for the control of territory or access to resources. If one or both sides think that their vital interests are at stake, dialogue and compromise can be elusive. This is why such disputes are often resolved by power contests, resulting in the uncompensated expropriation of the assets of the weak by the strong. Recent examples of this process and its outcome can be found throughout the world.

46. One way to avoid and resolve conflict without a power contest involves the careful management of four steps. The basis of any claim must first be understood both in the terms of the people making the claim and also on the basis of studies using cosmopolitan methods (step 1). Recognition of the existence of the claim may then follow (step 2), allowing negotiation of a settlement (step 3) and re-formulation of management partnerships (step 4).

47. Some obstacles to this process and ways to overcome them are discussed in Section D., but no universal rules apply other than that agreement is more likely if all sides respect one another and act accordingly. As the locations of all habitations and associated claims to use the forest in a country are recognised, the full extent of human occupancy of its forest estate will become clear. Where occupation is established, it is possible for government to take advantage of the fact by establishing partnerships with local people to manage the forest sustainably (Figure 2). This is the main context in which TFRK can be of use to governments.

48. There are three general options for local people to use their knowledge to help achieve sustainable forest management:

- * First, TFRK may be involved in the direct management of local forests.
- * Second, TFRK and local species may be used in the process of biodiversity prospecting.
- * Finally, good ideas on forest management derived from TFRK can be shared with others.

49. None of these options can be accomplished entirely without external communications, technical assistance, investment or access to markets, so a partnership approach is appropriate to all three. They have different technical and capital requirements, however, and have different consequences for the flow of benefits. The rest of this report describes the implications of this in all

three cases, explains how appropriate arrangements can be made, reviews progress, identifies barriers to further action, and suggests way in which they might be overcome.

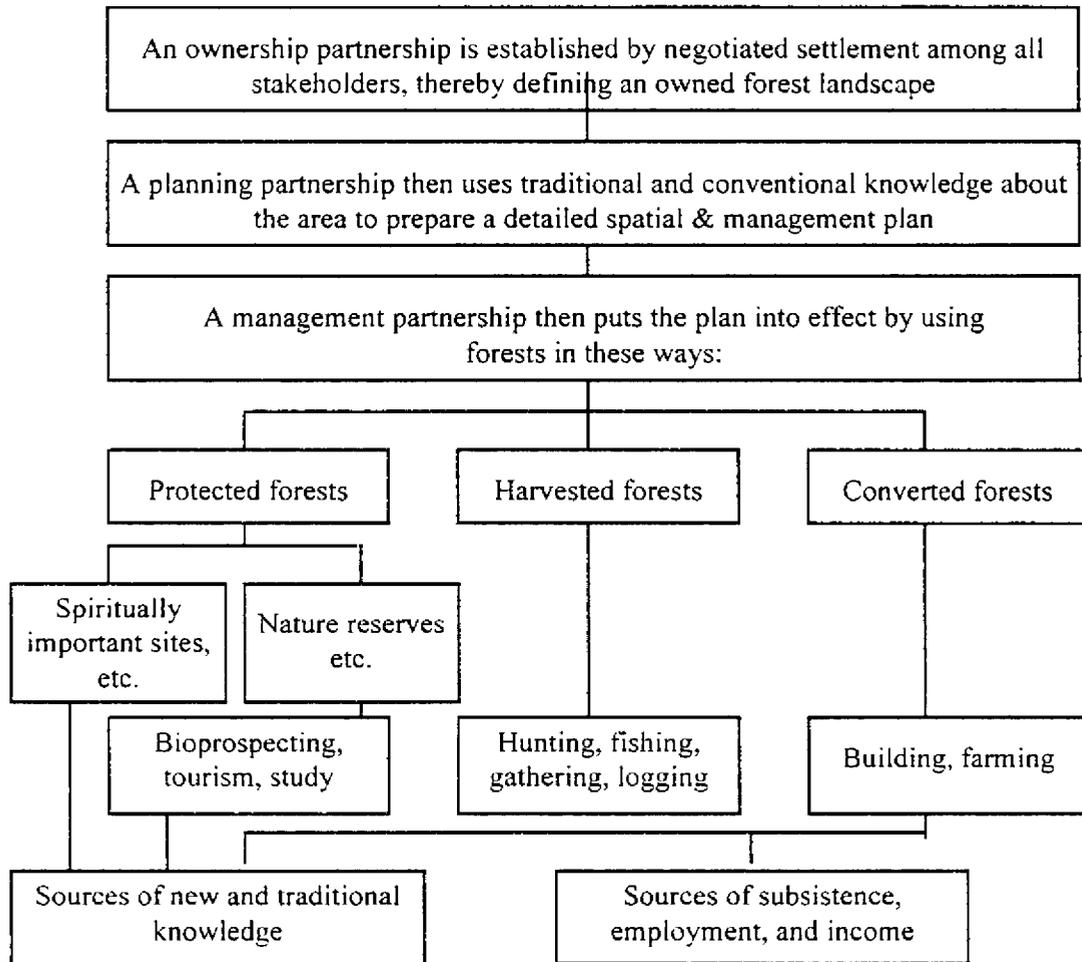


Figure 2: Managing inhabited forested landscapes.

C. RECENT PROGRESS AND STATUS

a) Direct management of forests

50. Figure 2 traces the sequence of events that can lead to sustainable management of an inhabited forested landscape. It is envisaged that this would begin with the agreement of an ownership partnership for the landscape concerned. This means an arrangement that recognises the complementary roles of government and local people in the area concerned, and that lays down procedures for dialogue and the settlement of claims among them. This can have policy implications as it relates to the distribution of responsibility for forest management.

51. Descriptions of decentralisation and conservation processes in Colombia, Costa Rica, India, Indonesia, Kenya, Nepal, Nigeria, the Philippines, Russia and Zimbabwe are contained in a recent World Bank study.[8] The study concluded that local empowerment and the strengthening of local institutions are preconditions for managing ecosystems according to local needs using TFRK, but the forms they take vary greatly and cannot be prescribed in detail. The study came to four main conclusions, which should be borne in mind during any process of decentralisation since they can generate serious risks both to people and to forests.

- * First, precipitate and unplanned decentralisation can neutralise national and global influence, while giving powers to local societies that may lack adequate skills and accountability to use those powers properly.

- * Second, redistributing power may be seen as a threat by some groups, prompting them to resist change. Thus, mediating bodies trusted by all sides will be needed to smooth the transfers of power, and support from law and policy are needed to help the newly-empowered locality sustain itself.

- * Third, there is the risk that a locality that is no longer sheltered by a national government may become vulnerable to groups wishing to exploit it. Where national governments are no longer able to control such threats, localities must be helped to communicate and collaborate to prevent them from being singled out and overwhelmed one by one.

- * Finally, uncertainties in the process mean that there is always a risk that the need to protect nature reserves may be forgotten for a time. In the tropics especially, irreversible damage to the components of biodiversity can occur swiftly, so resources for protecting reserves must be supplied throughout.

52. Once a settlement of the ownership partnership has been achieved, planning partnerships can be established. Here, stakeholders collaborate to understand the landscape using both traditional and global approaches to the discovery and use of knowledge.[9] Examples of this process include the planning of multiple-use landscapes in East Kalimantan, Indonesia, and in the Canadian Arctic, based on social mapping, participatory rural appraisal, and global positioning and geographical information systems (GPS/GIS). Such procedures also involve adopting guidelines for managing the landscape's ecosystems sustainably for various purposes, and adapting them to local conditions in the

light of traditional and other knowledge. Detailed rules for operating a management partnership should emerge from this process, helping to guide the landscape's use in practice.

53. There are three main options for using land in a forested landscape: * as converted forest (e.g. for farms, tree plantations, buildings and other infrastructure); * as harvested forest (e.g. for logging, hunting, fishing and gathering); and * as protected forest (divided into sacred areas that cannot ordinarily be used by living people, and nature reserves that can be used for such purposes as tourism, biodiversity prospecting, education and research).

54. There may be some overlap between these categories (e.g. some parts of a nature reserve might be available for hunting and gathering, but not for logging), and detailed zoning may be required depending on planned use (e.g. for stand-specific logging regimes). The emphasis will also vary among locations depending on the outputs sought, ranging from biodiversity protection to subsistence use (harvesting wild meat, medicinal plants, food plants, etc.), ecotourism (harvesting revenue from visitors interested in nature and local culture), precision logging (e.g. felling rattan canes or special woods), and logging for general-purpose timber. The details cannot be prescribed, and must emerge from dialogue among knowledgeable people in the context of planning and management partnerships.

55. Cases where all steps in this process have been followed, so that governments and local people have worked as partners in forest management, include 'conservation areas' (i.e. large multiple-use landscape units with an emphasis on sustainable use of resources) in Nepal, Australia, the USA, Canada, Indonesia and Costa Rica.[10] The same principles apply to reforestation (e.g. Joint Forest Management areas in India)[11], wildlife management (e.g. CAMPFIRE Districts in Zimbabwe)[12], and timber production (e.g. West Coast beech forests in New Zealand).[13] Thus the evidence is strong that once governments have recognised the nature and value of TFRK and have accepted the need to manage resources through local partnerships, then such arrangements are both feasible and effective.

56. Many studies show that local people are well aware of the nature of many of the resources in their environments, and how to manage them well.[14] Special knowledge and authority over certain resources are often possessed by individuals, by women or men, by clans, or by groups descended from residents of particular villages (e.g. in parts of Switzerland). Harvesting rates may be regulated by access controls of a wholly traditional kind (e.g. molong among the Penan of Borneo), or re-invented but based on older forms (e.g. sasi among the peoples of Maluku in Indonesia), or else are a new response to changing circumstances (e.g. in the Niger Delta of Nigeria, where one community has devised a '3-years-on-9-years-off' logging cycle for certain trees). It is most feasible to maintain such control over land and trees, which are easier to claim and mark than wild animals. Hence traditional controls on hunting often curtail access to hunting grounds, supplemented by rules on sharing the meat of certain animals and taboos that, taken separately, have little effect on harvests.

57. All this suggests that TFRK can provide a strong basis for sustainable forest management for two main reasons. The first is the quality of information and interpretative systems possessed by local people after living in a forest for several to many generations, while the second draws on the strength of their commitment to sympathetic forest management that results from having such knowledge. In other words, they know much and because of this they care greatly.

58. Traditional people do not know everything, however, and nor are they able to regulate every use of every component of a forest. Gaps in knowledge and control mean that they are unable to manage a forest to the limit of its productive capabilities in every dimension. Broad margins for error

are built into traditional systems, and depend on social measures to limit the number of users, for example by defending group territories, limiting fertility, and regulating the timing and extent of access to certain areas. These margins buffer the managed forest against the effects of human error and also unexpected events such as those caused by El Niño influences or climate change.

59. These measures are able to achieve sustainable use provided the underlying conditions remain fairly constant. A management system based on TFRK can however unravel quickly if population density increases, if access controls break down, or if new technologies are introduced that allow goods to be sold on external markets. Conversely, there are ways for a stable, TFRK-based system to be maintained while selectively importing new ideas and investments to increase the range of materials harvested and the revenues obtained. These ways require that the possessors of the TFRK concerned maintain their authority to decide how the forest is used, and are able to decide for themselves which ideas to import and which investments to undertake, and when.

b) Biodiversity prospecting

60. TFRK can be divided between forms that cannot be understood and used beyond their local context and those that can. The latter can then be divided into forms with and without commercial potential (Figure 3). The final category comprises good ideas for managing forests, which everyone may agree to share freely provided the source is acknowledged. Some forms of TFRK, however, can help biodiversity prospectors create new goods and services that might be patented and sold. This concept may be disturbing to people who possess TFRK, who may consider the notion analogous to making an inventory of a World Heritage Cultural Site, with a view to identifying items for sale.

61. In this context, Articles 8(j) and 15 of the Convention on Biological Diversity introduce important guidelines. In particular, Article 8(j) provides that the wider application of the knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles should entail the approval and involvement of the holders of such knowledge, innovations and practices, as well as the equitable sharing of the benefits arising from the utilisation. Holders of TFRK are thus entitled to make the sharing of such knowledge contingent upon satisfactory benefit-sharing arrangements. Notwithstanding this, there may be cases where traditional communities, for well-founded cultural reasons, choose not to reveal their knowledge.

62. The value of ethnobiological knowledge in guiding those wishing to identify certain kinds of naturally-occurring chemicals within wild species is now well established.[15] In the case of medicines, traditional preparations are used to treat many ailments, including all kinds of infection, asthma, diabetes and hypertension, and these preparations often have real effects on pathogens and symptoms. This is because over millions of years plants have evolved chemical defences against predation and disease, which therefore affect animal physiological systems and inhibit fungal, bacterial and viral growth or reproduction. TFRK can be employed to guide the practical choice of those species most likely to present the desired properties from among the thousands of species that may be present in a forest. Such information can save much time and money when used as an alternative to the random screening of specimens. These savings can be of great commercial significance and, consequently, raise significant access and equity issues.

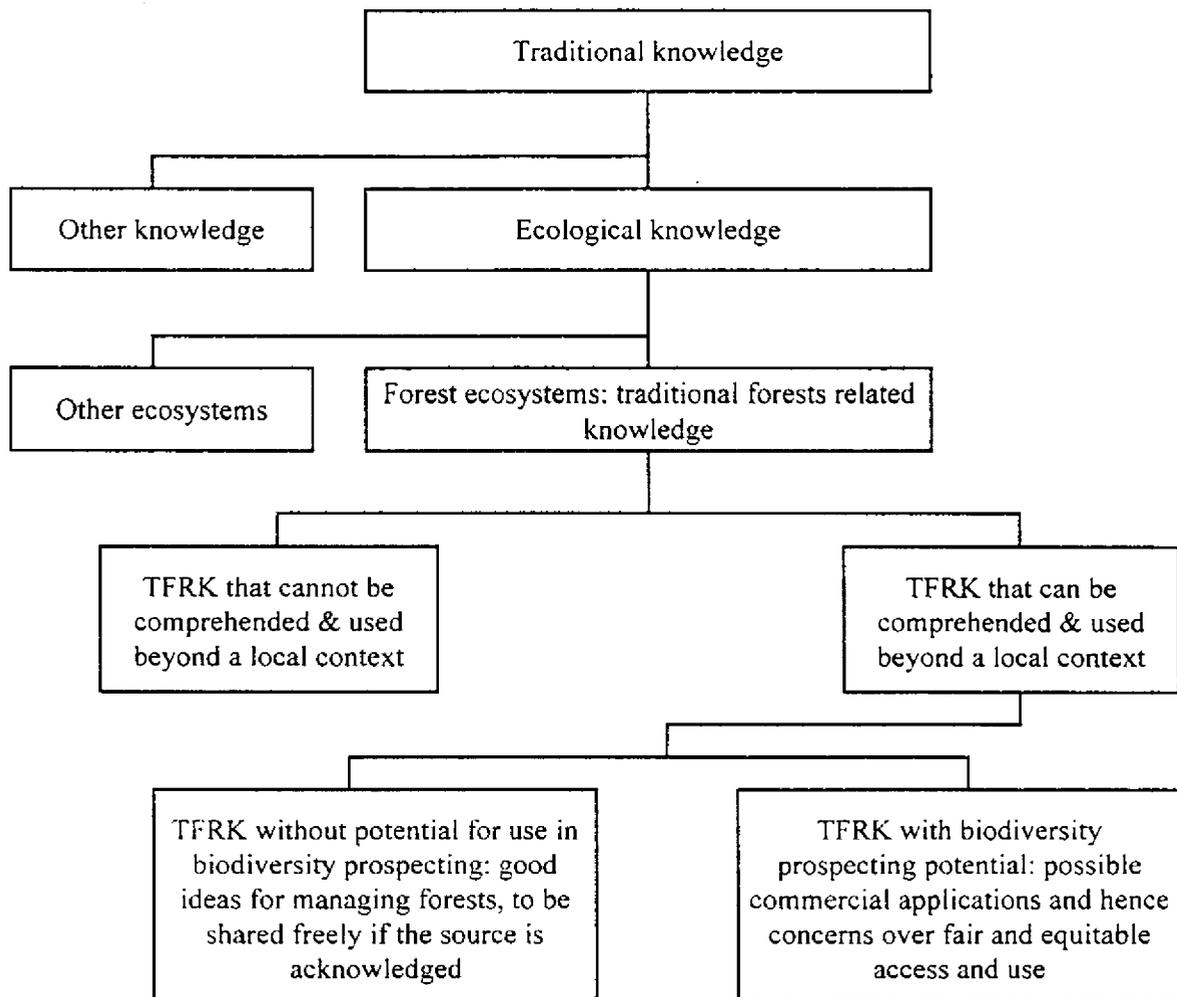


Figure 3: One way to classify traditional knowledge.

63. These issues revolve around prior informed consent, or whether people wish to use their own TFRK for biodiversity prospecting and, if so, how and on what terms. Other issues should not arise until this basic decision has been made after free, full and informed discussion. The reason for this is that the aims involved will affect the details of how data are to be collected, managed and used. For example, procedures will be very different if the aim is to record TFRK for the direct use of local people and the teaching of children, or if the aim is to make money. Although computer databases might have a role in meeting the first aim, viable alternatives include apprenticing young people to experienced shamans and healers and promoting work between them and school-teachers. If income is sought, however, then other needs come into play.

64. The foremost of such needs is for a supportive legal framework to be put in place at the national level, including legislation requiring all biodiversity prospecting to occur through valid and enforceable contracts between the owners of TFRK or, in the case of local species in inhabited

forests, their ownership partners (Figure 4). For countries that are Parties to the Convention on Biological Diversity, such legislation should be consistent with the terms of the Convention. The law should specify the minimum terms of such contracts, for example the form of material and data transfer agreements, the kinds of payments and technology transfers that must be negotiated, the legal nature of the parties, procedures and jurisdiction for enforcing the contracts and for settling disputes locally with the participation of the ownership partners, and arrangements for terminating the contract.

65. International agreements can have an important role in requiring, for example, that the owners of TFRK connected with a patent application certify that they are satisfied with the process by which it was obtained. It would also be helpful if descriptions of inventions submitted in patent applications were to be required to include an account of the location of origin and social context of the material used in developing the new product, including its past use by people. The government (or the TFRK owners themselves) may also wish to cooperate with other countries or groups to enforce these minimum terms. An enterprise that violates the terms of a research agreement in one country, for example, might then find itself barred from other countries under such bilateral or multilateral agreements.

66. A framework law as outlined above would establish minimum terms for TFRK-based biodiversity prospecting, but must be supplemented in any given case by a suitable contract between the owners of TFRK and others wishing to use that knowledge for biodiversity prospecting. Such contracts will be negotiated according to the needs of the parties concerned, and cannot sensibly be prescribed in advance. Contracts should normally be for specific access for limited periods and their terms should include financial advances for initial access to information, royalties on any discovery made using that information, and provision for technology transfer to the TFRK owners to enable them to increase their ability to participate in later research and development.

67. Few countries yet have both a framework law on biodiversity prospecting and local institutions capable of negotiating and enforcing research and development contracts with commercial partners. For example Costa Rica, which has an advanced system for managing biodiversity prospecting, has chosen not to use TFRK as a source of information until the indigenous people who possess it are ready to become involved on their own terms. Other countries have a framework law (e.g. Executive Order 247 of May 1995 of the Philippines), but other aspects of the process are still being debated. Meanwhile, the Costa Rican biodiversity management approach remains an important starting point for any group wishing to devise its own way forward in this area.[16]

68. Another set of experience is that of Shaman Pharmaceuticals, a US- based biodiversity prospecting firm that specialises in using TFRK to identify materials for further investigation as potential pharmaceuticals.[17] The company is committed by its access contracts to return a share of profits to the peoples from whom it obtains TFRK, and all the peoples with whom it has ever worked will share equally in those profits regardless of the source of any particular product. The company has established the Healing Forest Conservancy (HFC), to work with informant peoples to identify acceptable forms of revenue sharing and to test them through pilot projects. The kind of return most often requested from HFC is help in clarifying resource tenure, but technology transfers through training programmes are also sought after. Each group also has the opportunity to request payments in cash if they so wish.

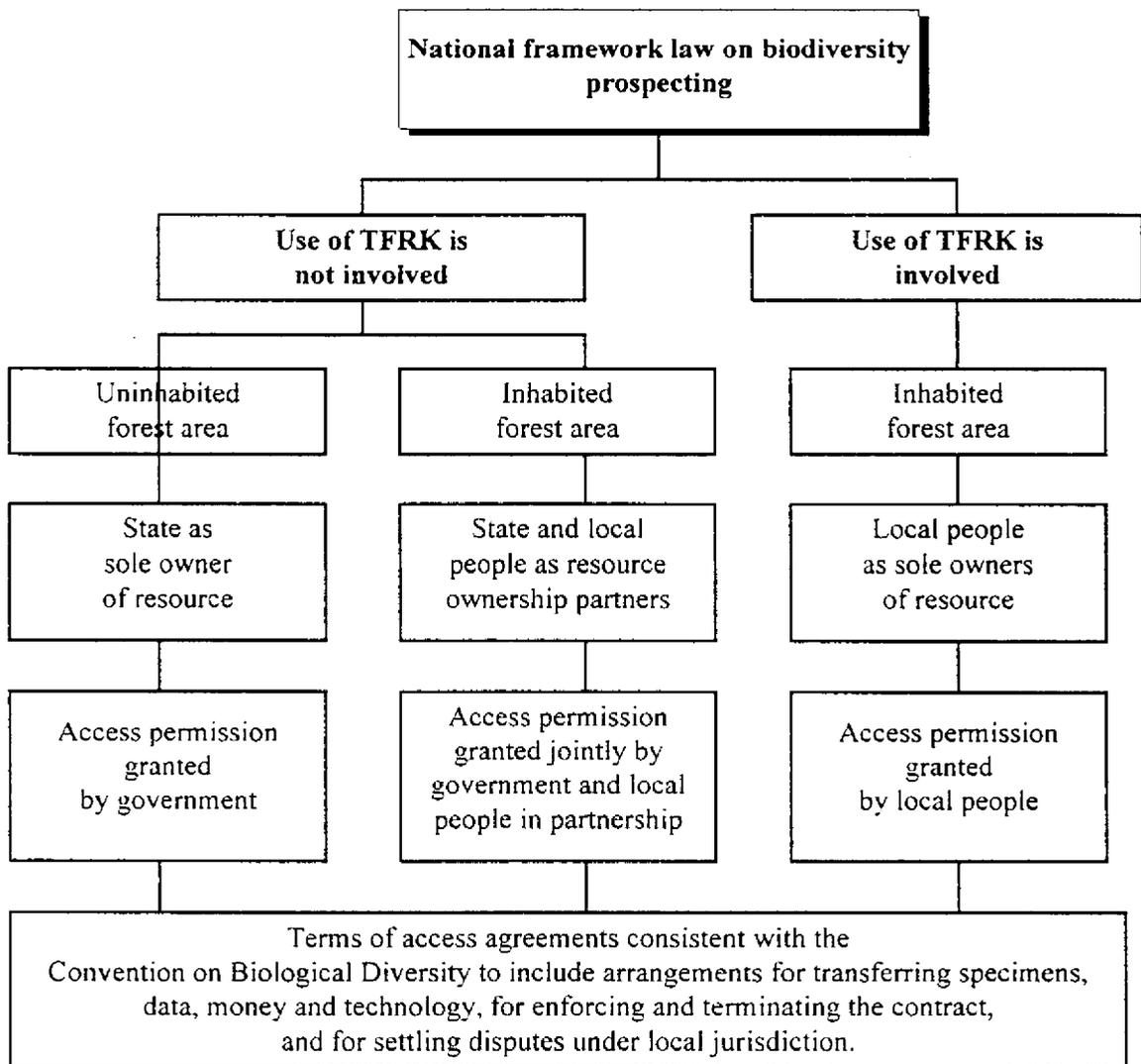


Figure 4: Pathways to biodiversity prospecting.

c) Sharing good ideas

69. Enough cases are now on record to suggest that anyone who does not take into account TFRK in planning forest management is unlikely to be doing an effective job. In the Caprivi region of Namibia, for example, attempts were made to overturn the traditional practices of early burning in silvipastoral systems and oxen-drawn ploughing in agroforestry ones. As predicted by local people, these resulted in serious fire damage and soil erosion and are now being reversed. Similarly, in Ontario, Canada, logging companies ignored TFRK-based predictions that summer logging would damage fish stocks and that large-scale clear-cutting and poisoning of aspen as 'weed' trees would adversely affect the supply of moose, beaver, blueberries and medicinal plants for local people.

Corrections based on TFRK were then introduced at little financial cost to the companies, but at great social and economic advantage to the ownership partners collectively.

70. Meanwhile, at Ekuri in Cross River State of Nigeria, the British Government has been supporting a community forest project that demonstrates how to build management partnerships based on secure resource tenure and TFRK on the one hand, and on appropriate levels of advice and encouragement on the other.[18] Some of the lessons learned were revealed when the Ekuri people were asked to advise another village trying to solve its own problems of forest depletion, and said that the people there should: * be united and prepared to work hard; * believe in themselves and start self-help projects after full discussion of their own problems and opportunities; * ensure prudent and realistic management of all the village's resources; and * work with government departments and other outside groups to obtain help with transport and marketing, training and technical advice, financing, and monitoring and evaluation.

71. The above suggests the existence of a class of TFRK that, whilst of negligible commercial significance, is likely to be of widespread benefit if shared. There is at least a need for TFRK perspectives to be incorporated in standard forest management training, as a way to sensitise forest managers to ways of accessing TFRK, to the benefits of using it, and to the dangers of ignoring it. A pioneer institution is the Faculty of Forestry of the University of British Columbia in Canada, which in 1995-1996 opened a pilot course in 'First Nations' Perspectives on Forest Lands', and held a workshop to identify how to include aboriginal perspectives and management partnerships in the other courses taught by the Faculty. At least three other Canadian universities are following suit (Simon Fraser, Victoria and Toronto), but clearly there is a long way to go even in Canada, and most other countries have yet to begin.

72. Another way to share TFRK is to rely on networks of concerned groups and institutions to collect information in collaboration with indigenous people, and to make this available through newsletters or on the Internet. A list of access points to existing networks is given in Annex 3, and these could constitute a public access, interactive database, for example within the clearing house mechanism for technical and scientific co-operation of the Convention on Biological Diversity.

73. If TFRK is to be stored in a computer system and rendered accessible on the Internet, an agreement with the owners of the knowledge concerned would be appropriate. This is the third kind of access agreement that follows from recognition of collective property rights over TFRK. Since here the aim is to share rather than to sell knowledge, the terms would presumably be limited to confirming the owners' right to exclude certain kinds of information from storage and dissemination, and the due acknowledgement of sources.

74. Not all forms of TFRK can be managed using modern techniques, however. Traditional and cosmopolitan knowledge are both ultimately derived from data, comprising observations about the world. In the case of TFRK, data often relate to seasonal and other changes in the environment which may, for example, indicate the availability of a resource or the timeliness of a ritual. From the 'western scientific' perspective, data often consist of numeric, categoric and other types of observation that can be held and manipulated in databases. Whereas TFRK data are gathered without the need for sophisticated measuring equipment, computer technology or communications, western scientific data may need some or all of these.

75. The two sources of data demand different approaches to management and communication. Technologies designed to manage western scientific data are largely unsuitable for TFRK. Thus the knowledge of a forest-dwelling community cannot be committed to a computer database without

losing many of the understandings implicit in the narrative material. Almost by definition, TFRK applies to the locality in which it is obtained and may be meaningless elsewhere. Nevertheless, there is role for exchange of TFRK between separate forest-dwellers and managers in similar environments, and between generations in communities where normal TFRK exchange processes have broken down. In such cases, the exchange of TFRK should be treated as a two-way process aiming to blend new knowledge with what is already known. Interactive fora such as workshops and meetings are essential, since the facts may not make sense without being adapted to local conditions.

76. Since most TFRK cannot usefully be digitised, the role of computer database technology is likely to be limited mainly to the sharing of anecdotal information through the Internet, and certain specific tasks associated with biodiversity prospecting. In these cases, translation and data security are respectively the main design issues. Digital mapping (using GIS and GPS) combined with social mapping will have an important role in establishing forest ownership, planning and management partnerships, and anecdotal information can be culturally and geographically located in the same system to assist in forest management tasks. Precise design specifications await further study and consultation.

D. OBSTACLES TO FURTHER PROGRESS

77. The chief needs are for the identities of groups which possess TFRK to be recognised in law, and for the TFRK itself to be legally recognised as the common property of the group in each case. Once these measures are accomplished by national governments, it will be possible to access and use TFRK by agreement with its owners. These agreements would be of various kinds, depending on the kind of partnership to be established, with forest management, biodiversity prospecting and information-sharing partnerships being the main options.

78. The main obstacle to achieving such settlements is likely to be a reluctance to recognise the ownership of TFRK because of the need then to negotiate consensual agreements with its owners. International fora such as the Intergovernmental Panel on Forests provide an opportunity for governments that have taken this path to reassure others that TFRK is indeed useful in managing forests sustainably and in locating valuable new products, and that accessing it on fair and equitable terms can only benefit each country in its efforts to achieve sustainable development.

79. Certain common stumbling-blocks have emerged from the experience of countries that have sought to make such arrangements. In the process of deciding which areas of forest are truly uninhabited and which are not, for example, there is the problem that the definition of forest habitation or use may not be shared between the nation and the claimants. The latter may consider that habitation is established because they have used the area for hunting, as a source of emergency food, as a place for initiating youngsters, as part of an extended fallow system, or as a resting place for their ancestors. Negotiations to settle such misunderstandings are inherently delicate and can be delayed by many factors.

80. The possession of TFRK can mean, for instance, that local people clearly distinguish places with different soil fertility, value as hunting grounds, or spiritual significance despite their superficial similarity. These factors may be completely lost on government negotiators who have only a general understanding of the location concerned. Other problems may arise from differences in perceived transaction costs by the two sides, for example when a government uses expensive senior officials to negotiate with local people who have a different sense of the value of time spent negotiating. The

idea of compensation may also be perceived differently by the two sides, since some cultures may see compensation in ritual terms as a fine to correct a spiritual imbalance rather than as a source of money. Evidence of respect paid by a government team to local people might in some other cases mean more to them than would a financial settlement alone.

81. Specific proposals have been made for establishing "an Ombudsman's Office that would not only advise indigenous and local communities on the protection of their resource rights and on benefit sharing, but represent them in their complaints relating to infringements of their resource rights".[19] Another option for facilitating settlements would be to create an arbitration and conciliation mechanism. The creation of such mechanisms would be helpful to groups seeking the fair and equitable settlement of conflicts of interest over forest and other resources.

82. Many forest areas have recently been occupied by settlers from urban or agricultural situations who have been attracted by economic opportunities at the forest frontier or have been driven there by poverty or landlessness. Other new arrivals in a forest may have been displaced by development projects elsewhere. In any such case, the newcomers will have little or no TFRK that is useful in their new location. We have shown that sustainable use of a living resource depends on the number of users being limited by social rules to those who understand the resource well enough to be able to use it properly. Such rules are devised and knowledge accumulated in a particular place by a particular people. Suddenly replacing those people with others who lack appropriate rules and knowledge can only result in resource destruction, and this is indeed a major cause of undesirable forms of deforestation world-wide.[20]

83. This major problem can be avoided if governments were to adopt effective policies that discourage colonisation of forest frontiers or displacement of people from forest areas. Where new settlement has already occurred and cannot be reversed, however, governments could promote the education of settlers in how to live in their new environment without damaging it. This would create an important role for environmental education within communities on the forest frontier, and suggests that surviving traditional people in the area could have a vital role in showing newcomers how to live there sustainably. This has been proposed as a major need in Irian Jaya (Indonesian New Guinea), for example, where aboriginal peoples are now outnumbered by transmigrant settlers from elsewhere in Indonesia.[21]

84. A constraint on the formulation of TFRK access agreements for biodiversity prospecting is the need for legal and other forms of technical advice by governments that are contemplating a framework law, and by peoples who are trying to negotiate an equitable bioprospecting contract with commercial groups. The National Biodiversity Institute of Costa Rica (INBio) has a record of providing such advice on request (e.g. to the Philippines and Indonesia),[22] but neither INBio nor any other institution could be expected to do so on a large scale without additional resources to meet the demands on its staff and computing time. A well-funded international network of expert institutions and individuals would go far to relieve this important constraint on fair and equitable access.

85. Finally, there are several obstacles to sharing information between the owners of different traditional knowledge systems, and between them and cosmopolitan forest managers and others. They include difficulties in translation among the many languages involved, a lack of common standards for storing, accessing and disseminating relevant information, and a lack of technology and training of the right kind to provide all TFRK owners with Internet access.

E. CONCLUSIONS AND RECOMMENDATIONS

86. In the initial discussion at its second session, the Panel reiterated the terms of reference for this programme element; recognised that these included considerations of how traditional knowledge and practices in their broadest sense could be applied to sustainable forest management; and noted that it would need to take into account the outcome of the Conference of the Parties to the Convention on Biological Diversity at its third session in relation to indigenous knowledge. The Panel noted the importance of traditional forest-related knowledge, innovations and practices to the fulfilment of its mandate, and noted the need to address the relationship between traditional forest-related knowledge and biological diversity, and to take account of other relevant intergovernmental processes, in particular the Convention on Biological Diversity, so as to avoid duplication or overlap. It requested that the report contain well-defined proposals for national action, including an exploration of the need for and the feasibility of mechanisms for considering ways and means as regards the effective recognition, protection and equitable sharing of benefits arising from the use of traditional forest-related knowledge related to forest management practices (E/CN.17/IPF/1996/24, paras.83-87).

87. The Panel noted that a series of issues concerning the provision of technical, technological and scientific advice on traditional knowledge, innovations and practices of forest use and conservation merited further development (E/CN.17/IPF/1996/24, para.88), identified matters that should be addressed (para.89) and noted the need for effective protection of indigenous rights and for the equitable sharing of benefits (para.90). These issues have been addressed above in sections B, C and D of this report and the Panel may wish to consider the following specific observations:

- (i) Most TFRK will mean little outside the environment where it arises and is likely to be most valuable as a means to achieve on- site sustainable forest management;
- (ii) Much of this knowledge cannot, and the rest should not, be taken from its owners without their consent and participation;
- (iii) Of those forms of TFRK that do have meaning outside their place and culture of origin and potential usefulness to global society, some have no potential for commercial application, but are nevertheless the intellectual property of their owners;
- (iv) Forms of TFRK that have both meaning outside their local context and potential commercial value require the establishment of holistic approaches to intellectual property which allocate to the owners of traditional knowledge, innovations and practices rights and protection comparable to those offered under existing intellectual property regimes. Such holistic regimes should inter alia establish the right to collective ownership of such knowledge, protect the owners' rights and permit the equitable sharing of benefits;
- (v) Such intellectual property protection for traditional knowledge would need to include:
 - (a) The recognition of groups possessing TFRK as legal entities for the purposes of entering into access agreements concerning TFRK;
 - (b) The acknowledgement of the right of any such group not to reveal such traditional knowledge;

- (c) The recognition in law of the TFRK concerned as the common property of the group entering into the access agreement;
- (d) The need for all access to TFRK to be through an access agreement with its owners, where these can be identified.
- (e) The definition of the terms of access agreements for the three main circumstances in which access to TFRK might be sought: where the aim is to manage a forest by partnership between the people who live there and the government; where the aim is to invent patentable products for commercial use; and where the aim is to share knowledge freely with others.

88. If the most substantial contribution of TFRK is likely to be in defining sustainable forest management techniques at a local level, as is suggested in this report, then the Panel may wish to consider what guidance can be given to governments in order to assist the establishment of the three levels of partnership (ownership, planning and management) referred to above (Figure 2).

89. For indigenous people, their communities and other communities and forest dwellers to participate fully in such partnerships and to offer their TFRK for the benefit of other stakeholders, certain conditions will need to be met. Owners of TFRK will need to feel secure in their land tenure arrangements; reassured that they have been accorded equal status to the other members of the partnerships; convinced of a common purpose compatible with their cultural and ecological values. Furthermore any special needs regarding participation should be catered for. These may include the need for capacity-building (e.g. negotiation skills, understanding of the SFM agenda and outside interest in TFRK, legal support) and mechanisms for compensating the real costs of participation (foregone labour or social investments, as well as out of pocket expenses).

90. As noted by the Panel ((E/CN.17/IPF/1996/24, para.89(a)), indigenous people, forest dwellers and local communities will play a key role in defining participatory approaches to forest and land management, including resource management institutions, land-use systems and conflict resolution. Governments should promote and provide the opportunities for such participation, consistent with Principles 2(d) and 5(a) of the Forest Principles. There is a growing body of literature on participatory methodologies and traditional knowledge [23], based in large part on direct project experience obtained by donor agencies, non-governmental, indigenous and community organisations. The Panel may wish to consider how such knowledge and experience can be brought together with a view to providing guidelines to Governments for participatory partnerships to bring TFRK into the development, implementation and planning of local-level sustainable forest management.

91. A possible first step might be the organisation of a consultation or workshop with experts in TFRK partnerships and participatory planning methodologies. This could be asked to prepare detailed recommendations on the different elements of such guidelines, including legal and administrative frameworks, identification of stakeholders, capacity-building for participants, structure and procedures of participatory bodies, conflict resolution mechanisms, compensatory mechanisms for community or non-professional participants, options for storage and retrieval of TFRK. Experts would be identified from international agencies and donors, Governments, indigenous and local community organisations, researchers, non-governmental organisations, and others with direct experience of participatory projects involving TFRK.

92. As has been noted throughout this report, there are difficulties surrounding the acquisition, storage, retrieval and dissemination of TFRK outside its place of origin. These difficulties reside in the nature of TFRK, overwhelmingly site and culture specific, and in the fact that most TFRK is not amenable to being digitised, stored in databases or accessed through clearing-house mechanisms. It is not clear to what extent TFRK originating in one ecological and cultural context can be made available for sustainable forest management purposes in another, nor what the real level of benefits might be. It seems reasonable to suppose that, if such exchanges are to take place, they will be more meaningful if they occur through face-to-face contact and verbal transmission rather than codified communication channels. The Panel may wish to explore further the feasibility and modalities of such exchanges.

93. Those aspects of TFRK that may assist in the identification of new products with commercial value fall within the purview of the Convention on Biological Diversity, since TFRK is a subset of the 'knowledge, innovations and practices' referred to in Article 8(j) and the genetic resources of forest ecosystems are a subset of the genetic resources referred to in Article 15. The Panel will note that the Conference of the Parties will consider at its third session inter alia:

- (i) possible options for developing national legislative, administrative or policy measures, as appropriate to implement Article 15 (Access to Genetic Resources);
- (ii) the impact of intellectual property rights systems on the conservation and sustainable use of biological diversity and the equitable sharing of benefits derived from its use in order to gain a better understanding of the implications of Article 16(5) (Access to and Transfer of Technology); and
- (iii) the knowledge, innovations and practices of indigenous and local communities: implementation of Article 8(j).

The Panel may therefore wish to consider ways and means to incorporate the results of the consideration of these issues by the Conference of the Parties into its own conclusions, recommendations and proposals for action to the Commission on Sustainable Development, thereby ensuring the consistency with the terms of the Convention on Biological Diversity as stipulated in the terms of reference for this Programme element.

94. The terms of reference for this Programme element identify 'forest dwellers, indigenous people and other local communities'. Principle 5(a) of the Forest Principles states that:

"National forest policies should recognise and duly support the identity, culture and the rights of indigenous people, their communities and other communities and forest dwellers".

The recognition of the identity, culture and rights of 'indigenous people [and] their communities' has been accorded specific priorities and processes within the United Nations system. The Panel will recall that chapter 26 of Agenda 21 contains a programme for recognising and strengthening the role of indigenous people and their communities. Much of the chapter is of direct relevance to this Programme element and the Panel may wish to refer to its recommendations.

95. Recalling the need to take account of other relevant intergovernmental processes, the Panel may also wish to note the ongoing consideration of relevant matters within the Commission on Human Rights, in particular its consideration of:

- a) the report of the Special Rapporteur on the protection of the heritage of indigenous people (E/CN.4/Sub.2/1995/26);
- b) the United Nations draft declaration on the rights of indigenous peoples (E/CN.4/Sub.2/1994/2/Add.1); and
- c) the establishment of a permanent forum for indigenous people (E/CN.4/Sub.2/1995/24).

96. The report on the protection of the heritage of indigenous people proposes 'Principles and Guidelines for the Protection of the Heritage of Indigenous People' (Annex). paragraphs 6 (Principles) and 12, 36, 41, 56 and 58 (Guidelines) are of particular relevance to this Programme element and the Panel may wish to take note of these. The report also recommends 'the convening of a United Nations technical meeting [...] to propose mainly practical modalities for the co-operation of relevant United Nations bodies and specialised agencies in protecting the heritage of indigenous people' (para.33). The Panel may wish to consider how its conclusions, recommendations and proposals for action on TFRK might be brought to the attention of the proposed technical meeting, should this take place.

97. Part VI of the United Nations draft declaration on the rights of indigenous peoples deals with rights to land and to protection of cultural and intellectual property, and addresses many of the concerns identified by the Panel at its second meeting regarding the effective protection of indigenous rights. Article 29 in particular is of direct relevance and the Panel may wish to take note of its terms.

98. Consideration of a permanent forum for indigenous people has arisen from the recognition by Governments, and by indigenous peoples' organisations, that the recognition and protection of the rights of indigenous people would be best served by the establishment of a high- level permanent forum within the United Nations system. It is proposed that such a forum cover the full range of issues concerning indigenous people, including environment and development matters. The Panel may wish to note the consideration of the establishment of this permanent forum and its relevance to this Programme element.

Endnotes

- 1/ Lutz and Caldecott (in press).
- 2/ Dasmann (1988).
- 3/ Gadgil (1995).
- 4/ Swanson (1995).
- 5/ Fowler (1992); Nijar (1995); Gadgil and Devasia (1995); ten Kate (1995); Walden (1995); Kay (1996); PTRR (1996).
- 6/ Nijar (1995).

- 7/ ITTO (1990, 1992); Australia et al (1995); Elliott (1995); FSC (1996).
- 8/ Lutz and Caldecott (in press).
- 9/ Brooke (1993); Sirait et al (1994); Poole (1995); Saunier and Meganck (1995).
- 10/ Pye-Smith and Feyerabend (1994); Western, Wright and Strum (1994); Fisher (1995); FDC (1996); Lutz and Caldecott (in press).
- 11/ Singh (in press).
- 12/ Child (in press).
- 13/ OPCE (1995).
- 14/ Poffenberger (1990); Redford and Padoch (1992).
- 15/ Caldecott (1987); Farnsworth (1988); King and Tempesta (1994); WCMC (1994); Sheldon and Balick (1995); ten Kate (1995).
- 16/ Reid et al (1993); Caldecott and Lovejoy (in press).
- 17/ King and Tempesta (1994); WCMC (1994); King, Carlson and Moran (1996a, 1996b); Moran (1996).
- 18/ Dunn, Olu and Morakinyo (1991); Morakinyo and Hammond (1996).
- 19/ WGTRR (1996).
- 20/ Collins, Sayer & Whitmore (1991); Sayer, Harcourt & Collins (1992); UNEP (1995); Harcourt & Sayer (1996).
- 21/ WWF (1995).
- 22/ Caldecott (1996).
- 23/ see inter alia World Bank Sourcebook on Participation and the Participation Series (in particular, Banerjee et al (1995), Davis and Soefstestad (1995)); Davis and Ebbe (1995); UNDP (1995).

Annex 1

Sources of information

Australia, Canada, Chile, China, Japan, Mexico, New Zealand, Republic of Korea, Russian Federation & United States of America (1995) The 'Santiago Declaration': Statement on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests. Canadian Forest Service (Hull, Quebec, Canada).

Banerjee, A., Campbell, G., Cruz, M.C., Davis, S.H. and Molnar, A. (1995) Participation in Forest and Conservation Management. World Bank, Environment Department Papers, Participation Series (Washington DC, USA).

Brooke, L.F. (1993) The Participation of Indigenous Peoples and the Application of their Environmental and Ecological Knowledge in the Arctic Environmental Protection Strategy. Inuit Circumpolar Conference (Ottawa, Canada).

Caldecott, J.O. (1987) Medicine and the fate of tropical forests. *British Medical Journal*, 295:229-230.

Caldecott, J.O. (1996) *Designing Conservation Projects*. Cambridge University Press (Cambridge, UK).

Caldecott, J.O. & Lovejoy, A. (in press) Country study on Costa Rica. In: *Decentralization and Biodiversity Conservation* (eds. E. Lutz and J.O. Caldecott). The World Bank (Washington, DC, USA).

Child, B. (in press) Country study on Zimbabwe. In: *Decentralization and Biodiversity Conservation* (eds. E. Lutz and J.O. Caldecott). The World Bank (Washington, DC, USA).

Collins, N.M., Sayer, J.A. & Whitmore, T.C. (editors, 1991) *The Conservation Atlas of Tropical Forests - Asia and the Pacific*. Macmillan (London, UK).

Dasmann, R.F. (1988) Towards a biosphere consciousness. Pages 177-188 in: *The Ends of the Earth: Perspective on Modern Environmental History* (edited by D. Worster). Cambridge University Press (Cambridge, UK).

Davis, Shelton H. and Ebbe, Katrinka (eds) (1995) *Traditional Knowledge and Sustainable Development* World Bank, Environmentally Sustainable Development Proceedings No.4 (Washington DC, USA)

Davis, Shelton H. and Soeftestad, Lars T. (1995) *Participation and Indigenous Peoples*. World Bank, Environment Department Papers, Participation Series (Washington DC, USA).

Dunn, R., Otu, D. & Morakinyo, A.B. (1996) A community forest inventory for productive forest management in Cross River State, Nigeria. In: *Recent Approaches to Participatory Forest Resource Management* (ed. J. Carter). Overseas Development Institute (London, UK).

Elliott, C. (1995) Timber certification and the Forest Stewardship Council. Pages 319-339 in: *Management of Tropical Forests: Towards an Integrated Perspective* (edited by O. Sandbukt). Centre for Development and the Environment (Oslo, Norway).

Farnsworth, N.R. (1988) Screening plants for new medicines. Pages 83-97 in: Biodiversity (edited by E.O. Wilson). National Academy Press (Washington, DC, USA).

FDC (1996) Forests, Indigenous Peoples and Biodiversity. Four Directions Council (Lethbridge, Alberta, Canada), unpublished report (15 January 1996).

Fisher, R.J. (1995) Collaborative Management of Forests for Conservation and Development. World Conservation Union and World Wide Fund for Nature (Gland, Switzerland).

Fowler, C. (1992) Biotechnology, patents and the Third World. Pages 270-279 in: Conservation of Biodiversity for Sustainable Development (edited by O.T. Sandlund, K. Hindar & A.H.D. Brown). Scandinavian University Press (Oslo, Norway).

FSC (1996) Forest Stewardship Council Principles and Criteria for Natural Forest Management. Forest Stewardship Council (Oaxaca, Mexico) document 1.2 (Mar 1996).

Gadgil, M. (1995) Prudence and profligacy: a human ecological perspective. Pages 99-110 in: The Economics and Ecology of Biodiversity Decline: the Forces Driving Global Change (edited by T.M. Swanson). Cambridge University Press (Cambridge, UK).

Gadgil, M. & Devasia, P. (1995) Intellectual property rights and biological resources: specifying geographical origins and prior knowledge of uses. *Current Science*, 69:637-9.

Harcourt, C.S. & Sayer, J.A. (editors, 1996) The Conservation Atlas of Tropical Forests - The Americas. Simon & Schuster (New York, USA).

ITTO (1990) ITTO Guidelines for the Sustainable Management of Natural Forests. ITTO Technical Series 5. International Tropical Timber Organization (Yokohama, Japan).

ITTO (1992) ITTO Guidelines for the Sustainable Management of Natural Tropical Forests. ITTO Policy Development Series 1. International Tropical Timber Organization (Yokohama, Japan).

Kay, J. (1996) The myth of intellectual property. *Demos Quarterly*, 8:18-19.

King, S.R. & Tempesta, M.S. (1994) From shaman to human clinical trials: the role of industry in ethnobotany, conservation and community reciprocity. In: *Ethnobotany and the Search for New Drugs* (Ciba Foundation Symposium, 185). Wiley (Chichester, UK).

King, S.R., Carlson, T.J. & Moran, K. (1996a) Biological diversity, indigenous knowledge, drug discovery, and intellectual property rights. Pages 167-185 in: *Valuing Local Knowledge: Indigenous People and Intellectual Property Rights* (edited by S. Brush & D. Stabinsky). Island Press (Washington, DC, USA).

King, S.R., Carlson, T.J. & Moran, K. (1996b) Biological diversity, indigenous knowledge, drug discovery and intellectual property rights: creating reciprocity and maintaining relationships. *Journal of Ethnopharmacology*, 51:45-57.

Lutz, E. & Caldecott, J.O. (editors, in press) *Decentralization and Biodiversity Conservation*. The World Bank (Washington, DC, USA).

Morakinyo, A.B. & Hammond, R.J. (1996) Opportunities for Environmental Education and Community Natural Resource Management in Cross River State and the Niger Delta. *Living Earth* (London, UK).

Moran, K. (1996) Returning benefits from ethnobotanical drug discovery to native communities. In: Proceedings of the Conference on Biodiversity and Human Health, April 3-4 1995. National Institutes of Health, National Science Foundation & Smithsonian Institution (Washington, DC, USA).

Nijar, G.S. (1995) In Defence of Indigenous Knowledge and Biodiversity: a Conceptual Framework and Essential Elements of a Rights Regime. Third World Network (Penang, Malaysia).

OPCE (1995) Timberlands West Coast Ltd Draft Beech Management Prescriptions: Review Panel Report. Office of the Parliamentary Commissioner for the Environment (Wellington, New Zealand).

Poffenberger, M. (editor, 1990) Keepers of the Forest: Land Management Alternatives in Southeast Asia. Kumarian Press (West Hartford, Connecticut, USA).

Poole, P. (1995) Indigenous Peoples, Mapping and Biodiversity Conservation. Biodiversity Support Program, Peoples and Forests Program. World Wildlife Fund, The Nature Conservancy and World Resources Institute (Washington DC, USA).

PTRR (1996) The Role of Knowledge, Innovations and Practices of Indigenous and Local Communities Embodying Traditional Lifestyles in the Conservation of the World's Biological Diversity. Programme for Traditional Resource Rights (Oxford, UK).

Pye-Smith, C. & Feyerabend, G.B. (1994) The Wealth of Communities: Stories of Success in Local Environmental Management. Earthscan (London, UK).

Redford, K.H. & Padoch, C. (editors, 1992) Conservation of Neotropical Forests: Working from Traditional Resource Use. Columbia University Press (New York, USA).

Reid, W.V., Sittenfeld, A., Laird, S.A., Janzen, D.H., Meyer, C.A., Gollin, M.A., Gomez, R. & Juma, C. (editors, 1993) Biodiversity Prospecting. World Resources Institute (Washington, DC, USA).

Saunier, R.E. & Meganck, R.A. (editors, 1995) Conservation of Biodiversity and the New Regional Planning. Organization of American States and the World Conservation Union (Gland, Switzerland).

Sayer, J.A., Harcourt, C.S. & Collins, N.M. (editors, 1992) The Conservation Atlas of Tropical Forests - Africa. Macmillan (London, UK).

Sheldon, J.W. & Balick, M.J. (1995) Ethnobotany and the search for balance between use and conservation. Pages 45-64 in: Intellectual Property Rights and Biodiversity Conservation: an Interdisciplinary Analysis of the Values of Medicinal Plants (edited by T.M. Swanson). Cambridge University Press (Cambridge, UK).

Singh, S. (in press) Country study on India. In: Decentralization and Biodiversity Conservation (eds. E. Lutz and J.O. Caldecott). The World Bank (Washington, DC, USA).

Sirait, M., Prasodjo, S., Podger, N., Flavelle, A. & Fox, J. (1994) Mapping customary land in East Kalimantan, Indonesia: a tool for forest management. *Ambio*, 23:411-417.

Swanson, T.M. (1995) Uniformity in development and the decline of biological diversity. Pages 41-54 in: The Economics and Ecology of Biodiversity Decline: the Forces Driving Global Change (edited by T.M. Swanson). Cambridge University Press (Cambridge, UK).

ten Kate, K. (1995) *Biopiracy or Green Petroleum? Expectations and Best Practice in Bioprospecting*. Overseas Development Administration (London, UK).

UNDP (1995) *The Indigenous Knowledge Programme* (Proposal for follow-up to Programme INT/94/201). United Nations Development Programme, Sustainable Energy and Environment Division (New York, USA)

UNEP (1995) *Global Biodiversity Assessment*. Cambridge University Press (Cambridge, UK).

Walden, I. (1995) *Legal Instruments for Biodiversity Contracts and Intellectual Property Rights: an Issue Paper*. Centre for Commercial Law Studies & Environmental Resources Management (London, UK).

WCMC (1994) *Biodiversity and the Pharmaceutical Industry*. World Conservation Monitoring Centre & Faculty of Economics & Politics (Cambridge, UK).

Western, D., Wright, M.R. & Strum, S.C. (1994) *Natural Connections: Perspectives in Community-based Conservation*. Island Press (Washington, DC, USA).

WGTRR (1996) *Implementing Traditional Resource Rights*. Working Group on Traditional Resource Rights (Oxford, UK), Bulletin 2 (Spring 1996).

WWF (1995) *Conservation of Biological Diversity in Irian Jaya*. World Wide Fund for Nature (Jakarta, Indonesia).

Annex 2

Working definitions

(These are working terms and definitions for the purposes of this report, and should not be taken to imply terms or definitions that have been discussed or agreed in intergovernmental fora)

Biosphere people: those who have extensive access to fossil or mechanically-generated sources of energy and who draw resources from very large areas as participants in an increasingly global economic system.

Community: a group of people who perceive themselves to have a distinctive culture and affinity to place, and who interact routinely in their daily lives.

Cosmopolitan knowledge: knowledge obtained from worldwide information flows as a whole, such as outside informants, broadcasts, publications or from the Internet.

Customary rights: Rights arising from the prolonged repetition of habitual or customary acts that have, by uninterrupted acquiescence, acquired the force of a law within a geographical or sociological unit.

Ecological refugees: ecosystem people who have been deprived of access to their traditional resource base and forced to colonize new localities where their traditional ecological knowledge is largely irrelevant.

Ecosystem people: those who rely on using the energy of their own muscles or those of their livestock to draw resources from a limited area, which they have usually inhabited for several to many generations.

Ethnobiology (ethnobotany, ethnozoology): the study of relationships between people and other life forms.

Fair and equitable: describing an arrangement or transaction that arises by mutual agreement through free negotiation among informed people.

Forest-dwelling people: those who inhabit forested landscapes and obtain essential parts of their means of subsistence by harvesting natural forests.

Indigenous lands and territories: The total environment and all resources that indigenous people have traditionally owned or otherwise occupied or used.

Indigenous people: those who identify themselves as such based on a combination of cultural distinctiveness and prior territorial occupancy relative to a more recently-arrived population with its own distinct and subsequently dominant culture.

Inhabited forest area: an area that is subject to customary rights, or is part of indigenous lands and territories, or is used by forest-dwelling people.

Local people: those who were born or who have settled in an area, and who normally live there.

Shaman: an individual who acts as an intermediary between society and the spirit world and in this capacity leads rituals and heals people (also known as spirit healers, medicine men, seers, mediums, priests, etc.).

Stakeholder: someone with an interest in what happens to particular resources, or someone who may gain or lose something in a dispute over resources.

Tenure: the holding by people of the means to satisfy their needs and to determine their future, often based on socially-defined agreements held by individuals or groups and recognized by law or custom, regarding the rights and duties of ownership, access and/or usage of a particular unit of land or resources.

Traditional knowledge: knowledge obtained by members of a distinct culture from other members of that culture or by means of enquiry peculiar to that culture, and concerning the culture itself or the local environment in which it exists.

Traditional people: those whose social life and access to natural resources is acknowledged by themselves to be mainly governed by customary acts or procedures, rather than by national laws.

Annex 3

Network access points

African Resource Centre for Indigenous Knowledge (ARCIK): fax: +234 22 416129 or +234 1 614397

Brazilian Resource Centre for Indigenous Knowledge (BRARCIK): fax: +55 163 22 4275 email: uejab@brfapesp.bitnet

Burkina Faso Resource Centre for Indigenous Knowledge (BURCIK): fax +226 336517 or 312209

Cameroon Indigenous Knowledge Organization (CIKO): fax +237 322514 or 430813

Centre for Advanced Research of Indigenous Knowledge Systems (CARIKS): fax +91 821 61459

Centre for Indigenous Environment and Development (CIED): email: pdh@u.washington.edu or phardison@igc.apc.org

Centre for Indigenous Knowledge for Agriculture and Rural Development (CIKARD): fax: +1 515 294 6058 email: dmwarren@iastate.edu WWW: <http://www.physics.iastate.edu/cikard/cikard.html>

Centre for International Research and Advisory Networks (CIRAN): fax: +31 70 426 0329 email: ciran@nufficcs.nl

Centre for Traditional Knowledge, Canadian Museum of Nature: fax: +1 613 952 9693 email: jtinglis@magi.com

Fourth World Documentation Project (FWDP): WWW: <http://www.halcyon.com/FWDP/fwdp.html>

Ghana Resource Centre for Indigenous Knowledge (GHARCIK): telex: +233 42 2552 UCC GH

Georgia Resource Centre for Indigenous Knowledge (GERCIK): email: dato@botany.kheta.ge

Honey Bee Network: fax: +91 272 427 896 email: anilg@iimahd.ernet.in Indigenous Knowledge Systems List (INDKNOW): email: indknow@u.washington.edu

Indigenous Peoples' Biodiversity Network (IPBN): email: ipbn@web.apc.org

Indonesian Resource Centre for Indigenous Knowledge (INRIK): fax: +62 22 431938 or 250 1977 or 237416

Interinstitutional Consortium for Indigenous Knowledge (ICIK): email: lmsll@psvm.psu.edu

Kenya Resource Centre for Indigenous Knowledge (KENRIK): fax: +254 2 741 424 email: kenrik@tt.gnpsc.org or kenrik@tt.sasa.unep.no

Leiden Ethnosystems and Development Programme (LEAD): fax: +31 71 273 619 email: decherin@rulfsw.LeidenUniv.nl

Maasai Resource Centre for Indigenous Knowledge (MARECIK): fax: +255 57 8907

Madagascar Resource Centre for Indigenous Knowledge (MARCIK): fax: +261 2 32123 or 20422

/...

Mexican Research, Teaching and Service Network on Indigenous Knowledge (RIDSCA): fax: +52 22 493995 or 851444

Nigerian Centre for Indigenous Knowledge (NIRCIK): fax: +234 69 50891 or 50563

Philippine Resource Center for Sustainable Development and Indigenous Knowledge (PHIRCSDIK):
fax: +63 94 50016

Regional Program for the Promotion of Indigenous Knowledge in Asia (REPPIKA): fax: +632 522 2494 email: iirr@phil.gn.apc.org

Russian Resource Centre for Indigenous Knowledge (RURCIK): email:
1+630.157@compuserve.com

South African Centre for Indigenous Knowledge (SARCIK): fax: +27 21 262466 email:
hansn@iaccess.za

South and Meso American Indian Rights Center (SAIIC): fax: +1 415 834 4264 email:
saiic@igc.apc.org

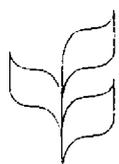
Sri Lanka Resource Centre for Indigenous Knowledge (SLARCIK): email: rohana@sjp.ac.lk

Uruguayan Resource Centre for Indigenous Knowledge (URURCIK): fax: +598 2 913780 email:
cedesur@icsnet.chasque.apc.org or pd@agrocs.edu.uy

Venezuelan Resource Secretariat for Indigenous Knowledge (VERSIK): fax: +58 072 33667 email:
cquiroz@ing.ula.ve

Working Group on Traditional Resource Rights (WGTRR): fax: +44 1865 284665 email:
wgtrr.ocees@mansfield.ox.ac.uk WWW: <http://info.ox.ac.uk/~wgtrr/>

to subscribe to the Indigenous Knowledge Systems List, send a message to:
<listserv@uwavm.u.washington.edu> with a single line of text: <subscribe indknow>



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/Inf.44
27 September 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY

Third meeting

Buenos Aires, Argentina

4 to 15 November 1996

Item 11.1 of the provisional agenda

**INFORMATION PAPER ON KNOWLEDGE INNOVATIONS AND PRACTICES OF
INDIGENOUS AND LOCAL COMMUNITIES**

Note by the Chairman of Working Group 2 of the
second meeting of the Subsidiary Body on Scientific,
Technical and Technological Advice

I. BACKGROUND

1. The Subsidiary Body on Scientific Technical and Technological Advice (SBSTTA) to the Convention on Biological Diversity (CBD), at its second session held in Montreal, Canada, on 2-6 September, 1996, approved the following recommendation II/4 on agenda item 3.6 "Knowledge, Innovations and Practices of Indigenous and Local Communities":

"The SBSTTA,

1. Recognizes the importance of addressing the issue of knowledge, innovations and practices of indigenous and local communities, and its importance for the implementation of the Convention on Biological Diversity.
2. Encourages the Chairman of Working Group 2 to prepare a paper reflecting the diverse views and suggestions discussed during the second meeting of the SBSTTA in time for the next meeting of the Conference of the Parties.

3. Encourages the production and distribution, by the groups representing local and indigenous communities participating in the meeting of the SBSTTA, of information on their views and recommendations on the implementation on Article 8 (j).
4. Recommends that the Conference of the Parties request specific advice from the SBSTTA on any technical and scientific issues relating to the implementation of Article 8(j).
5. Urges that the indigenous knowledge post within the Secretariat be filled as soon as possible."

This recommendation is the result of the discussions in Working Group 2 (WG2) which considered the above agenda item.

2. In its deliberation, the Group had before it a note by the Secretariat, document UNEP/CBD/SBSTTA/2/7, entitled "Knowledge, Innovations and Practices of Indigenous and Local Communities" and an information paper from the Secretariat, document UNEP/CBD/SBSTTA/2/Inf.3, entitled "Knowledge, Innovations and Practices of Indigenous and Local Communities and Forest and Biological Diversity" (containing in Annex 1 as sources of information a useful and relatively complete list of references).
3. In the introduction to the discussion, the representative of the Secretariat pointed out that document UNEP/CBD/SBSTTA/2/7 updated a previous note prepared by the Interim Secretariat for the second session of the Intergovernmental Committee on the Convention on Biological Diversity, UNEP/CBD/IC/2/14, entitled "Farmers' Rights and Rights of Similar Groups - The Rights of Indigenous and Local Communities Embodying Traditional Lifestyles: Experience and Potential for Implementation of Article 8 (j) of the Convention on Biological Diversity".
4. The note before the Group recalled the recommendations of the Open-ended Intergovernmental Meeting of Scientific Experts on Biological Diversity, held in Mexico City in April 1994, and analysed the threefold provisions of Article 8 (j). The note also recalled that Annexes II, III and V of the report of the Mexico meeting (UNEP/CBD/IC/2/11) contain lists of technologies that could be usefully analysed by the SBSTTA as far as their relation to contribution of the implementation of parts of the Convention is concerned.
5. During the discussion of this item in WG2, statements were made by representatives of several countries.
6. Additionally, in accordance with the wish expressed by many delegations, statements were also made by a representative of the Inuvialuit Game Council, by representatives of indigenous peoples' organizations (Four Directions Council, Indigenous Peoples' Biodiversity Network, International Alliance of Indigenous-Tribal Peoples of the Tropical Forests), and by a representative of an NGO active in the field of scientific-cultural studies on indigenous knowledge (COBASE, speaking on behalf of the International Scientific Committee on Diversity).
7. The representatives of these non-governmental organizations all: emphasized the role of indigenous peoples in sustainable development, especially as traditional custodians of biological diversity; requested that emphasis be shifted from "extraction" of traditional knowledge to respecting, preserving and maintaining such

knowledge; and called for a recognition of the collective rights of indigenous peoples within their territories, and participatory approaches to the development of projects.

8. A roundtable on "Indigenous Knowledge and Biodiversity Conservation: Challenges under the Convention on Biological Diversity" was also organized *a latere*, on 3 September, 1996, by the Indigenous Peoples' Biodiversity Network and the Indigenous Peoples' Caucus; and was attended by the majority of delegations who participated in WG2.

9. The discussions in WG2 and in the closing plenary session of the SBSTTA revealed that, as far as this important and sensitive item is concerned, consensus could be reached only on the points listed in recommendation II/4.

10. However, all delegations underlined that the discussion had been rich and indicative of the ongoing lively debate at an international level, and that therefore, some record should be kept of such a discussion and made available to the Conferences of the Parties (COP).

11. Accordingly, paragraph 2 of recommendation II/4 was approved, encouraging the Chairman of WG2 to prepare, in time for the third meeting of the COP in Buenos Aires, an information paper reflecting, in the form of a minute, the diverse views and suggestions mentioned above. Paragraph 3 of the recommendation was approved in the same spirit.

II. SUMMARY OF THE DISCUSSIONS

12. The Group attempted to examine the issues in the context of Article 8(j), namely:

- (i) respect, preserve and maintain the knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity.
- (ii) promote the wider application of such knowledge, innovations and practices with the approval and involvement of the stakeholders;
- (iii) encourage the equitable sharing of the benefits arising from the use of such knowledge, innovations and practices.

13. During the debate the need for elaboration of basic terms, such as those appearing in Article 8(j) and in related articles of the Convention, and for the verification of these terms against the terminology used by various stakeholders, became apparent. Such terms include, *inter alia*: indigenous communities, local communities, farmers, indigenous knowledge, innovations and practices; traditional knowledge and/versus modern science.

14. The fact that the need for elaboration and verification of terms was recognized does not imply that agreement emerged on the definitions.

15. In particular, the question of traditional knowledge and/versus modern science was considered particularly delicate. A full range of opinions was expressed: from that which considers traditional knowledge as a part of, or even ancillary to, the whole body of knowledge represented by modern science; to that which

/...

considers traditional knowledge to represent the only "true" science in respect to "conventional" science. As a consequence, the use of the terms "traditional science" and "ethnoscience" were also proposed by some representatives of Governments and of NGOs.

16. Most Parties agreed that traditional knowledge should be recognized as having a status equal in respect to modern science.

17. It is worthwhile to recall that UNCED Agenda 21 acknowledged that: "indigenous people have developed over many generations a holistic traditional scientific knowledge of their lands, natural resources and environment..." and that States are requested: "to involve indigenous people and their communities at the national and local levels in resource management and conservation strategies".

18. The majority of representatives attending WG2 agreed that, to implement Article 8(j), governments and other stakeholders should anyhow recognize the legitimacy, integrity and value of knowledge, innovations and practices of indigenous and local communities; and that case studies carried out from Parties (and eventually NGOs) on the interaction between traditional knowledge and modern science should be the object of information and consideration.

19. The need for the knowledge, innovations and practices of indigenous and local communities to be documented and examined (provided the communities agree), and thereafter the need for the dissemination of more information on this subject, also in order to promote a better understanding and public awareness of indigenous and local cultures, was the object of convergence in WG2; such a need is reflected in recommendation II/4 and in Article 8(j) itself.

20. It was widely recognized that the Clearing-House Mechanism (CHM) could make a valuable contribution in disseminating this kind of information.

21. The majority of Parties also indicated that there is a need to develop capacity building programmes for indigenous and local communities in order to enable them to participate adequately in the implementation of the Convention.

22. This capacity building should also favor the interaction between traditional knowledge and modern science.

23. Such a development of capacity building implies some form of specific support at a local and regional level, even if duplication of activities in respect to other work related to the implementation of the CBD should be avoided.

24. The need for global or regional indigenous networks, and improved communications between the indigenous peoples at the various levels (intra- and inter-tribal, national, regional and worldwide - some interventions stressing one or another of these levels), through a variety of mechanisms, was noted by some representatives.

25. Several representatives suggested that reference to the knowledge and resources of indigenous and local communities at the national level could be integrated into Parties' national reports, possibly together with information on measures taken to implement Article 8(j) and related provisions in the Convention.

26. The exchange of such national experiences via national reports could make an important contribution to the implementation of Article 8(j) and of the CBD in general.
27. The occurrence of links between the item concerning knowledge, innovations and practices of indigenous and local communities, and issues such as intellectual property rights, access legislation, human rights and other legal issues, was widely recognized.
28. Some interventions underlined that it could be worth investigating whether there is a need to adapt existing intellectual property rights or to develop sui generis regimes in order to adequately protect and promote the knowledge, innovations and practices of indigenous and local communities and the fair and equitable sharing of benefits; the discussion evidenced that the area covered by these issues is clearly an area of current controversy.
29. Some representatives expressed doubts that, being these issues of a political nature, should be considered by SBSTTA. Clarification from the COP is clearly needed in this regard, as indicated indirectly in point 4 of recommendation II/4.
30. Several representatives suggested the potential usefulness of codes of ethics and/or codes of conduct on access to the knowledge, innovations and practices of indigenous and local communities, especially when the access to genetic resources is involved; some representatives indicated also the need of guidelines to be compiled for the development of national measures on access to the knowledge and genetic resources of indigenous and local communities.
31. Once again, this area, covering or linked to issues such as prior informed consent, control over land and resources, respect for local cultures, protection of heritage, control of the use of knowledge, access to benefits and the transfer of technology, resulted an area of current controversy.
32. This problematic area could be extended to include participatory planning and management process, private agreements, market and non-market mechanisms, monetary and non-monetary; and is related to technology transfer, and training and capacity building.
33. Some suggested that the SBSTTA could develop a study, in time for its meeting in 1997, on possible indicative codes of ethics/conduct and/or guidelines for the implementation of Article 8(j); others underlined the need of a more precise request from the COP.
34. An extremely lively discussion took place on the possibility that some kind of body could carry-out propedeutic, follow-up, or anyhow intersession work on the knowledge, innovations and practices of indigenous and local communities. The suggestions included:
- (i) an expert group;
 - (ii) an ad hoc technical panel of experts;
 - (iii) a working group of limited membership and duration;
 - (iv) an open-ended ad hoc working group covering Articles 8j, 10(c), 17(2) and 18(4); and
 - (v) an open-ended ad hoc working group with the status of that for Biosafety.

A number of suggestions were put forward for possible terms of reference for the various bodies and

/...

processes proposed; the financial implications of these initiatives were quoted by some delegations.

35. Some representatives suggested, as an intelocutory measure, the inclusion of indigenous representatives on national delegations; such an inclusion, already applied by some countries, could be recommended by the SBSTTA or COP.

36. The latter two suggestions, (iv) and (v), were justified by the proponents on the basis of the need to facilitate the integration of the perspectives of local and indigenous communities into the entire agenda of the Convention and all its articles.

37. Even more, the question itself of the "representativeness" of the indigenous peoples and their organizations was put on the floor by some governmental delegations and NGOs.

38. There was clearly a wide range of views, going from: (a) a sort of advisory committee of indigenous peoples' representatives; to (b) "autonomous delegations" of indigenous pepoples.

39. It could be worthwhile to discuss, in the future, as separate proposals the figures of "advisors" and "representatives" of indigenous peoples.

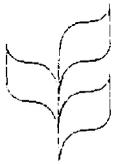
40. The question of the "representativeness" of the indigenous people has been already tackled in other fora; in particular: in the Vienna Declaration and Program of Action, the World Conference on Human Rights recommended that the establishment of a permanent forum for indigenous people in the United Nations system be considered; and the steering committee of the UNDP-supported "Indigenous Knowledge Program" is constituted entirely by indigenous members.

42. It should be obvious that both the availability and the respect, preservation and maintainance of indigenous knowledge are essential for a full implementation of parts of the CBD, and that therefore indigenous peoples' representatives have to be integrated in the works of the Convention; but it seems that the question of their "representativeness" is a more general problem of the United Nations system and should be answered in a variety of fora.

43. It was noted that future work on this subject should be carried out in coordination with related work in fora such as the FAO, IPF, WIPO, ILO Convention 169 (Convention Concerning Indigenous and Tribal People in Indipendent Countries), the UN Working Group on Indigenous Populations, the UN Commission on Human Rights, the World Bank, and multilateral development banks.

44. It was suggested that COP should consider whether guidance to the GEF to support activities on knowledge, innovations and practices of indigenous and local communities is necessary.

45. In general, more precise guidance from the COP to the SBSTTA concerning the questions on the knowledge, innovations and practice of indigenous and local communities was considered necessary for further work of the SBSTTA.



**CONVENTION ON
BIOLOGICAL DIVERSITY**

Distr.
GENERAL

UNEP/CBD/COP/3/Inf.45
28 September 1996

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Third meeting
4 to 15 November 1996
Item 10.3 of the provisional agenda

**FUTURE PROGRAMME OF WORK FOR TERRESTRIAL BIOLOGICAL DIVERSITY:
RELEVANT SECTIONS OF THE REPORT OF THE THIRD SESSION OF
THE COMMISSION ON SUSTAINABLE DEVELOPMENT**

The present note contains, in its Annex, the report of the third session of the Commission on Sustainable Development, held in New York from 11 to 28 April 1995, on the review of sectoral cluster: Land, desertification, forests and biodiversity (chapters 10-15 of Agenda 21).

ANNEX

[from]

E/1995/32 E/CN.17/1995/36

United Nations

Commission on Sustainable Development Report on the Third Session (11-28 April 1995)

Economic and Social Council Official Records, 1995 Supplement No.12

United Nations - New York, 1995

[...]

Chapter I. MATTERS CALLING FOR ACTION BY THE ECONOMIC AND SOCIAL COUNCIL OR BROUGHT TO ITS ATTENTION

[...]

D. Review of sectoral cluster: Land, desertification, forests and biodiversity

1. Overall considerations

158. The Commission on Sustainable Development notes that chapter 10 of Agenda 21, on an integrated approach to the planning and management of land resources, provides an overall framework for the implementation of the entire cluster. While all the chapters are related to land, those on forests and sustainable agriculture are concerned with the sustainable management and use of physical and biological resources, while those on desertification and sustainable mountain development reflect the particular problems of fragile environments; the issue of the conservation of biodiversity and the sustainable use of its components is of a cross-cutting nature, and includes those concerned with freshwater as well as coastal and marine ecosystems. Farmers - men and women - indigenous people, other rural communities and the private sector, as the major stakeholders in the use of land and its related resources, must be the focal points in all the areas of the cluster.

159. Respect for national sovereignty, as well as the need for a comprehensive approach to implementing the recommendations and commitments contained in Agenda 21, the Rio Declaration on Environment and Development, and the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests, are fundamental for achieving sustainable development.

160. National efforts in developing countries to mobilise financial resources for the full and effective implementation of Agenda 21, including its land-related chapters under review, have to be supported by the international community. It is imperative that all financial recommendations and

/...

commitments of Agenda 21 be implemented, in particular those contained in paragraphs 13 and 14 of chapter 33 of Agenda 21. The need for partnership for sustainable development among all countries and better co-operation and co-ordination among national institutions, international organisations, including international financial institutions, the private sector and non-governmental organisations, including farmers' and rural people's organisations, was underscored.

161. The sharing of scientific knowledge and the transfer of environmentally sound technology, including on concessional and preferential terms as mutually agreed, in accordance with the provisions of chapter 34, are crucial instruments for achieving the objectives of Agenda 21.

162. The Commission on Sustainable Development recommends that high priority be given to the facilitation of practical action for the transfer, sharing, adaptation and development of technology for sustainable resource management in all sectors, at the national and international levels, including under the auspices of the United Nations system, in particular UNEP, UNIDO and UNESCO, and of international conventions, as appropriate. Such action should include support for a wide range of initiatives, including (a) capacity- and institution-building; (b) exchange of information, making use, inter alia, of inventories on eco-technologies in those sectors; and (c) education and training - through the establishment of mechanisms such as environmental technology centres.

163. The Commission on Sustainable Development urges States to sign, ratify, accede to and implement the Convention on Biological Diversity, the United Nations Framework Convention on Climate Change and the United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa, making these Conventions the principal instruments for advancing international co-operation and practical action in their respective fields. The Commission stresses the need for the formulation of co-ordinated approaches towards the implementation of these instruments at the national and international levels, with a view to making efficient use of resources. The Commission further agrees to look into the relationship between work under these Conventions and ongoing work on sustainable development in other related processes in the follow-up to the United Nations Conference on Environment and Development.

164. In accordance with General Assembly resolution 49/111 on the report of the Commission on Sustainable Development on its second session, the Commission encourages Governments to continue to share their experiences in the implementation of Agenda 21, taking into account recent efforts and initiatives to promote sustainable development at the national, subregional, regional and interregional levels. It welcomes the readiness of some countries to accomplish specific sustainable development goals by means of closer regional co-operation to facilitate the implementation of Agenda 21, and recognises the importance of regional approaches for the effective implementation of the Conference agreements to support global and national efforts. The Commission calls upon the regional commissions to increase their efforts in support of recent national, subregional, regional and interregional initiatives for promoting sustainable development. It also recognises the need to strengthen its ties with regional institutions and in particular with the regional commissions. The Commission will continue to review and monitor these regional initiatives aimed at making the transition to sustainable development more effective in all countries and which support appropriate global and national efforts.

2. Integrated approach to the planning and management of land resources

165. The Commission notes with great concern that an estimated one sixth of the total arable land surface of the globe has been damaged by human-induced soil degradation. A global partnership is required to protect and restore the health of the Earth's terrestrial ecosystems.

166. The Commission notes with concern the convergence of poverty, hunger and the degradation of terrestrial resources in environmentally more fragile marginal lands, where the large majority of poor smallholder farmers are increasingly located. The Commission calls upon Governments, bilateral donors, multilateral financial institutions, technical specialised agencies, and non-governmental organisations to give a high priority to rural development in such lower-potential areas, particularly by enhancing the productivity of farmers on a sustainable basis.

167. The Commission stresses that an integrated approach to the planning and management of land and water resources is central to the implementation of Agenda 21 recommendations concerning land, desertification, mountains, forests and biodiversity. Land needs to be considered as a finite resource relative to many and varied needs; its allocation must aim to satisfy these needs in the most equitable and sustainable way.

168. An integrated and multidisciplinary approach to the planning, development and management of land resources is a process that methodically identifies human and environmental needs; identifies the potential and options for change and improvement; identifies and evaluates all relevant physical, social, economic and policy factors; and develops a series of actions necessary to permit and facilitate change. The process needs to address an array of cross-sectoral issues, such as the creation of productive employment; the eradication of poverty; responses to pressures on the land caused by poverty; unsustainable consumption and production; population growth; and changing demographic patterns. The clarification and security of land rights, possibly involving land-tenure and ownership reforms, are central to the solution of such problems. A holistic approach to the management of land resources requires the integration of land and water-resource issues as they relate to land use. The mismanagement of land and water often leads to land degradation in the form of erosion, flooding, waterlogging and salinity, and the depletion of groundwater resources. The demands of rural and urban communities for land and its associated water resources will often conflict with each other if they are not properly managed.

169. The Commission notes that soil and water degradation due to contamination by agricultural, urban and industrial effluents is of increasing importance in both developed and developing countries; the Commission invites Governments, international organisations and groups to increase their efforts in this field.

170. A people-oriented approach that is adapted to suit local circumstances is central to the sustainable development of land resources. All stakeholders, especially women, farmers, indigenous peoples, landless labourers and other major groups, should participate in the planning and management of land resources, in identifying problems and in proposing solutions and should also participate in the consensus-building process. For that process, the intermediate level is important: Governments should encourage the participation of all stakeholders at that level. The empowerment of people and communities, the creation of social equity and an enabling environment, and the strengthening of capacities and the building of awareness at all levels are all important elements in this multi-stakeholder approach. Security of tenure and the existence of equitable and efficient legal

and fiscal systems are important management tools for ensuring increased productivity and securing conservation efforts.

171. The Commission notes with appreciation the outcome of the international workshop on Agenda 21, chapter 10, entitled "Integrated approach to the planning and management of land resources", which was organised by the Government of the Netherlands and FAO and hosted by the Government of the Netherlands (Wageningen, 20-22 February 1995). The Commission invites the Government of the Netherlands and FAO to disseminate the report and recommendations of the workshop (E/CN.17/1995/33, Annex) as widely as possible.

172. The Commission stresses the importance of the collecting, processing and disseminating of timely and reliable information, as well as the importance of utilising modern land-assessment and evaluation technologies, together with technologies for resource characterisation, all of which are essential for the planning and management of land resources. The development and use of appropriate indicators, including performance indicators, on the basis of sound scientific knowledge that is tailored to meet local requirements and circumstances, are essential for formulating and implementing policies and monitoring results. There is a need to ensure that technical information is fully linked with social and economic aspects at the local, regional and national levels. The Commission also takes note with appreciation of the report of the Panel on Science and Technology for Integrated Land Management of the Commission on Science and Technology for Development; the report adds an important dimension in furthering the implementation of chapter 10 of Agenda 21.

173. The Commission notes with concern the uneven pace of progress achieved in implementing the objectives and recommendations contained in chapter 10 of Agenda 21, especially with regard to existing institutional structures, which are largely sector-oriented, thus leading to an overlapping of governmental responsibilities; the Commission also notes the need for community-driven approaches.

174. The Commission urges Governments to take all necessary steps to achieve the objectives set out in chapter 10 within the agreed time-frame. At the international level, priority should be given to the development of a holistic and integrated framework for establishing social and economic conditions that will facilitate sustainable production and the conservation of biodiversity. Technical and infrastructural support, which can be applied in any country with appropriate modifications to take account of local needs and conditions, will be desirable in many cases.

175. The Commission urges Governments, in keeping with their respective needs and priorities, to develop national and/or local land-use planning systems that contain a statement of objectives and a detailed timetable for implementation spread over a period of years. Such systems should aim to remove constraints and provide incentives, thus enhancing the involvement and empowerment of peoples; should develop information and management systems; and should modify institutions, establishing suitable linkages among them. The Commission also urges Governments to exchange views on their programmes for integrated land management, involving all sectors of the community and all stakeholder groups, developed and implemented at the appropriate level.

176. The Commission requests the Secretary-General to strengthen co-ordination and co-operation among the organisations and bodies of the United Nations system by developing and implementing joint approaches and collaborative programmes. FAO, in partnership with UNEP, UNDP, other international bodies and Governments, and with the appropriate contributions of non-governmental organisations, should develop tools and recommend actions for integrated land management. Such action should involve the Commission in its capacity as a forum for the exchange

of knowledge and experience in an open and transparent manner, with the full and effective participation of developing countries in a way that reflects their specific conditions and needs.

177. The Commission urges Governments, with the co-operation and support of the organisations and bodies of the United Nations system, as appropriate, to pay particular attention to:

- (a) Establishing stable land-use systems in areas where important ecosystems or ecoregions are being endangered by human activities;
- (b) Applying integrated planning and development approaches in regions that are becoming open to intensified settlement and agricultural production;
- (c) Bringing about integrated approaches to capacity-building.

178. The Commission reaffirms the commitments contained in chapters 33 and 34 of Agenda 21 for the effective implementation of chapter 10 of Agenda 21.

3. Managing fragile ecosystems: combating desertification and drought

179. The Commission notes that some 1 billion people live in the rural areas of the world's drylands, which constitute one third of the land on Earth. They are at risk, and more than 100 million are already significantly affected and face having to abandon their lands and migrate. The Commission is concerned that, according to the report of the Secretary-General on managing fragile ecosystems: combating desertification and drought (E/CN.17/1995/4), the economic loss caused by desertification world wide, in terms of average income forgone, was estimated in 1991 to be more than US \$42 billion per year, most of it in Asia (US \$20.9 billion per year) and Africa (US \$9.3 billion per year). These figures are all the more alarming in Africa, where the affected countries rank among the poorest and least developed in the world.

180. Desertification and drought are closely interlinked with other issues such as loss of biodiversity, food security, population growth, poverty, climate change, water resources, deforestation, resource consumption patterns, deterioration of terms of trade, economics and, especially, social and cultural issues. Desertification is a social and economic as well as an environmental problem. Drought and land degradation can occur in most climatic zones, affecting a large number of people. The Commission emphasises the need to take action on the effects of drought and to recognise that land degradation also occurs in sub-humid and humid regions. Within the context of food security, combating desertification and mitigating the effects of drought take on particular significance.

181. The Commission welcomes the timely conclusion of the United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa, and urges all Governments to recognise the urgent need for its early signature, ratification and entry into force, and to support the resolution on urgent action for Africa, adopted by the Intergovernmental Negotiating Committee for the Elaboration of an International Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa, at its fifth session, as well as to promote actions in other regions. Implementation of the programme areas of Agenda 21 should be carried out within the context of the Convention, including its regional implementation annexes. The Commission urges Governments and intergovernmental organisations to give strong political support to the first session of the Conference of the Parties to the Convention, to be held once the Convention has been ratified by at

/...

least 50 countries, and to support fully the work of the interim secretariat in preparing for the first meeting of the Conference of Parties.

182. The Commission underlines the importance of the following features of the Convention:

- (a) The open, participatory approach, based on active work at the local level and the particularly important contribution of women;
- (b) The need for improved donor co-ordination and the establishment of partnerships between Governments in donor and affected countries, and the active involvement of non-governmental organisations;
- (c) The integrated, that is, global and multidisciplinary, approach, emphasising the importance of the links between land and water management; and the role of energy, in particular new and renewable sources of energy, as well as the role of socio-economic factors and the need to combat poverty;
- (d) The need for an active role of science in improving the situation in the drylands, and in humid and sub-humid areas.

183. The Commission urges Governments to take an integrated approach to combating desertification, taking into account the link between desertification and poverty and the need for appropriate low-cost environmentally sound technologies for sustainable development. Sectoral strategic framework plans need to be consolidated within overall national planning and budgeting frameworks. The Commission draws the attention of Governments to the potential for the Convention to provide an in-country co-ordinating mechanism for integrated land management in arid, semi-arid and sub-humid lands.

184. In order to be fully effective, the Convention needs to be better known. The Commission therefore emphasises that, despite the increased understanding of desertification and drought issues, there is a continuing need to raise public awareness of the issues. The Commission urges Governments to enhance awareness among policy makers and the public at large through national institutions in the framework of the Convention, and of the International Decade for Natural Disaster Reduction, and through the observance of World Day to Combat Desertification and Drought, on 17 June of every year.

185. The Commission stresses the need for the mobilisation of financial resources, inter alia, as called for by the relevant provisions of the Convention (articles 6, 20 and 21) and needed for its implementation, particularly in Africa. The Commission recommends that appropriate organisations of the United Nations system take steps to facilitate the financing of programmes and projects in dry and sub-humid areas. The Commission urges developed countries to agree on coherent policies and adequate resource allocations for fulfilling their commitments towards the implementation of the Convention.

186. The Commission notes that the wealth of information, knowledge and experience concerning the causes and effects of desertification and drought that are already available allow for action to be stepped up immediately. Measures that assist information-sharing (for example, workshops) should be encouraged. The Commission also considers that the need for substantial improvement and better use of existing scientific knowledge of the problem is fundamental to further improving understanding of the significance of desertification and drought. Meeting this need would involve

improved monitoring to provide data collection for desertification assessment and early warning of drought, as well as the improvement of capacities to facilitate access to and application of this information by land users. A more precise understanding of the desertification issue would involve concerted activities, including consultations with major groups, at the national level in affected countries, and the recognition by Governments of its importance, that is, a cross-sectoral effort involving physical, social, humanitarian and economic factors.

187. The Commission recognises that the strengthening of national capacities is central to combating desertification and drought. The Commission urges affected countries, regional and subregional organisations:

- (a) To take effective action to set up institutional arrangements and policy frameworks for developing, managing and implementing national strategies and action programmes, incorporating provision for active public participation, especially among those most affected;
- (b) To encourage Governments to improve national co-ordination among agencies in order to implement measures for combating desertification and managing drought more effectively and for the sustainable use of natural resources, given the cross-cutting nature of these issues;
- (c) To establish, as a matter of highest priority, co-ordinating arrangements and to create partnerships with donors and national stakeholders, within the context of the Convention.

188. The Commission recognises the importance of preserving the knowledge of farmers and indigenous and local people concerning dryland management and survival strategies. Their full involvement in the sustainable development of these drylands - their homelands - needs to be ensured. In this regard, the Commission notes with satisfaction that the principle of allowing more effective participation of local people, especially farmers, through their representative organisations in the planning and development of their natural resources is being more willingly accepted in many affected countries. It also notes the fact that many organisations, especially non-governmental organisations, have stepped up their participatory approaches with the inclusion of marginalized and disadvantaged groups, especially women, in the dryland development process.

189. The Commission takes note of the statement in the report of the Secretary-General (E/CN.17/1995/4) to the effect that United Nations organisations have already taken steps to align their drought and desertification activities in accordance with Agenda 21. Further agreements on the system-wide division of labour and proposals on further partnership arrangements between agencies (and corresponding targeted work plans) are needed. The Commission recommends that these organisations further define their roles, comparative advantages, co-operative mechanisms, level of intervention and corresponding resource allocations in the implementation of the Convention.

4. Sustainable mountain development

190. The Commission recognises that mountain ecosystems and environments are of crucial importance as rich and unique centres of biological and cultural diversity, water stores and sources of minerals. Mountains cover at least one fifth of the Earth's landscape and are home to at least 10 per cent of the world's population, predominantly economically poor people. Mountain ecosystems are complex, fragile in geomorphology, and react sensitively to global climate change. There is a corresponding need for a comprehensive interdisciplinary approach to sustainable mountain

1...

development as well as for the effective participation and empowerment of mountain people in the use and conservation of mountain resources.

191. The Commission recognises that with increased accessibility into mountain areas, resource degradation and, in some cases, economic and political marginalization of mountain communities has taken place. In order to reverse this trend and to combat the poverty of mountain people, strategies for mountain development must empower mountain communities to exercise larger control over local resource management and conservation and generate income in sustainable and equitable ways. In this context, the Commission recognises the central role of women in the sustainable use and management of resources; therefore, the specific needs and constraints of women must be acknowledged and addressed. Furthermore, support is needed to recover and foster the cultural expressions of mountain populations because mountain cultural diversity is a strong and valid basis for the sustainable use and conservation of mountain resources; in this context, the protection of indigenous people's interests, including the recognition of their knowledge, should be an integral part of sustainable development.

192. The Commission stresses that the fragility of mountain ecosystems and the adverse impact of the degradation of those systems on highland and lowland populations have not been fully appreciated. The Commission recognises the importance of mountains as the predominant and most dependable source of freshwater currently used by humanity, and therefore stresses the importance of providing adequate protection for both quality and quantity of water resources from mountainous regions. The Commission recognises the vital protective function of a stable forest cover for the safeguarding of mountainous settlements and infrastructure. It also urges expanding the network of protected mountain areas to cover all types of mountain ecosystems, strengthening existing management capabilities for conserving mountain ecosystems, species and genetic diversity and promoting local and non-governmental organisations' participation in the management of these areas.

193. In order to ensure an integrated approach to the complexity of mountain ecosystems and the socio-economic issues at stake, the Commission recognises the need for strengthening the existing institutional mechanisms as well as the knowledge base about mountain ecosystems through research, database development, pilot projects and information exchange, along with support for training in-country of scientific and technical experts and local natural resource managers.

194. The Commission urges interested Governments, with the support of the international community, to prepare and implement comprehensive national and/or local mountain development programmes in relevant countries as outlined in chapter 13 of Agenda 21: the "mountain agenda". These include strengthening national capacity for sustainable mountain development and the preparation of long-term mountain action plans. Action-oriented projects and programmes should emphasise the long-term monitoring of their environmental, economic and social impacts. Initiatives to implement the mountain agenda should incorporate development strategies that address the impacts on mountain communities and ecosystems of, inter alia, production and land-use systems, tourism, transportation policies and energy production and use. These initiatives must incorporate a participatory approach involving all stakeholders, including farmers, women, and local and indigenous communities, as well as non-governmental organisations.

195. The Commission also recognises that there is a need to take a new look at the overall flow and full-cost pricing of resources and services to and from mountain areas, including water, wood and non-wood as well as range products, energy, mineral resources, tourism and human and

government services. The Commission further recognises the need for a fair share of the benefits derived from the use of mountain resources to remain with the local people and their communities.

196. The Commission notes that there is a need to examine the relationship of chapter 13 with other chapters of Agenda 21 and with the global conventions and to analyse the extent to which the concerns of mountain areas can be better integrated into their follow-up.

197. The Commission welcomes and supports ongoing efforts in preparing and negotiating subregional and interregional agreements on mountains and, in this context, notes the entry into force of the Alpine Convention as one example, in line with paragraph 13.8 (c) of Agenda 21, of co-operation between countries for the protection of mountain ecosystems.

198. The Commission calls upon Governments and the international community to take action at all levels with the objective of combating poverty in mountain areas, diversifying mountain economies, protecting the environment and food security of local communities, strengthening global information networks and databases, addressing environmental problems, and creating new livelihood opportunities, within the context of appropriate institutional frameworks.

199. The Commission urges interested Governments and organisations, including the private sector, to promote initiatives aimed at raising awareness, including the convening of regional intergovernmental consultations. A wider international meeting involving relevant United Nations bodies could facilitate the exchange of objectives, results and experiences of sustainable development in different mountain regions.

5. Combating deforestation and the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests

200. The Commission notes that forests and forestry must be managed in order to continue to meet the growing needs of humankind for forest products, environmental services, and social and cultural benefits, as well as for livelihoods that are based on them. Although some corrective actions have been attempted to alleviate pressures exerted on forest resources, rapidly growing populations, poverty, unsuitable land use, adverse incentives, and production and consumption patterns, as well as various other external threats, including pollution, have continued to damage forests. The need to sustain forests and to manage them for future generations, because of the growing demand on their multiple functions and services, remains a major challenge. Particular attention should be focused on the integrated and balanced approach towards environmental and developmental functions of forests, sustainable forest management, conservation of biological diversity, air quality, conservation of soil and water resources, restoration of damaged forests; and on shortages of forest products and services, including those that are vital for rural communities, such as fuelwood and forest-based medicines; and on participation of major groups, particularly indigenous people and local communities.

201. The Commission welcomes progress that has been made with regard to the level of awareness, adaptation of policies, preparation or adaptation of strategies and action plans on forests. The Commission notes with appreciation the results of several country-led forums that have contributed significantly to international dialogue on forests, national reporting and better understanding of sustainable forest management. These forums include approaches towards national reporting, co-sponsored by India and the United Kingdom of Great Britain and Northern Ireland; criteria and indicators for sustainable forest management through the Helsinki, Montreal, Amazon

and International Tropical Timber Organisation (ITTO) processes; the Intergovernmental Working Group on Forests, co-sponsored by Malaysia and Canada, to examine opportunities and options for action on forests; and the Global Forest Policy Dialogue co-sponsored by Indonesia and the Centre for International Forestry Research (CIFOR). However, the Commission calls for further attention to the cross-sectoral factors that are the underlying causes of deforestation and degradation of forests such as production and consumption patterns, poverty, population growth, insufficient environmental education and knowledge, terms of trade, discriminatory trade practices and unsustainable policies and practices related to such sectors as agriculture, energy and trade as well as forestry. In this regard, it stresses the need for addressing policy issues including the conservation, valuation and sustainable use of forests in an integrated and holistic manner. The Commission also considers that the potential role of voluntary certification schemes with regard to sustainable forest management, trade in forest products, and consumer education should be further studied, ensuring full transparency and participation of all interested parties.

202. The Commission considers that further actions are required to improve the conservation and sustainable management of existing forests, to restore degraded forests and, where possible, to create new forests, including plantations, in order to reduce pressure on natural forests, to increase wood supplies as well as to fulfil other production, protection and social functions of forests, through an integrated and multidisciplinary, people-oriented approach. In this regard, the Commission welcomes the Rome Statement on Forestry as adopted by the Meeting of Ministers Responsible for Forests, the first under the framework of FAO (Rome, 16 and 17 March 1995). The Commission notes that the Ministers fully assumed their sectoral responsibility for the forest-related provisions of Agenda 21 and expressed their political support for further enhancement of national capabilities and international co-operation and co-ordination, as well as for the formulation and implementation of appropriate policies required to meet the challenges in the field of forests.

203. The Commission urges Governments and interested organisations and groups to mobilise financial resources, including the provision of new and additional resources, and the transfer of environmentally sound technology on favourable terms as mutually agreed for full and effective implementation of the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Development of All Types of Forests (Forest Principles) and chapter 11 of Agenda 21.

204. The Commission considers further concrete actions, on the management, conservation and sustainable development of forests, particularly by Governments, to be an urgent priority. It stresses the need to further assess actions already undertaken to combat deforestation and forest degradation and to promote management, conservation and sustainable development of all types of forests, including environmental and socio-economic impacts; and against that background, to propose options for further action. In order to pursue consensus and formulation of co-ordinated proposals for such action, the Commission decides to establish an open-ended ad hoc Intergovernmental Panel on Forests, under its aegis, to work in an open, transparent and participatory manner. The mandate, modalities for the establishment, and terms of reference for the proposed Panel are given in Annex I below.

Annex I

COMMISSION ON SUSTAINABLE DEVELOPMENT OPEN-ENDED INTERGOVERNMENTAL PANEL ON FORESTS

I. OBJECTIVE

1. The Ad Hoc Inter-sessional Working Group on Sectoral Issues met in New York from 27 February to 3 March 1995, and recommended that at its third session in April 1995, the Commission on Sustainable Development establish, under its aegis, an open-ended ad hoc Intergovernmental Panel on Forests (to be referred to hereinafter as the "Panel"). The recent Rome Meeting of Ministers Responsible for Forests welcomed such a proposal.
2. The Commission considers further concrete actions on the management, conservation, and sustainable development of forests, particularly by Governments, to be an urgent priority. It stresses the need to further assess action already undertaken to combat deforestation and forest degradation and to promote management, conservation and sustainable development of all types of forests, including environmental and socio-economic impacts; and against that background to propose options for further actions. In order to pursue consensus and formulation of co-ordinated proposals for action, the Commission decides to establish an open-ended ad hoc Intergovernmental Panel on Forests, under its aegis, to work in an open, transparent and participatory manner.
3. The Panel should promote multidisciplinary action at the international level consistent with the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests (Forest Principles), adopted by the United Nations Conference on Environment and Development. The Commission recognises the sovereignty of countries over their natural resources, as set forth in principle 1 (a) of the Forest Principles. The Commission also recognises that the right to development must be fulfilled so as to equitably meet the developmental and environmental needs of present and future generations.

II. ISSUES FOR PRIORITY ACTION

1. The issues for priority action should include the following elements, which are derived from the Forest Principles and chapter 11 of Agenda 21, and which take into account subsequent international initiatives related to forests, including the report of the ad hoc Inter-sessional Working Group on Sectoral Issues of the Commission on Sustainable Development and the Rome Statement on Forestry, 16 and 17 March 1995. In pursuing consensus and formulation of co-ordinated proposals for action, the Panel should consider the following main interrelated categories of issues:
 - (a) Implementation of United Nations Conference on Environment and Development decisions related to forests at the national and international level including an examination of sectoral and cross-sectoral linkages;
 - (b) International co-operation in financial assistance and technology transfer;

/...

- (c) Scientific research, forest assessment and development of criteria and indicators for sustainable forest management;
- (d) Trade and environment relating to forest products and services;
- (e) International organisations and multilateral institutions and instruments including appropriate legal mechanisms.

III. PROGRAMME OF WORK

I

1. Consider actions to promote progress through national forests and land- use plans and programmes in implementing the Forest Principles and chapter 11 and other chapters related to forests in Agenda 21, through an open, transparent and participatory process involving Governments and all interested parties, including major groups, particularly indigenous people and local communities.
2. Identify and consider ways to address the underlying causes of deforestation, forest degradation and the difficulties in implementing sustainable forest management, with particular attention to cross-sectoral factors, including the impact on and from forests, at the national and international levels, such as consumption and production patterns, poverty, population growth, pollution, terms of trade, discriminatory trade practices and unsustainable policies related to sectors such as agriculture, energy and trade.
3. Consistent with the terms of the Convention on Biological Diversity, encourage countries to consider ways and means for the effective protection and use of traditional forest-related knowledge, innovations and practices of forest dwellers, indigenous people and other local communities, as well as fair and equitable sharing of benefits arising from such knowledge, innovations and practices.
4. Monitor actions to support afforestation, reforestation and the restoration of forest systems, where appropriate, particularly in countries with fragile ecosystems and affected by desertification and/or drought, particularly in Africa. Within this context, also consider specific actions in countries whose forests are affected by pollution, particularly those with economies in transition in central and eastern Europe.
5. Propose measures to address the needs and requirements of developing countries and other countries with low forest cover in order to promote the activities aimed at conserving the existing coverage, with particular attention to the unique types of forests.

II

1. Explore ways of improving the efficiency and co-ordination of bilateral and multilateral assistance; and consider ways to address the critical areas relating to the transfer and development of environmentally sound technology on favourable terms as mutually agreed and the mobilisation of financial resources, including the provision of new and additional resources with a view to assisting developing countries to pursue policies and comprehensive strategies for achieving sustainable forest management, recalling principles 10 and 11 of the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development

of All Types of Forests, and the Rome Statement on Forestry, agreed by Ministers Responsible for Forests in March 1995.

III

1. Review existing periodic assessment of forests, including relevant socio-economic and environmental factors, at the global level; identify shortfalls in present assessments relative to policy considerations; and recommend practical ways of improving such assessments. Examine ways to broaden the scientific knowledge and the statistical database available in order to better understand the ecological, economic, cultural and social functions performed by all types of forests. Promote the further development of methodologies for properly valuing the multiple benefits derived from forests in the form of goods and services, and subsequently to consider their inclusion within the systems of national accounting, drawing upon work that has been already undertaken by the United Nations and other relevant organisations.
2. Encourage national implementation of criteria and indicators for sustainable forest management and study the feasibility of further developing internationally agreed upon criteria and indicators against which progress towards sustainable forest management of all types of forests could be measured, taking into account the specific regional and subregional conditions of forests and the diversity of economic, social and cultural environments. Within this context, facilitate the engagement of regions and countries not yet involved in developing criteria and indicators of sustainable forest management; share experiences in testing and implementing them; and examine the need to promote comparability and the appropriateness of convergence among international initiatives in this regard.

IV

1. Examine relevant factors affecting trade in forest products and other forest-and-trade issues in an integrated and holistic approach that promotes a supportive relationship between trade and environment. In this connection, identify opportunities and recommend measures for improving market access for forest products on a non-discriminatory basis and consider factors that may distort trade in forest products and affect their value, including pricing, import/export controls, subsidies and the need to remove unilateral bans and boycotts inconsistent with the rules of the international trade system. Promote the development of methodologies to advance the full valuation, including replacement and environmental costs, of forest goods and services, with a view to promoting full cost internalization. Taking account of the interests of all sectors and particularities of different countries and ensuring full transparency and participation of all interested parties, examine the issue of voluntary certification and labelling of forest products so as to contribute to a better understanding of the role of voluntary certification with regard to the sustainable management of forests, including the impact of certification on developing countries.

V

1. Develop a clearer view of the work being carried out by international organisations and multilateral institutions and under existing instruments as appropriate, including the Convention on Biological Diversity, the United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa, the United Nations Framework Convention on Climate Change, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the International Tropical Timber Agreement (ITTA) in forest-related issues, including United Nations Conference on Environment and Development

/...

decisions related to forests, and the institutional linkages emanating therefrom, in order to identify any gaps, and areas requiring enhancement, as well as any areas of duplication.

2. In the light of issues I-V.1 above, based on consensus-building in a step-by-step process, consider and advise on the need, or otherwise, for other instruments or arrangements in further implementation of the Forest Principles, including appropriate legal arrangements and mechanisms covering all types of forests.

IV. PANEL COMPOSITION, ORGANISATION AND CONDUCT OF WORK

1. The Commission on Sustainable Development recommends that the Panel should be an open-ended intergovernmental body. The Panel shall be composed of representatives from Governments. The European Community shall be entitled to participate in the same manner as under the Economic and Social Council decision as to its status in the Commission on Sustainable Development. Intergovernmental organisations and the full range of non-governmental organisations and other groups would participate as observers in the Panel, on an open-ended and fully participatory basis.

2. The Panel should draw particularly on the resources and technical expertise of relevant organisations, including FAO, UNEP, UNDP, the World Bank, ITTO and other relevant organisations within and outside the United Nations system as well as secretariats of relevant conventions, with appropriate contributions of non-governmental organisations.

3. The Panel will submit a progress report to the fourth session of the Commission on Sustainable Development in 1996 and its final conclusions, recommendations and proposals for action to the Commission on Sustainable Development's fifth session in 1997. At its first session, which should be held as soon as practicable in 1995, the Panel will consider the need for dividing its tasks among appropriate subgroups, as decided. At this session, the Panel will also resolve pending issues on the modalities of work, including election and designation of office-holders. The Panel should seek inputs of major groups in all activities in its programme of work.

V. SECRETARIAT AND FINANCIAL SUPPORT TO THE PANEL

1. The ultimate responsibility for the process and product of the Panel will reside with the Panel itself. Secretariat support should be provided by a small team under the Department for Policy Co-ordination and Sustainable Development of the United Nations Secretariat, possibly co-ordinated by a temporary direct hire, assuming the availability of funds and with the secondment of relevant personnel from the United Nations system and other organisations, where relevant, particularly FAO as task manager for chapter 11 of Agenda 21 in the United Nations system. UNEP, UNDP and ITTO. The secretariat would relay tasks from the Panel to appropriate organisations, develop and maintain an effective communication system between the Panel and organisations, and undertake logistic meeting preparations and document dissemination. Under the direction of the Panel, the secretariat would also facilitate co-ordination of work undertaken.

2. Operation of the panel will require funding to support meetings and participation by developing country representatives and major groups from developing countries. In addition to drawing on existing resources where efficient, the following sources of funding should be considered:

/...

- (a) Voluntary extrabudgetary contributions from Governments and international organisations to support the work of the Panel;
- (b) Secondments from international organisations;
- (c) In-kind contributions from countries and international organisations, including hosting meetings.

3. To ensure quick start-up of the Panel, interested Governments and organisations are encouraged to make early voluntary contributions. As far as possible, support from the United Nations system should be derived from the reallocation of resources within existing budgets of United Nations bodies in order to respond to high-priority activities.

Annex II

PROGRAMME BUDGET IMPLICATIONS OF RECOMMENDATIONS CONTAINED IN THE DRAFT REPORT OF THE COMMISSION AT ITS THIRD SESSION

1. Under the terms of paragraph 204 of chapter I of the report of the Commission on its third session, the Commission decides to establish an open-ended ad hoc Intergovernmental Panel on Forests, under its aegis, to work in an open, transparent and participatory manner.

2. Following the review of the mandate, modalities and terms of reference of the Panel as outlined in Annex I to section D.5 above and relating consultations, it is assumed that the Panel would have one session in 1995, two sessions in 1996 and one session in 1997 of one week duration each. The substantive support to the Panel would be provided by the Department for Policy Coordination and Sustainable Development of the United Nations Secretariat and would be equivalent to 24 Professional and 24 General Service work-months per year (12 Professional and 12 General Service work-months in 1995), to be financed from extrabudgetary resources. The conference-servicing would be provided in all official languages of the United Nations.

3. On the basis of the above assumptions, the costs of the activities would be as follows:

	1995 \$	1996-1997 \$
Travel of members of the Commission to the Panel	132 500	636 000
Substantive support	314 900	682 800
Conference-servicing requirements	320 600	998 700

4. Should the Economic and Social Council adopt the recommendation of the Commission, the costs relating to attendance of the Commission's members at the Panel's session in 1995 (\$132,500) would be financed from the 1994-1995 appropriation approved for the Commission's activities. The relating costs for 1996-1997 (\$636,000) represent additional requirements under section 7A of the proposed programme budget for the biennium 1996-1997. This requirement would be dealt with in

/...

accordance with the procedure for use and operation of the contingency fund established by General Assembly resolution 42/211.

5. The conference-servicing requirements for the meetings (\$320,600 for 1995 and \$998,700 for 1996-1997) will be dealt with within the overall provisions for conference-servicing of United Nations meetings and conferences, reserved in the programme budget for those periods respectively. The actual conference-servicing costs of the meetings will be reported to the General Assembly within the context of the budget performance reports.

6. Extrabudgetary funds will be sought to meet the requirements for substantive support and servicing of the Panel by the Department for Policy Co-ordination and Sustainable Development of the United Nations Secretariat (\$314,900 in 1995 and \$682,800 in 1996-1997).

6. Promoting sustainable agriculture and rural development

205. The Commission notes with concern that, even though some progress has been reported, disappointment is widely expressed at the slow progress in moving towards sustainable agriculture and rural development (SARD) in many countries.

206. The Commission recognises the need for further practical action to promote and enhance sustainable agriculture and rural development. Such action should aim at balancing the immediate need to increase food production and food security and to combat poverty, and the need to protect physical and biological resources. While the Commission recognises the potential of sustainable use of lands to enhance food production for local food security, it notes that the approach must also focus on the small farmers in marginal lands. This approach must lead to a productive sustainable agriculture which contributes to the social and economic vitality of rural areas and ensures balanced rural/urban development. In addition, traditional agriculture, which produces a substantial proportion of the world's food supply and which at the same time contributes to the protection of biodiversity, must be maintained and developed in a sustainable way.

207. There is a need for a deeper and wider understanding of various relations between the farmer and his and her environment at the household and community levels and of the biophysical processes that underlie the interactions between farming activities and the ecologies in which they take place. SARD objectives need to be pursued with the full and vigorous participation of rural people and their communities. The capacity of local Governments, with regard to decision-making and the implementation of economically viable, environmentally sound and socially equitable agricultural and rural development programmes and the participation of private sector, non-governmental organisations and farmers' organisations therein, needs to be enhanced.

208. The Commission recommends that FAO, the United Nations Development Fund for Women (UNIFEM) and UNDP, together with national and local government agencies, and in co-operation with non-governmental and people's representative organisations, promote an exchange of experiences with participatory mechanisms, with a view to enhancing their effectiveness.

209. Sustainable agriculture and rural development must take place within the framework of an undistorted sectoral and economy-wide policy framework that fully integrates environmental considerations. In this context, the full implementation of the Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations is an important step contributing to liberalising international trade in agriculture. In particular, the reforms to achieve substantial and progressive

/...

reduction in the support and protection of agriculture, in accordance with the Uruguay Round agreement covering internal regimes, market access and export subsidies, are ongoing. With a view to promoting sustainable development, non-trade concerns such as economic, social, food security and environmental impact of trade policies, including trade liberalisation, should be monitored and evaluated, especially taking into account their impact on developing countries, in particular the least developed countries and the net food-importing developing countries. Such monitoring and evaluation should be done in consultation with major groups.

210. The Commission requests FAO, within existing resources, in collaboration with UNCTAD, the World Trade Organisation, UNDP, UNEP and other relevant organisations, to analyse the implications for SARD of the Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations at national, regional and international levels.

211. In this context, the Commission notes, taking into account the impact on and the socio-economic conditions in developing countries, in particular least developed countries and net food-importing developing countries, the importance of a comprehensive examination of the environmental consequences of the use of agricultural practices and policies, including agricultural subsidies, in all countries and their impact on sustainable agricultural and rural development.

212. The Commission notes that the absence of sufficiently comprehensive indicators hampers the effective monitoring of progress. In this regard, the Commission stresses the importance of developing appropriate internationally agreed agri-environmental criteria and indicators applicable to developed and developing country situations in order to monitor the status of and progress towards SARD, with the full and effective participation of developing countries, reflecting their specific conditions and priority needs. Such indicators should cover environmental, economic, social and cultural dimensions. In developing such criteria and indicators, account should be taken of ongoing work at the national level.

213. The achievement of the multiple objectives related to sustainable agriculture and rural development requires a whole-system approach that recognises that it is not possible to focus on agricultural activities alone. There is a need to incorporate other aspects such as land-use planning and community development. In this regard, consideration should be given to increasing farmers' capacity to assume activities such as marketing and processing. This could involve more efficient allocation and use of resources; a move from policy-induced surpluses in developed countries; an international economic environment more supportive of the implementation of policies aimed at the achievement of sustainable agricultural and rural development; more predictable market access and export earnings; making credit available for enhancing production; provision of technical and financial assistance to support developing countries, in particular least developed countries and net food-importing developing countries so as to improve their agricultural productivity and infrastructure; and taking advantage of the trading environment emerging from the Uruguay Round. Such microeconomic development would ensure the revitalisation of rural economies and the strengthening of rural communities. There is also a need to change attitudes and take concrete steps towards adopting sustainable agricultural policies and practices in order to enhance that process. The Commission urges Governments, with the support of the international community and non-governmental organisations, to work out their own comprehensive agricultural policies and programmes that take full account of environmental concerns and capacity-building, including strengthening farmers' organisations.

214. The Commission notes the need to promote in all countries sustainable agriculture and ecological farming practices and supportive strategic, problem-solving agricultural research, including the acquisition of technological information. The Commission urges support for research and technology development through strengthening institutional arrangements, such as national research institutions and extension and education systems, developing regional co-operative networks, including those of farmers and other rural producers where locally appropriate, and enhancing support of and from the Consultative Group on International Agricultural Research (CGIAR) system. This support should encourage and reward the active involvement of farmers and fieldworkers and their innovations so as to recognise their role as developers of technology through informal research. Research priorities should be established in consultation with farmers and their representative organisations, to ensure that the issues related to resources-poor farmers, living in arid and dry sub-humid areas and amid degraded soils, and to women are integrated.

215. Agricultural research programmes should focus on developing location-specific technologies for farming systems so as to encompass not only the whole range of annual crops, including horticulture, but also livestock management and household production and processing systems, appropriate low-cost soil and water conservation practices, and yield optimisation strategies combining appropriate low-cost inputs with time-tested local and high-yielding new varieties having biotic and abiotic resistance, as well as on the use of organic and ecological farming methods and integrated pest management (IPM).

216. The Commission encourages Governments to integrate action on energy into their efforts for sustainable agriculture and rural development, paying particular attention to the use of energy for electrification, heating and other purposes, by means of renewable and other forms of energy.

217. The Commission urges Governments to support and facilitate efforts of interested developing countries in their transition towards the sustainable use of an appropriate mix of fossil and renewable sources of energy for rural communities, taking note of the recommendations made by the Committee on New and Renewable Sources of Energy and on Energy for Development, at its special session in February 1995.

218. The Commission notes with concern that attention to and progress in the area of animal genetic resources have not been commensurate with those related to plant genetic resources. The Commission urges that national and international action be strengthened with the objective of bringing international co-operation and support for the conservation and sustainable use of animal genetic resources to a level similar to that of ongoing initiatives concerning plant genetic resources.

219. The Commission notes with appreciation the efforts of the organisations within and outside the United Nations system in terms of co-ordination and co-operation concerning activities related to sustainable agriculture and rural development. The Commission urges that such efforts be further strengthened. FAO's Integrated Co-operative Programme Framework for Sustainable Agriculture and Rural Development (ICPF/SARD) and its component Special Action Programmes provide a useful vehicle for bringing together the initiatives of different development partners.

220. The Commission notes the progress that has been made by both developing and developed countries that have adopted policies of pesticide use reduction as a means of moving towards sustainable agriculture. The Commission recommends that all countries take steps to reduce the environmental impact of pesticide use by promoting IPM as an alternative to exclusive reliance on chemical pesticides. The Commission further invites FAO, in collaboration with UNEP, UNDP, the World Bank, the CGIAR centres and other interested organisations, to strengthen and extend to a

wider number of countries its ongoing programmes and projects for sustainable land and water management in agriculture, integrated pest management and integrated plant nutrition management, with participation of major groups.

221. The Commission recommends that, under the auspices of FAO as task manager and building on a partnership between Governments, intergovernmental agencies and agricultural research institutions, and non-governmental and farmers organisations, drawing on successful examples of SARD, there should be a synthesis and exchange of information and practical experience with a view to identifying models that could be applied in other situations. Such an exchange could be through the holding of sub-regional or regional workshops, the results of which would be widely disseminated.

7. Conservation of biological diversity

222. The Commission reaffirms the importance of the conservation of biological diversity and the sustainable use of its components, including marine and coastal ecosystems. It recognises that the Convention on Biological Diversity provides the principal mechanism for advancing these objectives and notes with appreciation the statement presented by the President of the Conference of the Parties to the Convention.

223. The Commission notes the successful outcome of the first session of the Conference of the Parties to the Convention on Biological Diversity, in Nassau, the Bahamas, in 1994. It welcomes the adoption by the Conference of the Parties of a medium-term programme of work that reflects a balance among the Convention's three objectives: conservation of biological diversity, sustainable use of its components, and fair and equitable sharing of the benefits arising out of the utilisation of genetic resources. The Commission also welcomes the prompt establishment under the Conference of the Parties of the Subsidiary Body for Scientific, Technical and Technological Advice and the rapid action towards the development of a clearing-house to promote and facilitate technical and scientific co-operation.

224. Furthermore, the Commission welcomes the invitation by the Conference of the Parties to the Convention on Biological Diversity to participate in a dialogue on biodiversity and forests and recognises the crucial role of conservation and sustainable management of all types of forests for maintaining the biological diversity of the whole planet, as well as the role of biological diversity for the integrity and functioning of forest ecosystems. The Commission emphasises that biological diversity is of essential importance for the ecosystem functions of forests and further recognises the role of conservation, management and sustainable use of forests for achieving the objectives of the Convention and welcomes future contributions of the Conference of the Parties to this end.

225. The Commission welcomes the activities to date undertaken within the United Nations system as well as the active participation of non-governmental organisations in the post-United Nations Conference on Environment and Development process.

226. The Commission stresses that the conservation of biological diversity and the sustainable use of its components cut across a wide spectrum of sectoral and cross-sectoral issues addressed in Agenda 21. The underlying motivation for conserving biological diversity and using its components sustainably is based on its significance for the integrity and functioning of the life-supporting ecosystems, and this is deeply rooted in concerns for the well-being and sustainable development of

humankind, embracing such issues as ecosystem services, food security, poverty and the traditional knowledge, innovations and practices of indigenous people and local communities.

227. The Commission recognises that, as provided for in Article 20.4 of the Convention, the extent to which developing-country parties will effectively implement their commitments under the Convention will depend on the effective implementation by developed-country parties of their commitments under the Convention related to financial resources and transfer of technology.

228. The Commission notes the decision of the Conference of the Parties to the Convention on Biological Diversity to include in its medium-term Programme, inter alia, consideration of the knowledge, innovations and practices of indigenous and local communities.

229. The Commission notes that the restructured and replenished Global Environment Facility (GEF) will continue on an interim basis as the entity entrusted with the operation of the financial mechanisms of the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change. The Commission emphasises the importance of a speedy implementation of these commitments and the other responsibilities of GEF and recalls its 1994 decision in which it stated that the first replenishment of the restructured GEF was a first step at a minimum level and that there would be a need for further replenishment of its funds as the implementation of commitments under the various agreements and objectives envisaged for the Facility proceeded.

230. The Commission, stressing that these activities have to be implemented through the Convention:

- (a) Urges the Governments that have not yet done so to ratify, accede to and begin implementing the Convention on Biological Diversity;
- (b) Urges the international community to support efforts aimed at capacity-building as well as human resource development, and at the transfer of technology to developing countries for the conservation of biodiversity, including through in situ and ex situ conservation, and the sustainable use of its components, and also urges each country to take legislative, administrative or policy measures, as appropriate, with the aim of having the private sector facilitate access to joint development of technology, in accordance with Article 16.4 of the Convention;
- (c) Encourages the Conference of the Parties to the Convention on Biological Diversity, in collaboration with relevant organisations, to explore means for co-ordinating relevant global and regional agreements related to the Convention on Biological Diversity and establishing effective co-operation mechanisms;
- (d) Urges Governments to integrate actions geared to conserving biodiversity and the sustainable utilisation of its components and to promote sustainable development, inter alia, through integrated action plans and sectoral strategies, particularly in forests, agriculture, living marine resources, rural development and land use, and to monitor the implementation and reporting of progress made;
- (e) Also urges Governments to promote the fair and equitable sharing of the benefits accruing from the utilisation of biological resources, in accordance with the provisions of the Convention on Biological Diversity;
- (f) Calls upon multilateral organisations, other intergovernmental organisations and non-governmental organisations to cooperate with the Convention on Biological Diversity and Governments in developing co-ordinating mechanisms based on national plans and programmes in accordance with the provisions of the Convention so as to ensure the effective implementation of the Convention and other related agreements;
- (g) Welcomes the decision of the Conference of the Parties to the Convention to establish the clearing-house mechanism of the Convention, and urges Governments and intergovernmental, as well as non-governmental organisations, to collect, analyse and disseminate more reliable and adequate data for measuring achievements at the national, regional and global levels;
- (h) Calls upon Governments, and multilateral and other intergovernmental organisations to make full use of existing knowledge and to further improve understanding of biodiversity in sustainable development;
- (i) Calls upon the international community to make efforts to develop economic mechanisms for determining the costs and benefits of the conservation of biological diversity and sustainable use of its components, and upon Governments in accordance with their national plans, policies and programmes to consider and undertake policies aimed at the effective implementation of the objectives of chapter 15 of Agenda 21;

/...

(j) Welcomes the decision of the Conference of the Parties to the Convention on Biological Diversity to include in its medium-term programme, inter alia, consideration of the knowledge, innovations and practices of indigenous and local communities; takes note of the statement of the Conference of the Parties to the Convention (E/CN.17/1995/27, Annex) and notes that it would also be desirable that future work on the protection of traditional knowledge and practices of indigenous and local communities relevant to conservation and sustainable use be co-ordinated with the relevant bodies; and welcomes the progress made in revising the International Undertaking on Plant Genetic Resources for Food and Agriculture which relates to outstanding matters concerning plant genetic resources, including access to ex situ collections and the question of farmers' rights.