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SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL
TECHNOLOGICAL ADVICE
Fourth meeting
Montreal, 21-25 June 1999

REPORT OF THE FOURTH MEETING OF THE SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE

AGENDA ITEM 1: OPENING OF THE MEETING

1. The fourth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice, established by Article 25 of the Convention on Biological Diversity, was held in Montreal from 21 to 25 June 1999 at the headquarters of the International Civil Aviation Organization (ICAO).

2. The meeting was opened at 10 a.m. on Monday, 21 June, by Mr. H. A. Zakri (Malaysia), Chairman of the Subsidiary Body on Scientific, Technical and Technological Advice. Welcoming participants, Mr. Zakri said that for the Subsidiary Body to be more effective in bridging the gap between researchers and policy-making, the level of scientific and technical input into the process should be increased. What was required was a more deliberate approach, and, in that context, there seemed to be an increasing interest among Parties and other actors in exploring the feasibility of a mechanism similar to the Intergovernmental Panel on Climate Change to draw more systematically upon existing scientific knowledge, assessments and organizations. The need for more structure in modalities of cooperation needed to be borne in mind when considering the programme of work and the terms of reference for the ad hoc technical expert groups. It was now critical to start developing specific advice of use to the various thematic programmes. That would require not only changing the approach to the work, but also giving very careful attention to the recommendations that would be made to the Conference of the Parties, which would need to be specific, focused and targeted, and options would have to be clearly presented.

3. He pointed out that the terms of reference for the ad hoc technical groups would be an important and critical test of the ability of the Subsidiary Body to be precise and focused in its work. The Conference of the

Parties had issued strategic guidance in the form of the programme of work for the Convention as contained in decision IV/16, and it was now up to the Subsidiary Body to translate it into concrete actions.

4. With regard to the thematic focus of the meeting, he said that drylands were critical to the whole success of the Convention, not simply because they contained important elements of biological diversity, but because they represented a predominantly productive biome, on which many developing countries relied upon for their development. In order for the aims of the Convention to succeed, sustainable development would have to be addressed in a practical way. The Subsidiary Body's success in developing effective recommendations for the biome would be a critical test for developing countries of translating the principles of the Convention into meaningful action.

5. At the opening session, the Subsidiary Body also heard a statement by the Executive Director of the United Nations Environment Programme (UNEP), delivered on his behalf by Mr. Paul Chabeda, UNEP Division of Environmental Conventions. The Executive Director stated that UNEP attached great importance to the Subsidiary Body, as it did to the scientific bodies established under other global environmental conventions and processes. A great deal was expected from the Body's current meeting on all eight of the priority issues before it and, in particular, on those items dealing with alien species, the use of the new technology for the control of plant gene expression, and approaches and practices for sustainable use of biological resources, including tourism.

6. The Executive Director then outlined some of UNEP's planned initiatives in response to the decisions of the twentieth session of its Governing Council, held in February 1999, by which the Council, inter alia, requested the Executive Director to consult international environmental conventions, through their secretariats, to identify areas of common concern and opportunities for synergy and to support collaboration and promote interlinkages among them. As far as biological-diversity-related issues were concerned, the processes and activities set in motion by UNEP to promote collaboration and synergies among environmental conventions would be refined and finalized in the light of the outcome of the current meeting and consultations with the Convention Secretariat. Finally, the Executive Director stressed the importance UNEP attached to the Ecosystem Conservation Group, which had held two meetings, including a planning meeting hosted by FAO in July 1998, since he had announced his intention to revive and revitalize it at the fourth meeting of the Conference of the Parties to the Convention. The Group had covered a substantial amount of ground in its efforts towards bridging the gap between science and policy in the development and implementation of the ecosystem approach to the conservation and management of living resources.

7. The Acting Executive Secretary of the Convention on Biological Diversity, Mr. H. Zedan, said that the current meeting of the Subsidiary Body was possibly the most important meeting it had held so far. He recalled that, at its fourth meeting, the Conference of the Parties had embarked upon a process of reviewing the operations of the Convention. The Parties had emphasized the need for the Subsidiary Body to focus on the preparation of scientific, technical and technological advice of the highest quality, based

on the best available science and knowledge and providing a bridge between research and policy-making. Although much work had started at the national level on developing strategies and action plans, the integration of such biological diversity strategies and action plans into other sectors was much more complicated. The Subsidiary Body needed to design mechanisms to enable the identification of those areas where there was insufficient knowledge and the ways in which such gaps could be filled.

8. One innovative feature of the current meeting was the initiative, supported by the Bureau, to invite renowned experts to address the Subsidiary Body on matters related to the issues under consideration. The presentations, which would not be prescriptive, could become a standard feature of meetings of the Subsidiary Body.

9. He concluded his presentation by highlighting two key issues. The current meeting was to be followed by an inter-sessional meeting on the operations of the Convention, which would also address questions of access to genetic resources and benefit-sharing and its conclusions would later be considered by the Conference of the Parties. In addition, at its extraordinary meeting, held in Cartagena in February 1999, the Conference of the Parties had requested its President and the Bureau of the fourth meeting of the Conference of the Parties, in close consultation with the Acting Executive Secretary, to decide on the date and venue of the resumed session to finalize the Cartagena Protocol on Biosafety. Discussions on preparations for the resumed session had continued since that time, and the President of the extraordinary meeting and the President of the fourth meeting of the Conference of the Parties would be in Montreal in the coming week.

10. In closing, Mr. Zedan expressed his gratitude to those Governments that had generously contributed financially to the current meeting: Germany, Ireland, Netherlands, New Zealand, Sweden and the United Kingdom.

11. The representative of an environmental non-governmental organization attending the Global Biodiversity Forum (GBF) described the activities of the 14th Forum, which had been held in Montreal prior to the current meeting, from 18 to 20 June 1999 and had brought together 145 participants from Governments, non-governmental organizations, local and indigenous communities, academia and the private sector in 33 countries. Three workshops had been held, addressing: how to integrate biological diversity into sectoral plans, policies and programmes; how to use ecosystem approaches to manage biodiversity in drylands; and the issue of scale in adaptive management. The participants in the Forum were all of the opinion that much greater attention needed to be devoted to Article 6(b) of the Convention, concerning the integration of conservation and sustainable use of biological diversity into relevant sectoral and cross-sectoral plans, programmes and policies.

12. Participants in the groups working on forests, fisheries, agriculture tourism and drylands had all expressed the need for practical and clear indicators to monitor and evaluate the impact on biological diversity of the sectoral activities and policies. It was hoped that the Subsidiary Body would help Parties to develop those indicators. Participants in the adaptive-management workshop urged the Subsidiary Body to incorporate the principles of adaptive management into the ecosystem approach being promoted

under the Convention and to recognize the value of local resource-management wisdom. In conclusion, she said that the Global Biodiversity Forum looked forward to continuing cooperation with the Subsidiary Body, the Conference of the Parties and the Parties to the Convention.

AGENDA ITEM 2: ORGANIZATIONAL MATTERS

A. Attendance

13. The meeting was attended by representatives of the following Contracting Parties and countries: Albania, Algeria, Antigua and Barbuda, Argentina, Armenia, Australia, Austria, Bahamas, Bangladesh, Belarus, Belgium, Belize, Bhutan, Bolivia, Brazil, Bulgaria, Burkina Faso, Burundi, Cameroon, Canada, Chile, China, Colombia, Comoros, Congo, Costa Rica, Côte d'Ivoire, Croatia, Cuba, Czech Republic, Democratic Republic of Congo, Denmark, Djibouti, Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, European Community, Finland, France, Gambia, Georgia, Germany, Greece, Guinea, Guyana, Haiti, Holy See, Honduras, Hungary, Iceland, India, Indonesia, Italy, Jamaica, Japan, Jordan, Kenya, Kiribati, Latvia, Lesotho, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mauritius, Mexico, Micronesia (Federated States of), Mongolia, Morocco, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Panama, Peru, Philippines, Portugal, Republic of Korea, Republic of Moldova, Romania, Russian Federation, Rwanda, Saint Lucia, Saudi Arabia, Seychelles, Singapore, Slovakia, South Africa, Spain, Sri Lanka, Suriname, Swaziland, Sweden, Switzerland, Syrian Arab Republic, Thailand, Togo, Tonga, Tunisia, Turkey, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay, Venezuela, Viet Nam, Zimbabwe.

14. Observers from the following United Nations bodies, specialized agencies and other bodies also attended:

(a) United Nations bodies: Global Environment Facility (GEF), GEF Scientific and Technical Advisory Panel (STAP), United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP);

(b) Specialized agencies: Food and Agriculture Organization of the United Nations (FAO), World Bank;

(c) Secretariats of treaty bodies: Convention on the Conservation of Migratory Species of Wild Animals (CMS), Convention on Wetlands of International Importance especially as Waterfowl Habitat, United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa;

(d) Other intergovernmental bodies: Arab Center for Studies of Arid Zones and Drylands (ACSAD), Bionet International, Commission for Environmental Cooperation (CEC), Commonwealth Secretariat, International Centre for Genetic Engineering and Biotechnology (ICGEB), International Centre of Insect Physiology and Ecology (ICIPE), International Plant Genetics Resources Institute (IPGRI), Organisation for Economic Cooperation and

Development (OECD), Organization of American States (OAS), Permanent Commission for the South Pacific (CPPS), South Pacific Regional Environment Programme (SPREP).

15. The following other organizations were represented: Academic and Community Cooperation for Environmental Sustainability (ACCES), Africa Resources Trust, Biodiversity Action Network, Birdlife International, CAB International (CABI), CABI Bioscience, Canada International, Canadian Food Inspection Agency, Center for International Forestry Research (CIFOR), Center for Tropical Forest Science, Center for International Environmental Law (CIEL), Cooperation Tecnico Scientifico di Base (COBASE), Council for Responsible Genetics, DIVERSITAS, Fundacion Ecotropico, German Advisory Council on Global Change (WBGU), Global Environment Network, Humane Society of the United States, Green Earth Organisation, Indigenous People's Secretariat on the CBD, International Alliance of Indigenous and Tribal Peoples of the Tropical Forests (IAITPTF), International Biodiversity Observation Year (IBOY), ICI/Environment-SCBD Scholars Programme, International Institute for Environment and Development (IIED), International Seed Trade Federation/International Association of Plant Breeders for the Protection of Plant Varieties (FIS/ASSINSEL), International Union of Biological Sciences, IUCN (The World Conservation Union), Legwork Environmental Inc., McGill University, National Aboriginal Forestry Association (NAFA), National Association for the Conservation of Nature (ANCON), Naturama/Birdlife International, North American Indigenous Peoples Biodiversity Project, Organisation d'Aide au Développement Communautaire (ORAD), Organización de Mujeres Indígenas de Seynimin (Pueblo Arhuco), Ornamental Aquatic Trade Association, Rethinking Tourism Project, Rural Advancement Foundation International (RAFI), Rural Advancement Foundation International (RAFI-Ottawa), Rural Advancement Foundation International (RAFI-USA), Safari Club International, Shuswap Nation Fisheries Commission, Southern African Traditional Leaders Council for the Management of Natural Resources, Species 2000, STOP, Third World Network, Traditional Indigenous Healers, Traffic International, University of Bonn, University of Massachusetts (Amherst), University of Quebec in Montreal (ISE/UQAM), World Conservation Monitoring Centre, World Endangered Species Protection Association (WESPA), World Federation for Culture Collections (WFCC), World Resources Institute, World Wide Fund for Nature (WWF).

B. Election of officers

16. In accordance with rule 26, paragraph 3, of its rules of procedure, the Conference of the Parties to the Convention on Biological Diversity shall elect the chair of each subsidiary body. At its fourth meeting, held in Bratislava from 4 to 15 May 1998, the Conference of the Parties invited Mr. H. A. Zakri (Malaysia), Chairman of the Subsidiary Body at its third meeting, to remain in office until the end of the fourth meeting. The Conference also invited Mr. Cristián Samper (Colombia), Chairman-elect of the Subsidiary Body, to participate ex officio in the Bureau of the Subsidiary Body with immediate effect. Accordingly, the fourth meeting of the Subsidiary Body was chaired by Mr. Zakri, and Mr. Samper participated as an ex officio member of the Bureau.

17. The other members of the Bureau for the fourth meeting of the Subsidiary Body were:

Rapporteur: Mr. Jan Plesnik (Czech Republic)

Vice-Presidents: Mr. Edgar Gutiérrez-Espeleta (Costa Rica)
Mr. Kutelama Seleko (Democratic Republic of Congo)
Mr. Martin Uppenbrink (Germany)
Mr. Gábor Nechay (Hungary)
Ms. Elaine Fisher (Jamaica)
Mr. Zipangani Vokhiwa (Malawi)
Mr. Peter Schei (Norway)
Mr. Mick Raga (Papua New Guinea)

18. At the 3rd plenary session of the meeting, on 25 June 1999, the Subsidiary Body elected the following officers to serve on the Bureau for a two-meeting term commencing at the end of the current meeting to replace the current Bureau members from Malawi, Papua New Guinea, Hungary, Costa Rica and Norway:

Ms. Mary Fosi Mbantenkhu (Cameroon)
Mr. Terita Savae Latu (Tonga)
Mr. Evgeniy Oreshkin (Russian Federation)
Mr. Cristián Samper (Colombia)
Mr. David Brackett (Canada)

C. Adoption of the agenda

19. The Subsidiary Body adopted the following agenda for its fourth meeting, on the basis of the provisional agenda that had been circulated as document UNEP/CBD/SBSTTA/4/1/Rev.1:

1. Opening of the meeting.

2. Organizational matters:

   2.1. Election of officers;

   2.2. Adoption of the agenda;

   2.3. Organization of work.

3. Reports:

   3.1. Cooperation with other bodies;

   3.2. Progress in the work programme on thematic areas.

4. Priority issues:

   4.1. Programme of work of the Subsidiary Body on Scientific, Technical and Technological Advice;

   4.2. Ad hoc technical expert groups: establishment of the terms of reference;

4.3. Global Taxonomy Initiative: advice on its further advancement;

4.4. Assessment of the status and trends and options for conservation and sustainable use of terrestrial biological diversity (drylands, Mediterranean, arid semi-arid, grassland, and savannah ecosystems);

4.5. Development of guiding principles for the prevention of impacts of alien species, by identifying priority areas of work on isolated ecosystems and by evaluating and giving recommendations for further development of the Global Invasive Species Programme (GISP), with a view to cooperation;

4.6. Consideration of the consequences of the use of the new technology for the control of plant gene expression for the conservation and sustainable use of biological diversity;

4.7. Incorporation of biological-diversity considerations into environmental impact assessment;

4.8. Development of approaches and practices for the sustainable use of biological resources, including tourism.

5. Draft provisional agenda for the fifth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice.

6. Dates and venue of the fifth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice.

7. Other matters.

8. Adoption of the report.

9. Closure of the meeting.

D. Organization of work

20. As provided for in its modus operandi, the Subsidiary Body decided to establish two open-ended sessional working groups for its fourth meeting. Working Group 1 was allocated agenda items 4.3, 4.4 and 4.5, and Working Group 2 was allocated items 4.6, 4.7 and 4.8. It was decided that the remaining items would be taken up directly in plenary.

21. The Subsidiary Body agreed that the following would serve as officers of the working groups:

Working Group 1

Chair: Mr. Martin Uppenbrink (Germany)

Rapporteur: Ms. Elaine Fisher (Jamaica)

Working Group 2

Chair: Mr. Zipangani M. Vokhiwa (Malawi)

Rapporteur: Mr. Terita Savae Latu (Tonga)

22. The Subsidiary Body also approved the organization of work for the meeting as set out in annex II to the annotated provisional agenda (UNEP/CBD/SBSTTA/4/1/Add.1).

AGENDA ITEM 3: REPORTS

3.1. Cooperation with other bodies and 3.2. Progress in the work programme on thematic areas

23. At the 1st plenary session of the meeting, on 21 June 1999, the Subsidiary Body took up the agenda items 3.1 and 3.2 concurrently. In its deliberations on cooperation with other bodies, the Subsidiary Body had before it the report by the Executive Secretary on the subject (UNEP/CBD/SBSTTA/4/2). Introducing the item, the representative of the Secretariat pointed to the report of the Executive Secretary which, he said, covered the period from September 1997 to 31 December 1998.

24. In its deliberations on progress in the work programmes of thematic areas, the Subsidiary Body had before it a report on the subject, submitted by the Executive Secretary (UNEP/CBD/SBSTTA/4/3 and Corr.1). Introducing the item, the representative of the Secretariat said that the report of the Executive Secretary covered progress made in the period since the fourth meeting of the Conference of the Parties in the work under the thematic areas of inland water, marine and coastal, agricultural and forest biological diversity. It also described progress in the areas common to the thematic programmes, namely the roster of experts and the linkages with the clearing-house mechanism, and set out options for possible recommendations by the Subsidiary Body.

25. During the discussion of sub-items 3.1 and 3.2, statements were made by the following Contracting Parties and countries: Argentina, Brazil, Cameroon, Canada, Germany, Indonesia, Japan, Malawi, New Zealand, Netherlands, Norway, Portugal, Republic of Korea, Suriname, Switzerland, Tonga, United Kingdom of Great Britain and Northern Ireland, United States of America. Statements were also made by the representatives of the Secretariat of the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar); the Food and Agriculture Organization of the United Nations (FAO); the United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa; the Scientific Council of the Convention on the Conservation of Migratory Species of Wild Animals (CMS); and the International Plant Genetic Resources Institute (IPGRI).

26. The representative of the Convention on Wetlands briefly focused on the seventh meeting of the Conference of the Parties to the Convention on Wetlands which, he said, had provided substantial outputs of relevance to the

work of the Convention on Biological Diversity, guidelines relating to several issues, including the integration of wetlands into river-basin management, the review of laws and institutions and a comprehensive toolbox for managing and monitoring the condition of wetlands. He urged participants to take note of the impending availability of that comprehensive and integrated "toolbox" and make it a feature of their deliberations. Finally, he announced that, at the Conference of the Parties, it had been decided to extend an invitation to the Chair of the Subsidiary Body to become a permanent observer to the Scientific and Technical Review Panel, which was a smaller-scale counterpart of the Subsidiary Body.

27. He recalled the partnership agreement by which the Subsidiary Body had asked the Secretariat of the Convention on Wetlands to be the lead partner for advancing matters relating to inland water ecosystems. That agreement had led to the endorsement of a joint work programme at the fourth meeting of the Conference of the Parties. An informal progress report on the implementation of that joint work programme, and containing a number of recommendations taken at the seventh meeting of the Conference of the Parties to the Convention on Wetlands, had been distributed to participants by way of information.

28. The representative of the FAO noted that, at its current meeting, the Subsidiary Body was examining a variety of topics of relevance to food and agriculture and expressed the will of FAO to continue cooperating in the objective of the Convention on Biological Diversity and in the implementation of its programmes of work. He recalled that decision II/15 of the Conference of the Parties to the Convention recognized agricultural biodiversity's special nature, distinctive features and problems needing distinctive solutions. FAO and its Commission on Genetic Resources for Food and Agriculture represented intergovernmental forums where complex agricultural biodiversity-related policy was discussed and relevant international agreements negotiated and adopted by member countries. The International Plant Protection Convention, Codex Alimentarus and the International Undertaking on Plant Genetic Resources (currently under revision) provided relevant examples. FAO would be pleased if its expertise and capacities already developed in those agricultural-biodiversity-related areas at international, regional and national levels could be further capitalized upon to ensure synergy and coordination with the Convention on Biological Diversity.

29. The representative of the United Nations Convention to Combat Desertification mentioned the factors that had contributed to a reduction of biological diversity and the fact that developing countries were the most affected in such situations. The Secretariat of the Convention to Combat Desertification had reached a memorandum of understanding with the Secretariat of the Convention on Biological Diversity and was now working on a common framework to strengthen the synergies between the two Conventions. There were strong similarities in the chapters on scientific and technical cooperation of the two conventions, calling for a pooling of synergies based on existing links between them. There were enormous areas of potential cooperation between the Convention to Combat Desertification and the Convention on Biological Diversity but, because of certain constraints, developing countries were unable to make the most of those advantages.

30. The representative of the Scientific Council of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) described the links that were being established between the work of CMS and that of the Subsidiary Body in an effort to maintain the synergies and collaboration between the scientific bodies of both conventions. Such collaboration was essential, notably with respect to the transboundary initiatives taken to conserve migratory species and their habitats. She recalled the memorandum of understanding signed between the secretariats of the two conventions in 1997 and welcomed the news that UNEP had decided to help strengthen the synergies between the subsidiary bodies of the various environmental conventions.

31. The representative of the International Plant Genetic Resources Institute (IPGRI), speaking on behalf of all the members of the Consultative Group on International Agricultural Research (CGIAR), drew attention to paragraph 86 of the report of the Secretariat on progress in the work on thematic areas (UNEP/CBD/SBSTTA/4/3), highlighting the good collaboration with FAO in the field of new technologies, and the closer links between CGIAR and the Convention on Biological Diversity. CGIAR stood ready to assist the Subsidiary Body in the formation of the liaison group of experts referred to in paragraph 78 of the above report.

32. In the ensuing discussion on items 3.1 and 3.2, all representatives who took the floor expressed their satisfaction at the high quality of the report on cooperation with other bodies prepared by the Secretariat (UNEP/CBD/SBSTTA/4/2).

33. Many representatives pointed to the importance of cooperation with other relevant bodies as a fundamental element of the operation of the Subsidiary Body in making effective use of available scientific knowledge and expertise, and stressed that the focus should now lie in maintaining and extending such cooperation. One representative stressed that more effective interaction with the scientific community was needed. A number of representatives considered it important to ensure that such cooperation should go beyond participation in workshops and the signing of memoranda of understanding, and should be practical in nature, providing a clear and transparent idea of which body would be carrying out what action, and when.

34. A number of representatives supported the use of the Intergovernmental Panel on Climate Change (IPCC) as a model for a scientific body to provide technical and scientific information for the Subsidiary Body.

35. Several representatives considered it particularly important for the Secretariat to establish and/or strengthen cooperation with the IUCN Commission on Education and Communication; the World Trade Organization; the United Nations Framework Convention on Climate Change, particularly in connection with its Kyoto Protocol and the programmes dealing with the effects of carbon sequestration; the United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa; the Intergovernmental Forum on Forests; and the Commission on Sustainable Development.

36. One representative said that consideration should be given to the establishment of a mechanism to ensure that the advice given by the Subsidiary Body was in harmony with the advice of the respective scientific bodies of the Ramsar Convention on Wetlands, and of the conventions on desertification and on climate change.

37. Another representative believed that the Subsidiary Body should consider enhancing the use of joint work programmes, using as a model the excellent joint work plan between the Convention and the Convention on Wetlands.

38. Some representatives expressed concern at the lack of progress made in the development of indicators of biological diversity and several voiced support for the Secretariat's action, as set out in paragraphs 12 and 13 of its report on cooperation. Others cautioned that such action should not be carried out in isolation nor duplicate the work of other forums. Several representatives believed that, in its work to develop indicators, the Subsidiary Body should make use of the experience and practices of other processes and mechanisms, such as FAO, the Organisation for Economic Cooperation and Development, and the Commission on Sustainable Development, and, through the Secretariat, consult countries to see where they required assistance to develop indicators. Another said that the Secretariat and the Subsidiary Body should help to develop indicators to measure how biological-diversity concerns were being taken into consideration in the work of the World Trade Organization. There was a need to see how the sectors were contributing to the goals of the Convention.

39. With regard to the identification, monitoring and assessment of biological diversity, several representatives supported the close cooperation between the Secretariat and DIVERSITAS and its Secretariat. One considered the inclusion of a strong outreach component in the proposed activities under the International Biodiversity Observation Year (IBOY) to be particularly important.

40. Concerning the ecosystem approach, one representative expressed satisfaction at the fact that the approach was becoming more substantive, and drew attention to the conference scheduled to be convened in Trondheim, Norway, in September 1999, which would deal with issues of the ecosystem approach and sustainable use biological diversity.

41. With regard to the thematic programmes of work, one representative, noting the important cooperation in the field of agricultural biological diversity between DIVERSITAS, UNEP, FAO and the United Nations Educational, Scientific and Cultural Organization, said that the Subsidiary Body should also contribute to work on plant genetic resources. He was concerned at the apparent slow pace of such work and said that it had to be completed by November 2000.

42. One representative considered that, under decision IV/10 of the Conference of the Parties, concerning measures for the implementation of the Convention, high priority should be accorded to public education and awareness, since despite all efforts, degradation of biological diversity and ecosystems was continuing. Expressing her satisfaction at the development of cooperation between the Secretariat and UNESCO, she stressed that two groups

of stakeholders needed to be the subject of special attention: the private sector, which exploited biological resources, and the communities whose livelihood was dependent on such resources.

43. Several representatives welcomed the establishment of the ad hoc technical expert groups on specific priority issues, and said that they should play a major role in relieving the Subsidiary Body of its heavy burden of work in examining the issues entrusted to it by the Parties. One stressed that such groups needed to be constituted in a transparent way, with explicit terms of reference and adequate peer review. Another representative said that his country was willing to participate actively in the work of such groups and was finalizing a roster of national experts on priority issues of the Convention, for transmission to the Secretariat.

44. Particular support was conveyed for the Secretariat's proposal, outlined in paragraph 67 of its report on cooperation to develop more effective forms of cooperation between the Subsidiary Body and the scientific community. In that context, one representative highlighted the need for cooperation between the scientific community in the developing countries and that of the developed countries, in line with Article 12 of the Convention.

45. One representative supported the view, contained in paragraphs 68 and 69 of the Secretariat's report on cooperation, with regard to the important role of the Subsidiary Body in bridging the gap between research and policy. He considered that the cooperation with DIVERSITAS, in particular, should be further strengthened.

46. Several representatives expressed their concern at the idea, contained in paragraphs 71 and 84 of the Secretariat's report on cooperation, to publish a periodical under the Convention, considering that resources would be better used for preparation of a guide to existing publications, or should be channelled to the clearing-house mechanism to strengthen its capacity as a publications resource.

47. One representative expressed concern at the suggestion, contained in paragraph 72 of the Secretariat's report on cooperation, relating to the role of the chairs and ex-chairs of the Subsidiary Body. While not opposing the allocation of additional roles to them, he believed the question should be dealt with on a case-by-case basis, without setting any precedents.

48. One representative, referring to the need for the Subsidiary Body to use existing assessments of biological diversity in a more systematic way, supported the recommendation contained in the Secretariat's report on cooperation with regard to the utilization of the Global Ecosystems Assessment. One representative said that the Assessment should include sociological and economic factors, in line with the objectives of the Convention, as impacted by other conventions.

49. Several representatives attached importance to the proposal, outlined in paragraph 82 of the Secretariat's report on cooperation, that a comprehensive review of cooperation be carried out, including review of the Subsidiary Body's relationship to, and use of, relevant assessments carried

out by other bodies. One representative pointed to the pilot project set up by a number of countries to measure the implementation of the Convention in countries.

50. One representative supported the Secretariat's suggestion, referred to in paragraph 83 of its report on cooperation, to the effect that the Chair should participate in the work of the Steering Committee of DIVERSITAS and in the Scientific and Technical Advisory Panel (STAP) of the Global Environment Facility (GEF).

51. Another representative emphasized the relevance of identifying those meetings that could be invited to present results to the Subsidiary Body, as noted in paragraph 85 of the report on cooperation.

52. All representatives who took the floor expressed appreciation for the Secretariat's report on progress in the implementation of programmes of work on thematic areas (UNEP/CBD/SBSTTA/4/3). One representative said that a good deal had been accomplished and the report reflected the active part played by the Secretariat in undertaking, facilitating and coordinating action. Another considered that achievements under the work programmes were hard to measure and there was a need for clearer mandates and routines. One representative requested the Secretariat to distribute to Parties the outputs of the formal and informal workshops related to the Convention on Biological Diversity.

53. One representative considered it important that future reports should enable the Subsidiary Body to monitor progress and performance of the work against the agreed objectives, time-scale and resources set out in the agreed work programmes. They should reflect not only the successes, but also identify the areas of shortfalls or slippage, as well as details of implemented or proposed remedial action.

54. One representative noted that, in general, despite the calls for more information from Parties, the Secretariat had received only very few case studies and he encouraged it to make full use of all available sources of data, including the national reports. Another representative believed that the clearing-house mechanism should be better used in the thematic programmes of the Convention.

55. Concerning biological diversity of inland waters, several representatives praised the good cooperation with the Convention on Wetlands and one of them pointed out that, if the Subsidiary Body were to accept the invitation to participate as an observer in the Scientific and Technical Review Panel of the Convention on Wetlands, there would be no need for it to constitute its own ad hoc technical working group on inland waters.

56. One representative drew attention to a lack of progress by the Subsidiary Body in implementing decision IV/4, paragraph 11, of the fourth meeting of the Conference of the Parties, by which Parties asked the Secretariat and the Subsidiary Body to give particular attention to early progress in the development of rapid assessment methodologies, especially in the small island States. He asked the Secretariat to put more emphasis on supporting and establishing cooperation with such States in the South-west Pacific region.

57. With regard to marine and coastal biological diversity, several representatives, pleased at the broad support given to the work programme, said that others should continue to be invited to contribute to the programme, with clear arrangements about who was doing what and when, and full use of the roster of experts. One representative called for more efforts with regard to coral reef destruction, such as that caused by trawling and dynamite fishing, rather than only the focus on the effects of bleaching. One other representative sought clarification on whether the UNFCCC task force had responded to the invitation to carry out work on the issue of coral bleaching.

58. On the subject of agricultural biological diversity, several representatives supported the delay of the work programme until after the fifth meeting of the Subsidiary Body. Although several representatives highlighted the important cooperation with FAO, one representative believed there was a need to clarify who was doing what within the work programme. Another was of the opinion that, in connection with this sector, Parties should be invited to take note of the results of the workshops concerned, rather than be guided by them.

59. One representative, noting the attention being paid to new technology within the seed sector, expressed strong opposition to the development of so-called suicide gene technology.

60. Several representatives looked forward to additional inputs into the issue of agricultural biological diversity prior to the fifth meeting of the Subsidiary Body. One of them drew attention to the upcoming FAO/Netherlands Conference on the Multifunctional Character of Agriculture and Land, scheduled for 13 to 17 September 1999, which would consider the sectoral theme of integrated planning and management of land resources, into which biological diversity would be integrated. He noted that the work programme must reflect the functions of agricultural biological diversity, since that was linked to the sustainable production of food and other agricultural products.

61. Several representatives referred to the the Workshop on Sustaining Agricultural Biodiversity and Agro-ecosystems Functions, held in Rome in December 1998, and to the Workshop on the Conservation and Sustainable Use of Pollinators in Agriculture, held in Sao Paulo, Brazil, in October 1998, as useful inputs, and one considered that follow-up should be undertaken.

62. With regard to the implementation of the work programme for forest biological diversity, a number of representatives expressed concern at the slow progress made, and urged the Secretariat to continue efforts to overcome that state of affairs. One considered that urgent action was needed, perhaps through the establishment of a technical expert group. Another was concerned at the inclusion of this sector on the agenda of the fifth meeting of the Conference of the Parties, given the lack of progress made.

63. One representative considered that there should be an examination of the thematic areas covered in the past period, looking at the reasons behind their success or failure, viewing the advice given by the Subsidiary Body to the Parties and analysing how to provide the right type of advice to them.

64. At the 4th plenary session of the meeting, on 25 June 1999, the Subsidiary Body took up a draft recommendation submitted by the Chair under agenda item 3.1. The draft recommendation, as orally amended, was adopted as recommendation IV/1 A. The text of the recommendation as adopted is contained in annex I to the present report.

65. At the same session, the Subsidiary Body took up a draft recommendation submitted by the Chair under agenda item 3.2. The draft recommendation, as orally amended, was adopted as recommendation IV/1 B. The text of the recommendation as adopted is contained in annex I to the present report.

AGENDA ITEM 4: PRIORITY ISSUES

4.1. Programme of work of the Subsidiary Body on Scientific, Technical and Technological Advice

66. The Subsidiary Body took up agenda item 4.1 at the 2nd plenary session of the meeting, on 21 June 1999. In considering the item, the Subsidiary Body had before it a note by the Executive Secretary entitled "Proposal on the draft programme of work of the Subsidiary Body on Scientific, Technical and Technological Advice: a longer-term programme of work for the period from the fourth to the seventh meeting of the Conference of the Parties" (UNEP/CBD/SBSTTA/4/4).

67. Introducing the item, the Secretariat recalled that, in its decision IV/16, the Conference of the Parties had requested the Subsidiary Body to prepare a proposal for its programme of work based on the priorities set out in annex II to that decision, with a view to streamlining and focusing the agendas of its meetings. The proposal prepared by the Executive Secretary took into account the items to be given in-depth consideration by the Conference of the Parties in the period up to its seventh meeting. A summary of the programme areas to be considered by the Subsidiary Body over that period was annexed to the note.

68. During the discussion of the item, statements were made by the following Contracting Parties and countries: Argentina, Brazil, Burkina Faso, Cameroon, Canada, China, Colombia, Democratic Republic of the Congo, Ecuador, European Community, Finland, Germany, India, Jordan, Kenya, Netherlands, New Zealand, Peru, Republic of Korea, South Africa, Suriname, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland. A representative of the Global Environment Network also made a statement.

69. In the discussion, a number of representatives expressed support for the note by the Executive Secretary as a starting point for the preparation of a proposal for a longer-term programme of work of the Subsidiary Body. Some of those representatives pointed to the need to develop a strategic plan with targets and time-frames. Another representative noted that such a strategic plan would help promote transparency in the work of the Body.

70. Most representatives were in agreement in their general support of the proposed programme, and it was noted that, although the document dealt with issues in a superficial way, actual practices would be carried out at the country level and thus tailored to national strategies. According to one

representative, if the Subsidiary Body concentrated more on issues of a scientific nature, leaving policy-related issues to other working bodies, then it would be able to successfully manage its very heavy work programme and effectively address some of the specific priority areas that dealt increasingly with conservation technology.

71. Many representatives stressed that the agenda of the Subsidiary Body should be focused and sufficiently limited to allow in-depth discussion of the issues and the preparation of targeted recommendations to the Conference of the Parties, as well as to ensure that small delegations could cover all the items. A number of representatives said that it was important to consider whether individual topics could be addressed through other mechanisms. In that connection, a number of representatives cited access and benefit-sharing and the Article 8(j) guidelines as themes that could be removed from the agenda of the Subsidiary Body, as they were being considered in special groups set up under the Convention. One of those representatives, however, emphasized that the removal of the implementation of the Article 8(j) guidelines as a specific topic on the agenda in no way diminished the importance of integrating the knowledge of indigenous peoples in the discussion of all items under consideration by the Subsidiary Body. Some representatives spoke out in favour of including those items, stressing the lack of measures pertaining to access and benefit-sharing in developing countries and highlighting the need for scientific and technological advice regarding socio-economic information related to the issue. Others pointed out that the Subsidiary Body should limit its attention to purely scientific aspects of these areas. One representative stressed that the focus should be placed on those issues for which actual decisions and working mandates from the Conference of the Parties existed, while another emphasized the use of the clearing-house mechanism as a way to contribute to scientific work within the proposed thematic areas.

72. One representative stressed the need to improve notification to the Parties of material sent to the Secretariat, of workshops held outside the framework of the Convention, and of the selection of experts to be involved in expert groups, liaison groups and peer-review. On the latter point, another representative cautioned that the confidentiality of the experts chosen to undertake peer-reviews was an important element in ensuring their independence, and their names should be disclosed only with their consent.

73. Many representatives stressed the importance of avoiding duplication, with several mentioning the importance of using all available mechanisms to address issues and of achieving wider collaboration with other conventions and scientific institutions. Several representatives stressed the need for a clear delineation of responsibilities among the various organizations and bodies involved.

74. One representative mentioned that the process of coordination must include education and public awareness. Another representative said that the structure approved at the first meeting of the Conference of the Parties, whereby the subject matter was divided into thematic and cross-cutting areas, would be viable only if there was interaction with the two other objectives of the Convention; it was also necessary to pay more attention to the interactions between humans and biological diversity.

75. Some representatives noted that the underlying vision of the Convention on Biological Diversity was sustainable development and that fact should be recognized by the Subsidiary Body. In that connection, one representative suggested that sustainable use should not be limited to tourism, but that all possible options for sustainable use should be explored. The same representative also suggested that the theme of sustainable use be added to the agenda of the seventh meeting of the Conference of the Parties and that the theme of in situ conservation of ecosystems be included more explicitly on the agendas of the next four meetings of the Subsidiary Body.

76. One representative underscored the need for linkages between the climate and biodiversity conventions, advising that cooperation be undertaken on the issues of land use, forestry, vulnerable ecosystems, carbon sinks, indicators, research and monitoring, and potential areas of conflict. This view was repeated by a number of others, who declared that the Subsidiary Body needed to clearly articulate how best to coordinate with other bodies through regular consultations planned in both the short and long term. The suggestion that the Subsidiary Body bring in social scientists and economists was also made.

77. Several representatives referred to the question of alien invasive species, one of them proposing that principles should be developed to set out the key elements of a prevention and response programme applicable to all nations, which could be adapted to meet specific needs. Prevention and eradication were espoused as measures to control invasion. Several others raised the issue of how such a programme would manage to be so broad in scope while dealing with specific identification of species (alien and other) that would constitute a threat in all countries. One representative echoed this statement with a request for more factual information related to alien species.

78. One representative called attention to paragraphs 53 (b) and (c) of the note by the Executive Secretary and proposed that they should be reworded as it was not in the Subsidiary Body's mandate to assess the effects of measures undertaken or to conduct impact assessments, as opposed to assessing the effects of types of measures taken and providing guidelines and advice on methods, criteria and indicators for impact assessments. Another representative, however, suggested that the Subsidiary Body was indeed mandated to provide assessments of policies.

79. One representative stressed the need for the Subsidiary Body to conduct or coordinate more in-depth assessments of biodiversity status and trends, requesting that the Subsidiary Body be involved in the preparation of Global Biodiversity Outlook Reports and that micro-organisms be given increased attention. Another said that indicators should be on the agenda as an ongoing item tied in with the general themes.

80. The representative of the Global Environment Network said that it seemed important to consider the need for mechanisms to review progress or give direction in regard to ongoing programmes of work on thematic areas. It was also important to have a mechanism to allow the Subsidiary Body to contribute to the discussion of new emerging issues that were already being considered in other bodies.

81. At the 4th plenary session of the meeting, on 25 June 1999, the Subsidiary Body took up a draft recommendation submitted by the Chair under agenda item 4.1. The draft recommendation, as orally amended, was adopted as recommendation IV/1 C. The text of the recommendation as adopted is contained in annex I to the present report.

4.2. Ad hoc technical expert groups: establishment of the terms of reference

82. The Subsidiary Body took up agenda item 4.2 at the 2nd plenary session of the meeting, on 21 June 1999. In considering the item, the Subsidiary Body had before it a note by the Executive Secretary on terms of reference of ad hoc technical expert groups (UNEP/CBD/SBSTTA/4/5).

83. Introducing the note by the Executive Secretary, the Secretariat recalled that, in its decision IV/16, paragraph 21, the Conference of the Parties had requested the Subsidiary Body on Scientific, Technical and Technological Advice to advise the Conference at its fifth meeting on the terms of reference for the ad hoc technical expert groups on thematic areas. In order to assist the Subsidiary Body in its consideration of the issue, the Executive Secretary had prepared his note on terms of reference of ad hoc technical groups, which identified five specific priority issues for each of which an ad hoc technical expert group was required to assist the Subsidiary Body in carrying out its work: marine and coastal biological diversity; inland water biological diversity; biological diversity of dryland ecosystems; alien species; and forest biological diversity. The document suggested possible terms of reference for the groups, which were annexed to it. The Secretariat suggested that the Subsidiary Body might wish to consider the priority of the proposed thematic issues for the groups and their terms of reference and recommend thereon to the fifth meeting of the Conference of the Parties.

84. During the discussion of the item, statements were made by the following Contracting Parties and countries: Argentina, Australia, Bolivia, Brazil, Canada, China, Colombia, Congo, Costa Rica, Côte d'Ivoire, Ecuador, European Community, Finland, Germany, Greece, India, Indonesia, Japan, Jordan, Kenya, Malawi, Netherlands, New Zealand, Norway, Peru, Portugal, Republic of Korea, Suriname, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland, Zimbabwe. The representative of the Convention on Wetlands also made a statement.

85. A number of representatives welcomed the note of the Executive Secretary as a good basis for further discussion on the subject. Some representatives, however, pointed to a number of inconsistencies in the note which they felt should be rectified. Some representatives also proposed specific amendments to the terms of reference for the expert groups. One representative said that it was important to clarify the difference between a "technical expert group" and a "liaison group".

86. Many representatives believed that, if expert groups were to be formed, they should be small in composition and should have a clearly defined and time-limited mandate. A number of representatives cautioned against the proliferation of such groups, stating that they should be limited in number to no more than two or three at a time.

87. There were differing views on the thematic issues to be addressed by the groups. Many representatives, however, agreed that a decision on the matter should wait until the Subsidiary Body had completed its discussion of the issues themselves. One representative suggested that, instead of trying to make an extremely difficult choice for one or two ecosystems, such expert group should be provided with a mandate focusing on issues relevant to more than one work programme; for example, one group could focus on ecosystem issues, including the enhancement of the indicator issue and the implementation of the ecosystem approach, while another could focus on species and genetic issues, including taxonomy.

88. Particular stress was made on the need to avoid duplication with other bodies and, in that connection, a number of representatives pointed to the work already underway within the framework of the Convention on Wetlands, for inland waters, and the Global Invasive Species Programme, for alien species. One representative, however, said that there was not a complete overlap between the work conducted under the Convention on Wetlands and the inland waters programme of the Convention on Biological Diversity; he agreed that some work could be conducted through the Ramsar mechanism, but attention needed to be paid to the issues that were not covered by it. On a point of clarification, a representative of the Convention on Wetlands said that the mandate of that Convention mirrored the inland waters work programme adopted by the Conference of the Parties to the Convention on Biological Diversity. The joint work programme was to be revised at the end of 1999, and that process would offer the Subsidiary Body the opportunity to provide input through the Scientific and Technical Review Panel. The outcome of the process could be put before the Subsidiary Body at its fifth meeting to see if the Scientific and Technical Review Panel was in a position to meet expectations with regard to the inland water ecosystems work programme.

89. With regard to the selection process for experts in the groups, a number of representatives stressed the need to ensure that the membership of the groups was balanced in terms of geographic origin, linguistic background and areas of expertise, including traditional and indigenous knowledge. Several representatives suggested that need to make use of the existing roster of experts, which should be revised and updated accordingly, with the Subsidiary Body providing guidance on the range of skills required. A number of representatives agreed with the Secretariat’s suggestion that modern means of communication should be used among members in order to ensure full participation in the work of the groups.

90. One representative expressed concern about the use of the term "alien species" in the terms of reference, which implied that all such species were necessarily harmful, and suggested that the term should be replaced by the words "invasive species".

91. One representative suggested that one of the technical expert groups should have the mandate of considering ways to promote the development and transfer of in situ and ex situ biological diversity conservation and technology.

92. At the 3rd plenary session of the meeting, on 25 June 1999, the Chair explained that the Conference of the Parties, by its decision IV/5, had decided that ad hoc technical expert groups would be established for marine

and coastal protected areas and for mariculture. The experts were to be drawn from the roster of experts maintained by the Executive Secretary. The Executive Secretary had, since the fourth meeting of the Conference of the Parties, requested Parties to propose names of experts for inclusion in the roster. The response had been disappointing and a satisfactory roster had, consequently, not been established. The existing roster of ad hoc technical experts needed to be updated, and the Executive Secretary impressed upon the Parties the need to address the issue and to propose names for inclusion. The Bureau of the Subsidiary Body on Scientific, Technical and Technological Advice had therefore decided that the issue would be addressed at its fifth meeting.

4.3. Global Taxonomy Initiative: advice on its further advancement

93. Working Group 1 took up agenda item 4.3 at its 3rd meeting on 23 June 1999. The Group had before it the note prepared by the Executive Secretary on further advancement of the Global Taxonomy Initiative (UNEP/CBD/SBSTTA/4/6 and Corr.1), as well as the following background information papers submitted by DIVERSITAS: "The Global Taxonomy Initiative - shortening the distance between discovery and delivery. Report of a meeting held at the Linnean Society, London, UK, on 10 and 1 September 1998 " (UNEP/CBD/SBSTTA/4/Inf.1); "The Global Taxonomy Initiative: Recommendations from DIVERSITAS Element 3, including an assessment of present knowledge of key species groups. Report of a DIVERSITAS/Systematics Agenda 2000 meeting held at the International Council of Scientific Unions (ICSU), Paris, France on 20 and 21 February 1999" (UNEP/CBD/SBSTTA/4/Inf.6); and "The Global Taxonomy Initiative: Using systematic inventories to meet country and regional needs. Report of the DIVERSITAS/Systematics Agenda 2000 meeting held at the American Museum of Natural History, New York, USA from 17 to 19 September 1998" (UNEP/CBD/SBSTTA/4/Inf.7).

94. As input to the discussion on the item, the Working Group heard a keynote address by a distinguished expert in the field, Dr. Peter Bridgewater, formerly an active member of the Australian delegation to most previous meetings of the Subsidiary Body and the Conference of the Parties, speaking in his capacity as a representative of DIVERSITAS. Following the presentation, for which the Working Group expressed broad appreciation, questions were asked by the representatives of Argentina, Belgium, Bolivia, Brazil, Canada, Guinea and Mexico.

95. Introducing the debate on the item, the representative of the Secretariat drew attention to the note prepared by the Executive Secretary, which had been prepared in response to the proposals contained in the annex to decision IV/1 D of the Conference of the Parties. In the note, the Executive Secretary had endeavoured to identify the types of final products, tools or instruments to be expected from those proposals and to provide options for the Subsidiary Body in formulating advice to bring about their timely development for the further advancement of the Global Taxonomy Initiative.

96. During the discussion on the item, statements were made by the representatives of the following Contracting Parties and countries: Argentina, Australia, Belgium, Brazil, Burkina Faso, Cameroon, Canada, Colombia, Democratic Republic of the Congo, Ethiopia, European Community,

Finland, France, Gambia, Germany, India, Indonesia, Mali, Netherlands, New Zealand, Norway, Oman, Peru, Republic of Korea, Spain, Sri Lanka, Swaziland, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland, United States. A statement was also made by the Commonwealth Secretariat.

97. At its 5th meeting, on 24 June 1999, the Working Group considered a draft recommendation on the item, submitted by the Chair. After an exchange of views, the Group agreed to set up an informal contact group, to be coordinated by Ms. Linda Hedlund (Sweden), to examine the draft recommendation and to report back on the results of its work.

98. At its 6th meeting, on 24 June 1999, the coordinator of the contact group reported back to the Working Group and submitted a revised draft recommendation, incorporating amendments based on its discussions. After an exchange of views on the proposals made by the contact group, the Working Group agreed to transmit the draft recommendation, as orally amended, to the plenary (UNEP/CBD/SBSTTA/4/L.7).

99. One representative welcomed the offer made by UNEP to assist in the development of a project that would provide technical and financial support to taxonomy-related initiatives, in accordance with the priorities of the Global Taxonomy Initiative.

100. At the 3rd plenary session of the meeting, on 25 June 1999, the Subsidiary Body took up draft recommendation UNEP/CBD/SBSTTA/4/L.7 and adopted it as orally amended as recommendation IV/2. The text of the recommendation as adopted is contained in annex I to the present report.

4.4. Assessment of the status and trends and options for conservation and sustainable use of terrestrial biological diversity (drylands, Mediterranean, arid, semi-arid, grassland, and savannah ecosystems)

101. Working Group 1 took up item 4.4 at its 1st meeting, on 22 June 1999. The Group had before it a note by the Executive Secretary, on assessment of the status and trends and options for conservation and sustainable use of terrestrial biological diversity: dryland, Mediterranean, arid, semi-arid, grassland and savannah ecosystems (UNEP/CBD/SBSTTA/4/7).

102. Introducing the item, the representative of the Secretariat said that the note by the Executive Secretary addressed issues surrounding the specific problems of identifying, monitoring and assessing those ecosystems and the major impacts on their biological diversity. It reflected the current status of the biological diversity of dryland, Mediterranean, arid, semi-arid, grassland and savannah ecosystems, and contained proposed recommendations for the Conference of the Parties, including a recommendation on a specific work programme on drylands, mediterranean, and semi-arid, grassland and savannah ecosystems.

103. During the discussion of the item, statements were made by representatives of the following Contracting Parties and countries: Algeria, Antigua and Barbuda, Argentina, Australia, Brazil, Burkina Faso, Cameroon, Canada, Chile, China, Costa Rica, Côte d'Ivoire, Democratic Republic of the Congo, Ethiopia, European Community, Germany, Greece, Guinea, Holy See,

India, Indonesia, Japan, Kenya, Mali, Mauritania, Mexico, Namibia, Netherlands, New Zealand, Niger, Norway, Peru, Portugal, South Africa, Sweden, Switzerland, Turkey, United Kingdom of Great Britain and Northern Ireland, Zimbabwe. Interventions were also made by a representative speaking on behalf of the Southern African Sustainable Use Specialist Group of IUCN and also on behalf of the African Resources Trust; by the World Wide Fund for Nature - West Africa, also on behalf of the World Resources Institute and the Green Earth Organization of Ghana; and by the Arab Center for the Study of Arid Zones and Drylands (ACSAD).

104. At its 4th meeting, on 23 June 1999, the Group considered a draft recommendation submitted by the Chair on the agenda item. Following an exchange of views on the draft recommendation, involving many representatives, it was agreed that the Chair would submit a revised version to the Working Group.

105. At its 5th meeting on 24 June 1999, the Group considered a revised version of the draft recommendation submitted by the Chair on the agenda item. Following an exchange of views on the draft recommendation involving many representatives, the Working Group approved the draft recommendation, as orally amended, for transmission to plenary (UNEP/CBD/SBSTTA/4/L.3).

106. At the 3rd plenary session of the meeting, on 25 June 1999, the Subsidiary Body took up draft recommendation UNEP/CBD/SBSTTA/4/L.3 and adopted it as recommendation IV/3. The text of the recommendation as adopted is contained in annex I to the present report.

4.5. Development of guiding principles for the prevention of impacts of alien species, by identifying priority areas of work on isolated ecosystems and by evaluating and giving recommendations for further development of the Global Invasive Species Programme (GISP), with a view to cooperation

107. Working Group 1 took up agenda item 4.5 at its 2nd meeting on, 22 June 1999. The Group had before it a note by the Executive Secretary on the development of guiding principles for the prevention of impacts of alien species by identifying priority areas of work on isolated ecosystems and by evaluating and giving recommendations for the further development of the Global Invasive Species Programme (UNEP/CBD/SBSTTA/4/8). Also circulated at the meeting was a paper submitted by New Zealand entitled "Alien invasive species: proposed principles presented for debate at SBSTTA 4".

108. As input into the discussion on the item, the Working Group heard a keynote address by a distinguished expert in the field, Professor Hal Mooney from Stanford University, speaking in his capacity as coordinator of the "Global Change and Invasives" topic area of GISP, a programme coordinated by the Scientific Committee on Problems of the Environment (SCOPE), in conjunction with IUCN, CAB International and UNEP, and a component of DIVERSITAS. Following the presentation, for which the Working Group expressed broad appreciation, questions were asked by the representatives of Australia, the Democratic Republic of the Congo, Hungary, Niger and the United Kingdom. The representative of the World Wide Fund for Nature - West Africa also posed a question.

109. Introducing the debate on the item, the representative of the Secretariat said that the note by the Executive Secretary submitted under the item was based on decision IV/1 C of the Conference of the Parties. It listed the significant adverse ecological and economic effects of certain alien species on biological diversity and human health. Describing issues of invasives and inland water, marine and coastal, forest and agricultural biological diversity, the note also assessed the outcomes of relevant processes and activities to deal with the problems. The note also provided, for the consideration of the Subsidiary Body, a number of options for possible recommendations to the Conference of the Parties.

110. During the discussion on the item, statements were made by representatives of the following Contracting Parties and countries: Argentina, Australia, Brazil, Cameroon, Canada, Colombia, Côte d'Ivoire, European Community, France, Germany, Hungary, Iceland, India, Indonesia, Japan, Mali, Micronesia (Federated States of), Namibia, Netherlands, New Zealand, Norway, Portugal, Republic of Korea, South Africa, Sweden, Switzerland, Togo, Turkey, United Kingdom of Great Britain and Northern Ireland, United States of America. Statements were also made by the representatives of FAO and of the Convention on Wetlands of International Importance especially as Waterfowl Habitat. The representatives of IUCN and the International Centre of Insect Physiology and Ecology (ICIPE) also made statements.

111. At its 5th meeting, on 24 June 1999, the Working Group agreed to set up an open-ended informal drafting group, to be coordinated by Ms. Paula Warren (New Zealand), to examine agenda item 4.5 and report back on the results of its work.

112. At its 6th meeting, on 24 June 1999, the Working Group considered an informal paper prepared by the contact group, containing a draft of the advice that the Subsidiary Body was asked to provide to the Conference of the Parties. That advice was approved for transmission to plenary as draft recommendation UNEP/CBD/SBSTTA/4/L.2 and Add.1.

113. At the 3rd plenary meeting of the session, on 25 June 1999, the Subsidiary Body took up draft recommendation UNEP/CBD/SBSTTA/4/L.2 and adopted it without amendment as recommendation IV/4. The text of the recommendation as adopted is contained in annex I to the present report.

4.6. Consideration of the consequences of the use of the new technology for the control of plant gene expression for the conservation and sustainable use of biological diversity

114. Working Group 2 took up agenda item 4.6 at its 1st meeting, on 22 June 1999. The Group had before it a note by the Executive Secretary on the consequences of the use of the new technology for the control of plant gene expression for the conservation and sustainable use of biological diversity (UNEP/CBD/SBSTTA/4/9/Rev.1). Also available to the Subsidiary Body under agenda item 4.6 was an information document (UNEP/CBD/SBSTTA/4/Inf.3) that included the terms of reference prepared for the study and statements from those institutions conducting research on technology to control plant gene expression, together with figures illustrating that technology.

115. Introducing the item, the Secretariat said that the note by the Executive Secretary included a scientifically based background paper on the assessment of the potential consequences of new technologies for the control of plant gene expression, as described in United States patent No. 5,723,765, and their potential effects on the conservation and sustainable use of biological diversity. The paper had been commissioned in December 1998 by the Executive Secretary, following the request by the Conference of the Parties in paragraph 11 of its decision IV/6 that the Subsidiary Body on Scientific, Technical and Technological Advice consider the issue and elaborate scientifically based advice to submit to the Conference of the Parties at its fifth meeting. The Secretariat also described the nature and importance of the item and acknowledged the many inputs to the paper, which had been prepared by a multidisciplinary team of consultants and then reviewed by experts from each geographic region, as well as from key international organizations, as listed in paragraph 7 of the note by the Executive Secretary.

116. As input to the discussion on the item, the Working Group heard a keynote address by Dr. Richard Jefferson, author-in-chief of the expert paper annexed to the note by the Executive Secretary. Dr. Jefferson gave a presentation on the genetic use restriction technology (GURT) described in United States patent No. 5,723,765 and explained some of the associated terminology. Following his presentation, for which the Working Group expressed broad appreciation, Dr. Jefferson responded to questions from representatives of Bolivia, Egypt, Hungary, India, Netherlands, Norway, Peru, and Syrian Arab Republic.

117. During the discussion of the item, at the 1st and 2nd meetings of the Working Group, on 22 June 1999, statements were made by representatives of the following Contracting Parties and countries: Australia, Austria, Bolivia, Cameroon, Canada, Colombia, Democratic Republic of the Congo, European Community, Germany, Hungary, India, Indonesia, Mexico, Netherlands, New Zealand, Norway, Philippines, Portugal, Republic of Korea, Russian Federation, South Africa, Suriname, Switzerland, Syrian Arab Republic, Togo, United Kingdom of Great Britain and Northern Ireland, United States of America. Statements were also made by the representatives of FAO and UNEP, and by the International Centre for Genetic Engineering and Biotechnology (ICGEB), the International Seed Trade Federation/International Association of Plant Breeders for the Protection of Plant Varieties (FIS/ASSINSEL), and the Rural Advancement Fund International (RAFI).

118. At its 4th meeting, on 23 June 1999, the Working Group took up a draft recommendation submitted by the Chair under this item. On the basis of the discussion in the Working Group, a revised draft was prepared and submitted for the consideration of the Working Group at its 5th meeting, on 24 June.

119. Following a discussion of the revised text at its 5th meeting, the Working Group decided to set up a drafting group to develop compromise text on the outstanding issues for submission to the Working Group.

120. At its 6th meeting, on 24 June 1999, the Working Group resumed consideration of the draft recommendation in the light of a proposed compromise text submitted by the drafting group. The draft recommendation, as amended, was approved for submission to plenary (UNEP/CBD/SBSTTA/4/L.5).

121. At the 3rd plenary meeting of the session, on 25 June 1999, the Subsidiary Body took up draft recommendation UNEP/CBD/SBSTTA/4/L.5 and adopted it as orally amended as recommendation IV/5. The text of the recommendation as adopted is contained in annex I to the present report.

122. In the course of the discussion on the draft recommendation, the representative of the United States of America said that, although the United States agreed that the technologies concerned should be rigorously assessed by Governments, it should be clarified that the recommendation did not suggest that countries could avoid their obligations under other international agreements, including those of the World Trade Organization. It was the understanding of her delegation that the preambular clause on a moratorium simply recognized that countries could take regulatory measures to protect health and the environment in case a risk of harm is present. In addition, the United States noted that the recommendation did not sufficiently reflect the potential benefits of those technologies.

123. In adopting the recommendation, the Working Group agreed that the report of the meeting should reflect the view of the delegation of New Zealand that a distinction should be drawn between field testing in containment, which was an important stage in risk assessment and would not pose a risk to the environment, and field-testing without containment, or field release. For that reason, New Zealand had reservations about the seventh preambular paragraph and subparagraph (e), since the term "field-testing" could be interpreted to include testing in containment outside the laboratory. As currently worded, the recommendation might prevent a country from completing the necessary level of risk assessment to make an informed decision on the technology.

124. The representative of Australia said that his delegation recognized that the use of genetic use restriction technologies raised a number of issues related to agricultural production and food security as well as other socio-economic and human-health issues. Australia believed that it was important that any recommendations from the Subsidiary Body should address only those issues that were within its mandate as set out in Article 25 of the Convention. Australia wished to place on record its reservation that the recommendation apppeared to extend beyond the mandate of the Subsidiary Body, in particular by referring to socio-economic issues more generally, rather than placing them within the context of the conservation and sustainable uses of biological diversity and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

4.7. Incorporation of biological diversity considerations into environmental impact assessment

125. Working Group 2 took up agenda item 4.7 at its 3rd meeting, on 23 June 1999. The Group had before it a note by the Executive Secretary presenting a synthesis of reports and case-studies relating to environmental impact assessment (UNEP/CBD/SBSTTA/4/10).

126. Introducing the item, the Secretariat recalled that, in paragraph 3 of decision IV/10 C, the Conference of the Parties had instructed the Subsidiary Body to identify further actions that would promote implementation of the impact assessment procedures requested by Article 14 of the Convention,

including consideration of whether there was a need for additional work to develop guidelines on the incorporation of biological-diversity considerations into environmental impact assessment, and to report to the Conference of the Parties. In the same decision, the Executive Secretary had been requested to prepare a synthesis report based on submissions from Parties, Governments, national and international organizations, and indigenous and local communities embodying traditional lifestyles. The note by the Executive Secretary submitted under the item had been prepared pursuant to that request. The case-studies and other information submitted and on which the note was based had, however, been found insufficient to reach satisfactory conclusions about the current status of incorporation of biological-diversity considerations into environmental impact assessment procedures. Therefore, it was suggested that the Executive Secretary continue the analysis of information, on the basis of additional submissions and other relevant sources of information, in order to achieve a representative and reliable evaluation and allow the development of possible guidelines on the subject. Within the limited information, however, it was inferred that, although the environmental impact assessment process was in place and applied in many countries, it rarely incorporated biological-diversity considerations. On the other hand, it was emphasized that work on biological diversity and impact assessment was in process and was being implemented by Parties and relevant organizations. In addition, there was ground for tangible cooperation between the Convention on Biological Diversity and other international organizations and bodies with expertise in the impact-assessment field.

127. In conclusion, the Secretariat drew attention to the final section of the document, which contained options for recommendations to be considered by the Subsidiary Body on Scientific, Technical and Technological Advice at the meeting.

128. During the discussion of the item, at the 3rd meeting of the Working Group, on 23 June 1999, statements were by representatives of the following Contracting Parties and countries: Australia, Bangladesh, Burundi, Cameroon, Canada, China, Colombia, Côte d'Ivoire, Cuba, Ecuador, European Community, France, Germany, India, Japan, Jordan, Kenya, Malaysia, Mexico, Nepal, Netherlands, New Zealand, Nigeria, Norway, Peru, Suriname, Switzerland, Republic of Korea, Togo, United Kingdom of Great Britain and Northern Ireland, United States of America. The representative of the Convention on Wetlands also made a statement.

129. At its 6th meeting, on 24 June, the Working Group took up a draft recommendation submitted by the Chair under this item. The draft recommendation, orally amended by the Working Group, was approved for submission to the plenary (UNEP/CBD/SBSTTA/4/L.6).

130. At the 3rd plenary meeting of the session, on 25 June 1999, the Subsidiary Body took up draft recommendation UNEP/CBD/SBSTTA/4/L.6 and adopted it as orally amended as recommendation IV/6. The text of the recommendation as adopted is contained in annex I to the present report.

4.8. Development of approaches and practices for the sustainable use of biological resources, including tourism

131. Working Group 2 took up agenda item 4.8 at its 2nd meeting, on 22 June 1999. In considering the item, the Working Group had before it a note by the Executive Secretary on the development of approaches and practices for the sustainable use of biological resources, including tourism (UNEP/CBD/SBSTTA/4/11).

132. Introducing the item, the Secretariat recalled that, in accordance with its programme of work, the Conference of the Parties would at its fifth meeting consider "sustainable use, including tourism" as one the three theme for in-depth discussion. Accordingly, the note by the Executive Secretary had been prepared for the fourth meeting of the Subsidiary Body, in order to assist the Body in its consideration of the development of approaches and practices for sustainable use of biological resources, including tourism. At the current meeting, a focus was given to tourism as one example of sustainable use. At its fifth meeting, the Subsidiary Body would broaden the scope of its consideration of sustainable use to cover other activities relevant to the thematic areas addressed to date under the Convention process. The note itself outlined the role of tourism in the sustainable use of biological resources, identified potential impacts of tourism on biological diversity, discussed management options and strategies for addressing biological diversity through sustainable tourism, and explained the role of the Convention on Biological Diversity in the development of a framework of policy options for sustainable tourism.

133. During the discussion of the item, at the 2nd meeting of the Working Group, statements were made by representatives of the following Contracting Parties and countries: Argentina, Australia, Bolivia, Canada, Colombia, Côte d'Ivoire, Cuba, Ecuador, European Community, France, Germany, Guyana, India, Indonesia, Mexico, Netherlands, New Zealand, Norway, Peru, Portugal, South Africa, Suriname, Switzerland, Tonga, United Kingdom of Great Britain and Northern Ireland, United States of America, Zimbabwe. The representative of the International Support Group for Sustainable Tourism also made a statement.

134. At the end of the discussion of the item at its 2nd meeting, the Working Group decided that the representative of the Netherlands should chair a drafting group to prepare a draft recommendation for discussion by the Working Group at a subsequent meeting.

135. At the 5th meeting of the Working Group, on 24 June, the representative of the Netherlands introduced a draft recommendation under the item, which had been developed by the drafting group, taking into account the suggestions made during the intial discussion. Annexed to the draft recommendation was an assessment of the interlinkages between biological diversity and tourism that the drafting group had prepared on the basis of paragraphs 7-35 of the note by the Executive Secretary and in the light of the comments made during the Working Group's discussion of the document.

136. The draft recommendation, as orally amended by the Working Group, was approved for transmission to plenary, on the understanding that any further proposals that representatives wished to add to the text would be incorporated into the draft submitted to plenary and would be indicated as additions when the item was introduced.

137. Following the approval of the draft recommendation, statements were made by the representatives of the Indigenous Peoples' Biological Diversity Forum and the International Support Group for Sustainable Tourism.

138. The assessment of the interlinkages between biological diversity and tourism, annexed to the draft recommendation, was also approved for transmission to plenary, with an oral amendment agreed by the Working Group and on the understanding that the Secretariat would be entrusted with the addition of definitions of "sustainable tourism" and "ecotourism" to the first part of the annex before it was submitted to plenary.

139. On that basis, the draft recommendations were submitted to plenary as document UNEP/CBD/SBSTTA/4/L.4 and Add.1.

140. At the 3rd plenary meeting of the session, on 25 June 1999, the Subsidiary Body took up draft recommendation UNEP/CBD/SBSTTA/4/L.4 and Add.1 and adopted it, as orally amended, as recommendation IV/7. The text of the recommendation as adopted is contained in the annex I to the present report.

141. During the discussion of the draft recommendation in plenary, the representative of Norway said that his delegation could accept the recommendation on the understanding that the issue of sustainable use, including tourism, would be dealt with at the fifth meeting of the Subsidiary Body, on the basis of a much broader and balanced paper from the Secretariat, dealing with sustainable use in a much more comprehensive way and that it would be possible to revisit and revalue the current recommendations, including the annex, wherever it was necessary to do so, on the basis of the discussions at the fifth meeting of the Subsidiary Body and the recommendations arising therefrom.

AGENDA ITEM 5: DRAFT PROVISIONAL AGENDA OF THE FIFTH MEETING OF SBSTTA

142. At the 6th plenary session of the meeting, on 25 June 1999, the Subsidiary Body considered the above item of the agenda. In introducing the note prepared by the Executive Secretary on the subject (UNEP/CBD/SBSTTA/4/12), the representative of the Secretariat noted that it incorporated the advice provided by the Bureau of the Subsidiary Body and took into account relevant decisions adopted by the Conference of the Parties, particularly decision IV/16.

143. The Subsidiary Body took note of a proposal made by one representative, supported by another, that the issue of coral-reef bleaching should be included in the provisional agenda of the fifth meeting.

144. It also agreed to take into account a statement by another representative that the discussion of the issue of agricultural biological diversity at the fifth meeting should not be limited to the consideration of

a report, but would also include the development of a multi-year programme of work on the subject.

145. The Subsidiary Body approved the draft provisional agenda for its fifth meeting as contained in annex II below.

AGENDA ITEM 6: DATES AND VENUE OF THE FIFTH MEETING OF THE SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE

146. At the 6th plenary session of the meeting, on 25 June 1999, the Subsidiary Body considered agenda item 6 on the basis of the proposal contained in a note by the Executive Secretary on the dates and venue of the fifth meeting of the Subsidiary Body (UNEP/CBD/SBSTTA/4/13).

147. One representative said that the proposed dates of the fifth meeting of the Subsidiary Body coincided with those set for a meeting of the Intergovernmental Forum on Forests (IFF).

148. In response, the Executive Secretary said that the Secretariat had contacted the IFF secretariat and had been informed that the dates of the meeting of the Intergovernmental Forum had been dictated by the availability of conference facilities in New York.

149. Following the statement by the Executive Secretary, the Subsidiary Body agreed with the proposal that its fifth meeting would be held in Montreal from 31 January to 4 February 2000.

AGENDA ITEM 7: OTHER MATTERS

150. There were no other matters.

AGENDA ITEM 8: ADOPTION OF THE REPORT

151. The present report was adopted by the Subsidiary Body at the 3rd plenary session of the meeting, on 25 June 1999, on the basis of the draft report that had been circulated as document UNEP/CBD/SBSTTA/4/L.1 and Add.1 and 2.

AGENDA ITEM 9: CLOSURE OF THE MEETING

152. Following the customary exchange of courtesies, the Chair declared the fourth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice closed at 5.30 p.m. on Friday, 25 June 1999.

Annex I

RECOMMENDATIONS ADOPTED BY THE SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE AT ITS FOURTH MEETING

IV/1. Programme of work

A. Progress in the work programmes on thematic areas

The Subsidiary Body on Scientific, Technical and Technological Advice,

1. Notes with appreciation the progress made in implementing the programmes of work on marine and coastal biological diversity, agricultural biological diversity and the biological diversity of inland water ecosystems, as described in the note by the Executive Secretary (UNEP/CBD/SBSTTA/4/3);

2. Notes that limited progress has been made on the implementation of the programme of work on forest biological diversity, as contained in decision IV/7 of the Conference of the Parties, on forest biological diversity;

3. Notes that limited progress has been made in the development and implementation of indicators, as called for in decisions III/10 and IV/1 A of the Conference of the Parties;

4. Urges the Executive Secretary to promote the implementation of the programme of work on forest biological diversity in accordance with decision IV/7, and report to the Subsidiary Body on Scientific, Technical and Technological Advice at its fifth meeting on progress made, as well as actions required for its future development;

5. Notes with appreciation the contribution of the Food and Agriculture Organization of the United Nations to the thematic work programmes and welcomes the results of the Workshop on Sustaining Agricultural Biodiversity and Agro-Ecosystem Functions, held in Rome from 2 to 4 December 1998, and of the Workshop on the Conservation and Sustainable Use of Pollinators in Agriculture, with an Emphasis on Bees, held in Sao Paulo, Brazil, in October 1998;

6. Agrees that physical degradation and destruction of coral reefs also pose a significant threat to the biological diversity of these ecosystems and therefore recommends that the Conference of the Parties expand its request to the Subsidiary Body on Scientific, Technical and Technological Advice, as contained in paragraph 1 of its decision IV/5, so as to include the effects of such activities in addition to the analysis of coral bleaching and urges the Executive Secretary to make rapid progress on the issue of coral bleaching;

7. Recommends that education and public awareness, referred to in Article 13 of the Convention on Biological Diversity, be included in the discussions on the work programmes on thematic areas;

8. Recommends to the Executive Secretary that, in preparing reports of progress in programmes of work for the Subsidiary Body on Scientific, Technical and Technological Advice at its fifth meeting, special emphasis be given to identify limitations and propose measures to improve their implementation.

B. Cooperation with other bodies

The Subsidiary Body on Scientific, Technical and Technological Advice

1. Agrees that the experience of the Intergovernmental Panel on Climate Change and the United Nations Framework Convention on Climate Change and the Assessment Panels under the Montreal Protocol on Substances that Deplete the Ozone Layer provide useful lessons for the operation of the Subsidiary Body on Scientific, Technical and Technological Advice,

2. Invites the Executive Secretary, in the light of decision IV/16 of the Conference of the Parties on, inter alia, the terms of reference for the ad hoc technical expert groups and the programme of work of the Subsidiary Body, to prepare for the fifth meeting of the Conference of the Parties a detailed proposal that seeks to address the issues of peer review and scientific assessments for the Convention on Biological Diversity, drawing on the experience of the United Nations Framework Convention on Climate Change and the Montreal Protocol on Substances that Deplete the Ozone Layer;

3. Invites the Executive Secretary, within the proposal referred to in paragraph 2 of the present recommendation, to consider:

(a) How any mechanism would relate to rosters of experts, the ad hoc technical expert groups and the liaison groups;

(b) The relationship between any proposed assessment and existing assessments of relevance;

(c) Developing guidelines on the responsibilities and selection of lead authors, contributors and expert reviewers, as well as procedures for the approval of a variety of types of reports, which draw upon the contributions and experts of Parties;

(d) Using existing facilities, for example, technology centres, universities and relevant organizations and processes;

(e) Ensuring access to appropriately qualified individuals suitable for producing reports that can be used by the Subsidiary Body;

(f) Making a commitment to invest time and resources in the maintenance, continuation and advancement of the assessment;

(g) Seeking support by government authorities and institutions for personnel involved in assessment;

4. Welcomes the results of the seventh meeting of the Conference of the Parties to the Convention on Wetlands and accepts the invitation of the Conference of the Parties to that Convention to designate the Chair of the Subsidiary Body on Scientific, Technical and Technological Advice as a permanent observer on the Scientific and Technical Review Panel of the Convention on Wetlands;

5. Welcomes also the forthcoming reviews of the joint work plan by the Scientific and Technical Review Panel and the Standing Committee of the Convention on Wetlands and agrees to consider their proposals at its next meeting;

6. Acknowledges the usefulness of the notification systems used by the Convention on Wetlands and the Convention on International Trade in Endangered Species of Wild Fauna and Flora;

7. Invites the Executive Secretary to enhance communication with Parties by introducing a notification system for the Convention on Biological Diversity with respect to documents received, selection of experts for technical panels and liaison groups and the peer-review processes initiated by the Executive Secretary, and to make such information available through the clearing-house mechanism save to the extent that an expert objects to the release of information concerning him/her;

8. Recommends increased cooperation on scientific, technical and technological advice between the Convention on Biological Diversity and other relevant international conventions/agreements important for achieving the objectives of the Convention on Biological Diversity and, to that aim, also recommends that the Conference of the Parties consider the development of the modalities for more direct types of cooperation between the Subsidiary Body on Scientific, Technical and Technological Advice and parallel bodies under these conventions/agreements;

9. Invites the Executive Secretary to enhance cooperation with scientific, technical and technological organizations and to consider modalities to promote such cooperation.

C. Proposal on draft programme of work for the Subsidiary Body on Scientific, Technical and Technological Advice

The Subsidiary Body on Scientific, Technical and Technological Advice,

Recalling decision IV/16 adopted by the Conference of the Parties to the Convention on Biological Diversity at its fourth meeting,

Having considered its programme of work based on the priorities set out in annex II to decision IV/16, with a view to streamlining and focusing the agendas of its future meetings,

1. Proposes to the Conference of the Parties that it adopt the longer-term programme of work of the Subsidiary Body on Scientific, Technical and Technological Advice, as contained in the annex to the present recommendation, and recommends the preparation of a strategic plan to guide its implementation;

2. Recommends that a consideration of the interests of indigenous and local communities embodying traditional lifestyles be included in the consideration by the Subsidiary Body on Scientific, Technical and Technological Advice of each of the topics described in the programme of work contained in the annex to the present decision;

3. Decides to apply the programme provisionally for the period between its present meeting and the fifth meeting of the Conference of the Parties;

4. Notes that the inter-sessional meeting on the operations of the Convention, to be held in Montreal from 25 to 30 June 1999, will consider important institutional issues with respect to the execution of this programme of work and therefore decides to reconsider the programme at its fifth meeting, if necessary;

5. Invites the Executive Secretary to further develop a uniform methodology for the use of rosters of experts, and agrees to consider proposals in this regard at its fifth meeting;

6. Acknowledges with appreciation the case-studies submitted in response to previous decisions of the Conference of the Parties, and considers that most of these case-studies contain important information for many aspects of the work of the bodies of the Convention;

7. Invites the Executive Secretary to develop a common framework for case-studies, taking into account the information contained in the national reports submitted by Parties pursuant to Article 26 of the Convention on Biological Diversity;

8. Recommends to the Conference of the Parties that the Executive Secretary make available all case-studies, through, inter alia, the clearing-house mechanism, so that the Convention bodies can draw upon the information contained therein as appropriate;

9. Recommends to the Conference of the Parties to request the respective mechanisms under the Convention that are dealing with access to genetic resources and benefit-sharing, as well as Article 8(j) to advise the Conference of the Parties on what scientific, technical and technological aspects are important for the Subsidiary Body on Scientific, Technical and Technological Advice to deal with;

10. Recognizes the need to better consider micro-organisms and genetic diversity in the different elements of longer-term programme of work of the Subsidiary Body on Scientific, Technical and Technological Advice;

11. Recognizes the need to enhance inter-sessional and collaborative initiatives to allow the Subsidiary Body on Scientific, Technical and Technological Advice to better implement the programme of work proposed in the annex to the present recommendation;

12. Recognizes the need to start considering the development of assessments of the status and trends of biological diversity, as called for in Article 25, paragraph 2 (a), of the Convention on Biological Diversity.

Annex

PROGRAMME AREAS TO BE CONSIDERED BY THE SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE FROM THE FOURTH TO THE SEVENTH MEETINGS OF THE CONFERENCE OF THE PARTIES (1998-2004)

SBSTTA MEETING	THEMATIC AREA*	MAIN CROSS-CUTTING ISSUES	OTHER ISSUES
Fourth June 1999	**[Main]** Biological diversity of dryland, Mediterranean, arid, semi-arid, grassland and savannah ecosystems	Sustainable use, including tourism Alien species Emerging issue: consequences of new technology for the control of plant gene expression	Cooperation Global Taxonomy Initiative Biodiversity impact assessment
Fifth Jan. 2000	**[Main]** Programme of work for dryland, Mediterranean, arid, semi-arid, grassland and savannah ecosystems Assessment of activities and priorities for programme of work on agricultural biological diversity	Sustainable use of biological diversity: sectoral activities for adoption of biodiversity-friendly practices and technologies Development of indicators of biological diversity	Cooperation Ecosystem approach: further elaboration Ad hoc technical expert groups: terms of reference Guidelines for the second National Reports (including indicators and incentive measures) Analysis of coral bleaching

* Including ongoing activities on existing work programmes.

SBSTTA MEETING	THEMATIC AREA*	MAIN CROSS-CUTTING ISSUES	OTHER ISSUES
Fifth Jan. 2000 (contd)			Review of phase I of the clearing-house mechanism and advice Alien species: guiding principles for the prevention, introduction and mitigation of impacts Progress report on the programme of work on forest biological diversity Review of the Global Taxonomy Initiative
Fifth meeting of the Conference of the Parties (May 2000)			
Sixth (late 2000 or early 2001)	**[Main]** Biological diversity of forest ecosystems	Report on the integration of the issue of alien species in thematic work programmes	Cooperation Guidelines for the incorporation of biological-diversity-related issues in impact assessments Ecosystem approach and forest biological diversity
Seventh (2001)	**[Main]** Biological diversity of forest ecosystems	Guidelines to minimize or mitigate negative impacts of invasive species Programme of work on forest biological diversity, including traditional forest-related knowledge and benefit-sharing	Identification and monitoring, including indicators Linkages between in situ and ex situ conservation

SBSTTA MEETING	THEMATIC AREA*	MAIN CROSS-CUTTING ISSUES	OTHER ISSUES
Sixth meeting of the Conference of the Parties (May 2002)			
Eighth (2002)	**[Main]** Biological diversity of mountain ecosystems Review of workplan on inland water biological diversity	Protected areas Transfer of technology and technology cooperation	Cooperation Sustainable use and role of the private sector and incentive measures, with a focus on thematic areas considered in the session In situ conservation: best practices and technologies, including linkages with ex situ conservation
Ninth (early 2003)	**[Main]** Programme of work on mountain ecosystems Review of workplan on inland water biological diversity	Guidelines for technology transfer and cooperation Public education and awareness	Cooperation Ecosystem approach for mountain areas and inland water ecosystems Identification and monitoring
Seventh meeting of the Conference of the Parties (May 2004)			

IV/2. Further advancement of a Global Taxonomy Initiative

The Subsidiary Body on Scientific, Technical and Technological Advice,

Recalling decision III/10 of the Conference of the Parties, supporting a Global Taxonomy Initiative to overcome the taxonomic impediment which had been highlighted in recommendation II/2 of the Subsidiary Body on Scientific, Technical and Technological Advice,

Recalling also decision IV/1 D, in which the Conference of the Parties further reiterated its endorsement of a Global Taxonomy Initiative and provided suggestions for action contained in an annex to that decision,

Recalling also paragraph 2 of decision IV/13 of the Conference of the Parties, which provides advice to the Global Environment Facility regarding the provision of financial resources in support of that decision,

Noting that, in paragraph 3 of decision IV/1 D, the Conference of the Parties requested the Subsidiary Body on Scientific, Technical and Technological Advice to examine the suggestions for action to develop and implement a Global Taxonomy Initiative contained in the annex to decision IV/1 D, and provide advice to the Conference of the Parties on the further advancement of a Global Taxonomy Initiative,

Having examined the note by the Executive Secretary (UNEP/CBD/SBSTTA/4/6) and related documents submitted by DIVERSITAS (UNEP/CBD/SBSTTA/4/Inf.1; UNEP/CBD/SBSTTA/4/Inf.6 and UNEP/CBD/SBSTTA/4/Inf.7),

Recognizing the need for a cohesive global strategy for capacity-building in taxonomy, which requires action at national, subregional, regional and global levels,

Noting the invitation extended by the Conference of the Parties to the United Nations Environment Programme to assist in the global implementation of a Global Taxonomy Initiative, on the basis of the offer made by the Executive Director of the United Nations Environment Programme in his address to the Conference of the Parties at its fourth meeting, as reflected in paragraph 5 of decision IV/1 D,

Noting also the decision of the Organisation for Economic Cooperation and Development to support the establishment of a Global Biodiversity Information Facility which, in close collaboration with the clearing-house mechanism of the Convention and other biological-diversity information networks, will facilitate the sharing of information on biological diversity,

1. Recognizes that development and implementation of a Global Taxonomy Initiative will occur through activities which amplify and operationalize the suggestions for action contained in the annex to decision IV/1 D at the national, subregional, regional and global levels;

2. Recommends to the Conference of the Parties:

(a) That the Executive Secretary develop further a Global Taxonomy Initiative in collaboration with relevant organizations, institutions, the United Nations Environment Programme and other relevant United Nations agencies, using the clearing-house mechanism of the Convention to facilitate exchange and dissemination of information;

(b) That the Executive Secretary undertake the preliminary activities required to build the most effective and flexible framework for implementing a Global Taxonomy Initiative, including the convening of regional meetings of experts to identify priorities, opportunities and constraints, building on the experiences of existing relevant initiatives. Initial priorities should include: capacity-building (in particular training), the development of taxonomy-related products, and dissemination of and access to taxonomy information and collections;

(c) That funding institutions, including the Global Environment Facility, recognize the cross-cutting nature of taxonomy which underpins the ecosystem approach and the thematic approach taken by the Convention, and facilitate partnerships between developing and developed countries;

3. Requests the Executive Secretary to identify options for a coordination structure for a Global Taxonomy Initiative and options for global, regional, subregional and national baseline initiatives in support of the implementation of the established programmes of work of the Convention on Biological Diversity, and to report thereon to the Subsidiary Body on Scientific, Technical and Technological Advice at its fifth meeting;

4. Undertakes to integrate the development and implementation of a Global Taxonomy Initiative in the ongoing thematic and cross-cutting work programmes of the Subsidiary Body on Scientific, Technical and Technological Advice and to advise periodically the Conference of the Parties on further measures required to advance capacity-building for taxonomy.

IV/3. Assessment of the status and trends and options for conservation and sustainable use of terrestrial biological diversity: dryland, Mediterranean, arid, semi-arid, grassland, and savannah ecosystems

The Subsidiary Body on Scientific, Technical and Technological Advice,

Noting that, at its fourth meeting, the Conference of the Parties adopted decision IV/16, which in annex II on its programme of work, considers "dryland, Mediterranean, arid, semi-arid, grassland, and savannah ecosystems" as matters requiring in-depth consideration at its fifth meeting,

Welcoming the note by the Executive Secretary (UNEP/CBD/SBSTTA/4/7) and recognizing that it constitutes a useful basis for developing further work on dryland, Mediterranean, arid, semi-arid, grassland, and savannah ecosystems,

Recalling the importance of enhancing synergies between the Convention on Biological Diversity and other relevant global conventions and international organizations and processes related to biological diversity of dryland, Mediterranean, arid, semi-arid, grassland, and savannah ecosystems,

Recalling the rich biological diversity and high level of endemism and the intrinsic value of the biological diversity of dryland, Mediterranean, arid, semi-arid, grassland, and savannah ecosystems, their hosting of numerous endangered species, as well as the important role they play as centres of diversity for many genetic resources,

Recalling that the biological diversity of dryland, Mediterranean, arid, semi-arid, grassland, and savannah ecosystems provides the livelihood for many indigenous people and local communities, particularly in developing countries, and the great importance of these ecosystems for agriculture,

Recalling that the knowledge and practices of indigenous and local communities could play an important role in the conservation and sustainable management of the biological diversity of dryland, Mediterranean, arid, semi-arid, grassland, and savannah ecosystems,

Recognizing that several aspects of these ecosystems are covered neither by the current thematic work programmes of the Convention on Biological Diversity nor by other conventions or processes,

1. Recommends that the Conference of the Parties:

(a) Consider adopting a programme of work on biological diversity of dryland, Mediterranean, arid, semi-arid, grassland, and savannah ecosystems; and

(b) Consider providing guidance to the financial mechanism regarding the financing of such a programme of work;

2. Requests, therefore, the Executive Secretary:

(a) To prepare a draft programme of work on biological diversity of dryland, Mediterranean, arid, semi-arid, grassland, and savannah ecosystems, in consultation with the Secretariat of the Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa, bearing in mind the need to avoid duplication of work with other global conventions or processes, and to present it to the Subsidiary Body on Scientific, Technical and Technological Advice at its fifth meeting. This draft programme, to be based on the ecosystem approach, should take due account of the three objectives of the Convention, and be demand-driven and flexible. It should identify synergies, gaps and overlaps within the current programmes of the Convention, in particular on agriculture, forest and inland water biological diversity and should integrate consideration of such issues as:

(i) Fires, land-use management such as grazing and inappropriate land conversion, soil degradation, desertification, impact of agriculture, invasive species, water management, inclusive of all activities that have an impact on the ecosystems;

(ii) In situ conservation (including protected areas and threatened species), ex situ conservation, as well as restoration or rehabilitation of ecosystems;

(iii) Socio-economic and cultural aspects, including the needs of indigenous people and local communities, and incentives and economic valuation;

(iv) Knowledge, innovations and practices of indigenous and local communities, in accordance with Article 8(j) and other related provisions of the Convention on Biological Diversity;

(v) Capacity-building, particularly in developing countries, including for inventories, evaluations and monitoring;

(vi) Identification of the most threatened components of these ecosystems (including species);

(vii) Sustainable use of the components of these ecosystems, including wildlife utilization, bioprospecting, benefit-sharing and sustainable tourism;

(viii) Taxonomic requirements;

(ix) Education, training and public awareness; and

(x) Exchange of relevant information;

(b) To prepare a reporting framework for this work programme;

(c) To propose to the Subsidiary Body at its fifth meeting a shorter compound name for the title of this work programme that will cover all the types of ecosystems as referred to in annex II of decision IV/16 of the Conference of the Parties;

(d) To invite other relevant conventions, organizations and international programmes to support the elaboration of the programme of work on the biological diversity of dryland, Mediterranean, arid, semi-arid, grassland, and savannah ecosystems.

IV/4. Development of guiding principles for the prevention of impacts of alien species and identifying priority areas of work on isolated ecosystems and giving recommendations for further development of the Global Invasive Species Programme

The Subsidiary Body on Scientific, Technical and Technological Advice,

Noting the great importance of the effects of certain alien species on the conservation and sustainable use of biological diversity, as well as the relevance of this issue to most of the themes and other cross-cutting issues under the Convention,

Noting that the terminology surrounding the issue of impacts arising from alien species is interpreted differently by different Parties, and that additional terminology problems arise in the translation,

Noting the desirability of a three-tier hierarchical approach to the prevention, eradication and control of alien species or their impacts,

Noting the importance of continuing its work on the development of draft guiding principles for the prevention, introduction and mitigation of impacts of alien species, with the assistance of the Secretariat,

Recalling decision IV/1 C, adopted by the Conference of the Parties at its fourth meeting, in which the Conference requested the Subsidiary Body on Scientific, Technical and Technological Advice to identify the priority work pertinent to the issue of alien species in geographically and evolutionarily isolated ecosystems,

1. Requests the Executive Secretary to develop, in cooperation with the Global Invasive Species Programme, principles for the prevention, introduction and mitigation of impacts of alien species, taking into account the proposed principles presented for debate at the fourth meeting of the Subsidiary Body (UNEP/CBD/SBSTTA/4/Inf.8) and the IUCN draft Guidelines on the Prevention of Biological Diversity Loss Due to Biological Invasions, for consideration by the Subsidiary Body on Scientific, Technical and Technological Advice at its fifth meeting;

2. Requests the Executive Secretary to develop an outline for case studies on alien species that is designed to ensure a consistent format for the case studies. In doing this work, the Executive Secretary should consider the proposals from two Parties, as set out in annexes I and II to the present recommendation;

3. Requests the Executive Secretary to invite Parties, other Governments and relevant bodies to urgently submit available case-studies on alien species to the Executive Secretary, to contribute to the Secretariat's work of preparing advice for the fifth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice;

4. Recommends that the Conference of the Parties:

(a) Request the Executive Secretary to develop an inventory of initiatives and a roster of experts, and use the clearing-house mechanism to make this information available to Parties, other Governments and the international community at large;

(b) Request the Executive Secretary to formally liaise with the Global Invasive Species Programme and other relevant organizations through the establishment of memoranda of cooperation, containing, as an annex, a detailed plan for joint actions;

(c) Request the Executive Secretary to further integrate the issue of alien species in the implementation of the thematic work programmes and to report thereon to the Conference of the Parties at its sixth meeting;

(d) Invite the Global Invasive Species Programme to undertake a comprehensive review on the efficiency and efficacy of existing measures for prevention, early detection, eradication and control of alien species and their impacts, giving priority to measures pertinent to the issue of alien species in geographically and evolutionarily isolated ecosystems and to report thereon to the Subsidiary Body on Scientific, Technical and Technological Advice at its sixth meeting;

(e) Request the Global Invasive Species Programme, in developing a global strategy to deal with alien species, to ensure consistency with the provisions on alien species in Article 8(h) of the Convention and relevant provisions within other articles, including Article 14, taking into full account considerations on alien species within relevant decisions of the Conference of the Parties on, for example, the conservation and sustainable use of inland water, marine and coastal, and forest biological diversity;

(f) Invite the Global Invasive Species Programme, the Food and Agriculture Organization of the United Nations, the International Maritime Organization, the World Health Organization and other relevant organizations to assist the Parties to the Convention in:

(i) Developing a standardized terminology on alien species;

(ii) Developing criteria for assessing risks from introductions;

(iii) Assessing the positive and negative socio-economic implications of alien species for sectoral human activities (e.g. agriculture, fisheries, forestry, tourism, horticulture, aquaculture, etc.) and the role of these and other sectors, with respect to the introduction of alien species, and also the implications for indigenous people and traditional communities;

(iv) Furthering research on the impact of alien species on biological diversity;

(v) Developing means to enhance the capacity of ecosystems to resist or recover from alien-species invasions;

(vi) Developing a system for reporting new invasions of alien species and the spread of alien species into new areas;

(vii) Assessing priority for taxonomic work;

and to inform the Subsidiary Body on Scientific, Technical and Technological Advice at its sixth meeting on progress made;

(g) Invite the Global Invasive Species Programme, inter alia, to make all relevant information which it holds or acquires, including databases of alien species invasions, available through the clearing-house mechanism;

(h) Encourage Parties to develop effective education, training and public awareness measures, as well as to involve further the public, with a view to informing it about the different aspects of the issue, including the risks posed by certain alien species;

(i) Strongly encourage Parties to develop mechanisms for transboundary cooperation, regional and multilateral cooperation in order to deal with the issue, including the exchange of best practices;

(j) Urge Parties, other Governments and relevant bodies, and the Secretariat, in their work on alien species, to give priority to the implementation of the strategy of the Global Invasive Species Programme in relation to geographically and evolutionarily isolated ecosystems and to use the precautionary and ecosystem approaches as guiding framework principles.

Annex I

OUTLINE FOR CASE-STUDIES ON ALIEN SPECIES

To the extent possible, case-studies should be short, succinct summaries of experiences on alien species at the country and the regional levels. A case-study should focus on the prevention of the introduction, control or eradication of alien species that threaten ecosystems, habitats or species. If possible, case-studies should be provided in hard copy and an electronic version (by floppy disk or via electronic mail). Case-studies should follow, to the extent possible, the proposed structure outlined below.

1. Overview

- Study area
- Stakeholders involved
- Time-frame addressed
- Groups of organisms studied (e.g. plants, insects)
- Relationships with relevant articles of the Convention, decisions of the Conference of the Parties and/or the recommendations of the Subsidiary Body on Scientific, Technical and Technological Advice

2. Description of the problem

- Ecological context (status of the affected ecosystem, species diversity and genetic diversity)
- Monitoring and assessment activities conducted and methods applied
- History, origin and pathway of introductions
- Description and assessment of the impact on conservation and sustainable use of biological diversity, covering both economic and ecological aspects
- Uncertainties due to missing taxonomic knowledge

3. Current measures to address the problem

- Prevention measures
- Control and containment measures
- Eradication measures
- Legal provisions and implementation of measures, including assessment of effectiveness

4. Conclusion

- Further measures needed, including transboundary, regional and multilateral cooperation
- Replicability for other regions, ecosystems or groups of organisms
- Information compilation and dissemination needed

Annex II

OUTLINE FOR CASE-STUDIES ON ALIEN SPECIES

To the extent possible, case-studies should be short, succinct summaries of experiences on alien species at the country and the regional levels. A case-study should focus on the prevention of the introduction, control or eradication of alien species that threaten ecosystems, habitats or species. If possible, case-studies should be provided in hard copy and an electronic version (by floppy disk or via electronic mail). Case-studies should follow, to the extent possible, the proposed structure outlined below.

Case-studies should include the following sections. A summary of the information may be provided under each heading, and a more detailed paper may be attached. If the information is not available, this should be indicated in the appropriate section.

1. Location of the case-study.

2. Identification of alien species (the scientific name of species should be indicated if possible).

3. Biology of the alien species.

4. Vector of invasion (e.g. deliberate importation, contamination of imported goods, ballast water, hull fouling, spread from adjacent area. It should be noted, if there is a difference between the initial entry into the country and later spread.) It should be specified (if known) whether entry was deliberate and legal, deliberate and illegal, accidental, or natural.

5. How and when the alien species was first detected.

6. Ecosystem invaded or threatened (specify in general terms, e.g. tropical rain forest, temperate estuary, and also give detailed description if relevant).

7. Potential or actual impacts, including on biological diversity and on stakeholder interests in that biological diversity.

8. What time period between initial entry of the alien species and the development of impacts.

9. Options considered for response to the threat or impacts, and reasons for selecting the actions taken.

10. Institutions responsible for decisions and actions.

11. Details of decision-making process, including stakeholders affected, consultation processes used, etc.

12. Actions and related measures taken. First, categorize the action as prevention, early detection, eradication, localized eradication or control, or restoration of habitats or natural communities affected by alien species. Then provide details of the particular actions or measures, including the detailed methods used. Include any research, monitoring, public education and regulatory measures. Specify the time involved, including dates.

13. Costs of action and benefits achieved. Specify whether the action was fully successful, partially successful or unsuccessful. In specifying costs, include any adverse effects of the actions taken on the conservation and sustainable use of biodiversity.

14. Any lessons learned from the operation.

IV/5. Consequences of the use of the new technology for the control of plant gene expression for the conservation and sustainable use of biological diversity

The Subsidiary Body on Scientific, Technical and Technological Advice,

Noting that, based on expert opinion, products incorporating either variety-specific genetic use restriction technologies (V-GURTs) or trait-specific genetic use restriction technologies (T-GURTs), as defined in the annex to the note by the Executive Secretary on the consequences of the use of the new technology for the control of plant gene expression for the conservation and sustainable use of biological diversity (UNEP/CBD/SBSTTA/4/9/Rev.1), are not likely to be commercialized in the near future and that at this time no example of this technology has been released in either research or investigative field trials, resulting in a lack of information,

Noting that many countries already have policy or regulatory frameworks in place, or under development, to address the use of new technologies, but that many countries do not,

Acknowledging that this situation makes necessary adequate and thorough research and studies to assess, inter alia, on a case-by-case basis, the potential implications of genetic use restriction technologies and to put in place the required procedures to anticipate and prevent or mitigate any potential negative impacts,

Recognizing that genetic use restriction technologies are a form of new technologies that will be developed and it is necessary to reflect seriously on the policies associated with their emergence and to place more weight on the environmental and global implications of the development of technologies so that those technologies meet the needs of growing rural and urban populations, while satisfying long-term sustainability needs and social and ethical requirements,

Noting the need for holistic approaches that revalidate ecological principles and practices of agricultural production, reduced chemical dependence and maintained biological diversity,

Recognizing that organisms engineered by variety-specific and trait-specific genetic use restriction technologies are living modified organisms and that these two applications could have significantly different impacts on the conservation and sustainable use of biological diversity,

Recognizing that any Party or Government may, subject to any applicable national laws, choose, having regard to Article 22 of the Convention, to take legislative, administrative or policy measures as appropriate, to establish a moratorium in its country on field-testing and the commercial use of genetic use restriction technologies,

Stressing that all work in this area should be conducted in accordance with the precautionary approach, as formulated in the ninth preambular paragraph of the Convention on Biological Diversity,

Recommends that the Conference of the Parties:

At the international level

(a) Continue the work in this area under the umbrella of, and integrated into, the programme of work on agricultural biological diversity;

(b) Desiring to make the most efficient use of resources by avoiding duplication of effort and being cognizant of the work being undertaken and the expertise available in different forums, in particular, the Food and Agriculture Organization of the United Nations and its Commission on Genetic Resources for Food and Agriculture, invite the Food and Agriculture Organization of the United Nations, in close collaboration with the United Nations Educational, Scientific and Cultural Organization, the United Nations Environment Programme and other member organizations of the Ecosystem Conservation Group (ECG), and other competent organizations and research bodies, to further study the potential implications of such technologies on the conservation and sustainable use of agricultural biological diversity and the range of agricultural production systems in different countries, and identify relevant policy questions and socio-economic issues that may need to be addressed;

(c) Invite the Food and Agriculture Organization of the United Nations and its Commission on Genetic Resources for Food and Agriculture and other competent organizations to inform the Conference of the Parties at its sixth meeting of its initiatives in this area;

(d) Recognizing the need to better understand the intellectual-property-rights implications of genetic use restriction technologies, invite relevant organizations to study the impact of technologies on the protection of intellectual property in the agriculture sector, and its appropriateness for the agricultural sector, and to make assessments of the technologies concerned available through the clearing-house mechanism;

(e) Recommend that, in the current absence of reliable data on genetic use restriction technologies without which there is an inadequate basis on which to assess their potential risks, and in accordance with the precautionary approach, products incorporating such technologies should not be approved by Parties for field testing until appropriate scientific data can justify such testing, and for commercial use until appropriate, authorized and strictly controlled scientific assessments with regard to, inter alia, their ecological and socio-economic impacts and any adverse effects for biological diversity, food security and human health have been carried out in a transparent manner and the conditions for their safe and beneficial use validated. In order to enhance the capacity of all countries to address these issues, Parties should widely disseminate information on scientific assessments, including through the clearing-house mechanism, and share their expertise in this regard.

At the national level

(f) Encourage Parties and Governments to consider how to address generic concerns regarding such technologies as genetic use restriction technologies under international and national approaches to the safe and sustainable use of germplasm;

(g) Reaffirming the need of Parties and Governments for additional information, and recalling Article 8(g) of the Convention on Biological Diversity, which calls on Parties and Governments to establish or maintain procedures for regulating, managing or controlling risks associated with the use and release of living modified organisms resulting from biotechnology, invite Parties to carry out and disseminate the results through the clearing-house mechanism and submit scientific assessments on, inter alia, ecological, social and economic effects of genetic use restriction technologies taking into account such information, as available, as:

(i) The molecular biology information available;

(ii) The genetic constructs and inducers used;

(iii) Effects at the molecular level, such as site-specific effects, gene-silencing, epigenesis and recombination;

(iv) Potential positive applications of the variety-specific genetic use restriction technologies on limiting gene flow, and possible negative impacts of genetic use restriction technologies on small populations of threatened wild relatives;

and to make these assessments available through, inter alia, the clearing-house mechanism;

(h) Further encourage Parties and Governments to identify ways and means to address the potential impacts of genetic use restriction technologies on the in situ and ex situ conservation and sustainable use, including food security, of agricultural biological diversity;

(j) Urge Parties and Governments to assess whether there is a need to develop, and how to ensure the application of, effective regulations at national level which take into account, inter alia, the specific nature of variety-specific and trait-specific genetic use restriction technologies, in order to ensure the safety of human health,the environment, food security and the conservation and sustainable use of biological diversity and to make this information available through, inter alia, the clearing-house mechanism;

Secretariat

(k) Request the Executive Secretary to prepare a report, to be considered by the Subsidiary Body on Scientific, Technical and Technological Advice at a future meeting prior to the sixth meeting of the Conference of the Parties, on the status of development of genetic use restriction technologies and of relevant initiatives at international, regional and national levels on the basis of information provided by organizations, Parties and Governments;

(l) Recognizing the importance of indigenous and local communities in the conservation and sustainable use of plant genetic resources according to Article 8(j) of the Convention, and taking into account the revision of the International Undertaking on Plant Genetic Resources for Food and Agriculture, request the Executive Secretary to discuss with those organizations with relevant expertise and representatives of indigenous and local communities on the potential impacts of the application of genetic use restriction technologies on those communities and on Farmers' Rights in keeping with the revision of the aforementioned International Undertaking to keep, use, exchange and sell seed or propagating material and to prepare a report to be considered by the Conference of the Parties.

IV/6. Incorporation of biological diversity considerations into environmental impact assessment

The Subsidiary Body on Scientific, Technical and Technological Advice,

Noting that the lack of scientific data on the status and trends of biological diversity, including information regarding threatened and endangered species and their habitats, constitutes a serious limitation in carrying out complete environmental impact assessments in many countries,

Affirming the importance of considering indirect, cumulative and transboundary impacts on biological diversity and the quality of life for human beings, developing alternatives and mitigation measures,

Stressing the importance of considering the execution of strategic impact assessment and environmental impact assessment for policies, plans, programmes and projects that might have direct, indirect or cumulative significant adverse effects on biological diversity,

Stressing also the urgent need for capacity-building, including the development of local expertise in assessment methodologies, techniques and procedures, to permit, at the very least, the identification of impacts of major importance on biological diversity,

Aware that the implementation of sectoral legislation may have an impact on biological diversity,

Recommends that the Conference of the Parties:

(a) Invite Parties, Governments and other relevant organizations:

(i) To implement Article 14 of the Convention on Biological Diversity in connection with other components of the Convention and to integrate environmental impact assessment into the work programme on thematic areas, such as inland waters, marine and coastal, forest, agricultural biological diversity, dryland ecosystems, and on alien species and tourism;

(ii) To address loss of biological diversity, and the interrelated socio-economic, cultural and human health aspects relevant to biological diversity in carrying out environmental impact assessments;

(iii) To consider biological diversity concerns in the development of new legislative and regulatory frameworks from the early stages of the drafting process;

(iv) To ensure the involvement of interested and affected stakeholders in a participatory approach to all stages of the assessment process, including governmental bodies, the private sector, research and scientific institutions, indigenous and local communities and non-governmental organizations, including by the use of appropriate mechanisms, such as the setting up of committees, at the appropriate level, to this end;

(v) To organize experts meetings, workshops, seminars, as well as training, educational and public-awareness programmes and exchange programmes, in order to promote the development of local expertise in methodologies, techniques and procedures;

(b) Encourage Parties, Governments and relevant organizations to use strategic environmental assessment in order to assess impacts not only of individual projects, but also of the cumulative and global effects, incorporating biological diversity considerations at the decision-making/environmental planning level, to include the development of alternatives, mitigation measures and consideration of the elaboration of compensation measures in environmental impact assessment;

(c) Request Parties to include in their national reports practices, systems, mechanisms and experiences on the subject;

(d) Request the Subsidiary Body on Scientific, Technical and Technological Advice to further develop guidelines on the incorporation of biodiversity-related issues into legislation and/or processes on environmental impact assessment, in collaboration with the scientific community, the private sector, indigenous and local communities, non-governmental organizations and relevant organizations at the international, regional, subregional and national level, such as the Scientific and

Technical Review Panel of the Convention on Wetlands, the scientific body of the Convention on Migratory Species, DIVERSITAS, IUCN and the International Association for Impact Assessment, the United Nations Environment Programme and the Parties, and further elaborate the application of the precautionary approach and the ecosystem approach, with a view to completion by the sixth meeting of the Conference of the Parties;

(e) Request the Executive Secretary also to make accessible and increase the call for case-studies, including negative impacts and, in particular, impact assessments taking the ecosystem approach into account, to compile and evaluate existing guidelines, procedures and provisions for environmental impact assessment, and make this information available, together with information on existing guidelines on incorporating biological diversity considerations into environmental impact assessment through, inter alia, the clearing-house mechanism in order to facilitate sharing of information and exchange of experiences at regional, national and local level.

IV/7. Development of approaches and practices for the sustainable use of biological resources, including tourism

The Subsidiary Body on Scientific, Technical and Technological Advice,

Recalling decisions IV/15 and IV/16 adopted by the Conference of the Parties to the Convention on Biological Diversity at its fourth meeting,

Welcoming the outcome of the seventh session of the Commission on Sustainable Development on tourism and sustainable development,

Recalling also that the General Assembly, in its resolution 53/200 of 15 December 1998, proclaimed the year 2002 as the International Year of Ecotourism and its resolution 53/24 of 10 November 1998 proclaimed 2002 also as the International Year of Mountains,

Considering the importance of tourism, as one example of sustainable use of the components of biological diversity and that the consideration of sustainable use of biological diversity will take place at the fifth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice,

Understanding that linkages between tourism and sustainable use of biological diversity will be examined by the Executive Secretary in order to elucidate any principles, approaches or methodologies that may apply to a wider consideration of sustainable use, in the fifth meeting of SBSTTA and that in further preparing for this meeting contact will be initiated with other groups involved in sustainable use, such as the Sustainable Use Initiative,

Recommends that the Conference of the Parties:

(a) Adopt the assessment of the interlinkages between biological diversity and tourism, as contained in the annex to the present recommendation, which includes:

(i) The role of tourism in the sustainable use of biological resources, including the economic importance of tourism in the interrelationship between tourism and the environment and potential benefits for the conservation and sustainable use of biological diversity;

(ii) The potential impacts on biological diversity of tourism, including economic, social and environmental impacts;

(b) Accept the invitation to participate in the international work programme on sustainable tourism development under the CSD process with regard to biological diversity, in particular, with a view to contributing to international guidelines for activities related to sustainable tourism development in vulnerable terrestrial, marine and coastal ecosystems and habitats of major importance for biological diversity and protected areas, including fragile mountain ecosystems;

(c) Decide to transmit the assessment of the interlinkages between tourism and biological diversity to the Commission on Sustainable Development, with the recommendation to the Commission on Sustainable Development to incorporate the assessment in the international work programme on sustainable tourism development;

(d) Recommend to Parties, Governments, the tourism industry and relevant international organizations to consider this assessment as a basis for their policies, programmes and activities in the field of sustainable tourism and encourages them to pay particular attention to:

(i) The unique role of ecotourism - i.e. tourism that relies on the existence and maintenance of biological diversity and habitats - and to develop clear strategies to develop sustainable ecotourism sectors which provides viable income-generating opportunities for indigenous and local communities;

(ii) The need to develop, with all the potential stakeholders, strategies and planning, based on an ecosystem approach and aiming at the correct balance between economic, social and environmental concerns, maximizing opportunities for the conservation and sustainable use of biological diversity and the equitable sharing of benefits, recognition of traditional knowledge, and minimizing risks to biological diversity;

(iii) The need for long-term monitoring and assessment, including the development and use of indicators to measure impacts of tourism on biological diversity and consequently to improve strategies and plans for tourism activities;

(iv) Bringing to the local economies tangible benefits, such as job creation and sharing of benefits arising from the sustainable use of biological diversity for tourism purposes. In this regard, small and medium-sized enterprises can play a major role;

(v) The need to develop sustainable tourism which is essential for the conservation and management of biological diversity and to meet the expectations of all stakeholders, while encouraging responsible behaviour on the part of tourists, of people working in tourism enterprises and of the local population;

(vi) Awareness-raising, information-sharing, education and training of tourism operators and sensitization of tourists on biological diversity issues, which enhance the goal of the respect and the conservation of biological diversity and its sustainable use;

(vii) The fact that in order to ensure the sustainable use of biological diversity through tourism, there is a need to implement a flexible mix of instruments, such as integrated planning, multi-stakeholder dialogue processes, zoning in land-use planning, environmental impact assessment, including strategic environmental impact assessment, standards, industry performance-recognition programmes, ecolabelling, codes of good practices, environmental management and audit systems, economic instruments, indicators and limits for the carrying capacity of the natural areas;

(viii) The importance of the involvement and the need for participation of indigenous and local communities and their interface with other sectors in the development and management of tourism, as well as their monitoring and assessment, including of cultural and spiritual impacts; and

(ix) The importance of the understanding of the values and knowledge of use of the biological diversity by the indigenous and local communities and their opportunities for sustainable tourism and the promotion of local tourism;

(e) Endorse the work of the Subsidiary Body on Scientific, Technical and Technological Advice on tourism as an example of sustainable use of biological diversity by exchanging experiences, knowledge and best practices through the clearing-house mechanism and encourage Parties, Governments and relevant organizations to continue to submit to the Executive Secretary case-studies in this regard;

(f) In order to contribute further to the international work programme on sustainable tourism development under the Commission on Sustainable Development process with regard to biological diversity, in particular, to the review of its implementation, which will be carried out in 2002, request the Subsidiary Body on Scientific, Technical and Technological Advice, through the Executive Secretary, to transmit its findings to the Commission on Sustainable Development at its tenth session;

(g) Encourage Parties, Governments, the tourism industry and relevant organizations to undertake activities that would be supportive of the preparations for both the International Year of Ecotourism and the International Year of Mountains, as well as activities of the International Coral Reef Initiative.

Annex

ASSESSMENT OF THE INTERLINKAGES BETWEEN TOURISM AND BIOLOGICAL DIVERSITY

I. THE ROLE OF TOURISM IN THE SUSTAINABLE USE OF BIOLOGICAL RESOURCES

1. The sustainable use of the components of biological diversity is one of the three objectives of the Convention on Biological Diversity. For the purposes of the Convention, "sustainable use" means "the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations" (Article 2). This definition of sustainable use is consistent with the concept of sustainable development as elaborated in the Rio Declaration on Environment and Development and Agenda 21, whereby "sustainable development" meets the needs and aspirations of the current generations without compromising the ability to meet those of future generations. Sustainable development cannot be achieved without the sustainable use of the world's biological resources. The concept of sustainable use is grounded in Article 10 of the Convention on Biological Diversity, on sustainable use of components of biological diversity, and in Article 6, on general measures for conservation and sustainable use of biological diversity.

2. Sustainable tourism is developed and managed in a manner that is consistent with Agenda 21 and the ongoing work on this matter as promoted by the Commission on Sustainable Development. As such, sustainable tourism includes such aspects as sustainable use of resources, including biological resources, and minimizes environmental, ecological, cultural and social impacts, and maximizes benefits. For sustainable patterns of consumption and production in the tourism sector, it is essential to strengthen national policy development and enhance capacity in the areas of physical planning, impact assessment, and the use of economic and regulatory instruments, as well as in the areas of information, education and marketing. Particular attention should be paid to the degradation of biological diversity and fragile ecosystems, such as coral reefs, mountains, coastal areas and wetlands. Ecotourism is a new, growing sector of tourism, which relies on the existence and maintenance of biological diversity and habitats. While it may require less infrastructure construction and facility-building than conventional tourism, proper planning and management are important to the sustainable development of ecotourism and to prevent threats to biological diversity on which it is intrinsically dependent.

A. Economic importance of tourism

3. Tourism is one of the world's fastest growing industries and the major source of foreign exchange earnings for many developing countries. The receipts from international tourism grew at an average annual rate of 9 per cent for the ten-year period from 1988 to 1997, reaching $443 billion in 1997. Tourist arrivals worldwide increased by 5 per cent per annum on average during the same period. 1/ According to WTO, tourism receipts accounted for a little over 8 per cent of total world exports of goods and

1/ World Tourism Organization, Tourism Highlights 1997.

almost 35 per cent of the total world exports of services in 1997. The breakdown of the travel account balance shows that the industrialized countries as a whole are the net importers of such services, while the developing countries as a whole have been increasing their surplus. The surplus for the latter group of countries widened steadily from $4.6 billion in 1980 to $65.9 billion in 1996, offsetting more than two thirds of their current account deficit in 1996. The travel surplus has widened steadily in all developing regions in the past decade. Economies in transition recorded a deficit of $3.5 billion in 1995, which swung back to a surplus of $1.5 billion in 1996.

4. From the production point of view, tourism contributes around 1.5 per cent of world gross national product (GNP). 2/ Tourism is also a major source of employment, the hotel accommodation sector alone employing around 11.3 million people worldwide. 3/ Furthermore, tourism based on the natural environment is a vital and growing segment of the tourism industry, accounting for $260 billion in 1995. 4/ In a number of developing countries, tourism has already overtaken cash-crop agriculture or mineral extraction as their major source of national income. 5/

B. Tourism and environment

5. The global social, economic and environmental impacts of tourism are immense and highly complex. Given that a high percentage of tourism involves visits to naturally and culturally distinguished sites, generating large amounts of revenue, there are clearly major opportunities for investing in the maintenance and sustainable use of biological resources. At the same time, efforts must be made to minimize the adverse impacts of the tourism industry on biological diversity.

6. Historical observation indicates that self-regulation of the tourism industry for sustainable use of biological resources has only rarely been successful. This is due to a number of factors. First, as there are many individual operators, local environmental conditions may be viewed as a type of common property resource. It will not be in the interests of any individual operator to invest more than his or her competitors in maintaining the general environmental standards in the resort. Similarly, operators are very likely to "export" their adverse environmental impacts, such as refuse,

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2/ Report of the Secretary-General on tourism and sustainable development, addendum: Tourism and economic development, Commission on Sustainable Development, seventh session, January 1999 (Advance unedited copy).

3/ Ibid.

4/ Jeffrey McNeely, "Tourism and Biodiversity: a natural partnership", presented at the Symposium on Tourism and Biodiversity, Utrecht, 17 April 1997.

5/ Report of the Secretary-General on tourism and sustainable development, addendum: Tourism and economic development, Commission on Sustainable Development, seventh session, January 1999 (Advance unedited copy).

waste water and sewage, to parts of the surrounding area unlikely to be visited by tourists. This reaches its most extreme form in so-called "enclave" tourism, where tourists may remain for their entire stay in an artificially maintained environment isolated from its surroundings.

7. Second, international tourism operates in an increasingly global market in which investors and tourists have an ever-widening choice of destinations. Indeed the search for new and novel areas and experiences is one of the major engines driving the tourism life-cycle. Moreover, much of the tourism industry is controlled by financial interests located away from tourist destinations. When environmental conditions begin to deteriorate in a given location, operators are likely to shift to alternative locations rather than to invest in improving those conditions.

8. Finally, the international tourism market is fiercely competitive, much of it operating on low profit margins. Operators are therefore often extremely reluctant to absorb any additional costs associated with improving environmental conditions, and instead will often find it economically expedient to shift their area of operation rather than face such costs.

C. Potential benefits of tourism for the conservation of biological diversity and the sustainable use of its components

9. Despite the potential negative impacts, and given the fact that tourism generates a large proportion of income and that a growing percentage of tourism is nature-based, tourism does present a significant potential for realizing benefits in terms of the conservation of biological diversity and the sustainable use of its components. This section addresses the potential benefits of tourism. Among the benefits are direct revenues generated by fees and taxes incurred and voluntary payments for the use of biological resources. These revenues can be used for the maintenance of natural areas and the contribution of tourism to economic development, including linkage effects to other related sectors and job-creation.

10. Revenue creation for the maintenance of natural areas. The most direct means of exploiting tourism for the sustainable use of biological resources is through the harnessing of some proportion of tourism revenues for that end. This may be achieved either through a generalized environmental tax on tourists or particular tourism activities or by charging fees for access to biological resources, the revenue from which can then be used for their maintenance. The latter procedure generally means charging entrance fees to national parks and other protected areas, but also includes fees for activities such as fishing, hunting and diving. Voluntary payment from visitors can also assist in conservation and management of places they visit. It may include donation, membership, sponsorship, merchandise and practical tasks.

11. There are several notable, and evidently expanding, specialist tourism sectors, where participants may be willing to pay such fees. There is growing interest in tourism programmes that involve tourists in biodiversity observation and monitoring to support conservation programmes. The largest single specialist sector at present is probably bird-watching, although it is not clear whether bird-watchers as a group are in fact any more willing to pay than less-specialized tourists. In marine-based wildlife tourism, scuba-

diving represents an important specialist sector. The specialist sector which appears to show the highest willingness to pay is sport hunting, where very large licence fees can be charged under some circumstances. It must also be recognized that these fees and taxes can also be used as measures to regulate the level of access to concerned sites and biological resources. In addition, the prospect of their continued revenue generation provides a direct incentive for the maintenance of the populations or ecosystems. One potential negative aspect of specialist tourism, however, can be the relatively low level of local community involvement since relatively few local people will be involved as specialist guides or park managers.

12. The contribution of tourism to economic development. Whether tourists are paying access fees or not, they have a major economic impact on the areas that they visit. Tourist expenditures, in net terms, generate income to the host communities by, for example:

(a) Funding the development of infrastructure and services. Tourism also stimulates infrastructure investment, such as construction of buildings, roads, railroads, airports, sewage systems, water-treatment facilities and other tourism-related facilities. Existing infrastructure may also be used in a manner which benefits local communities, where the tourist is using the facility in one way, while the community uses it in another. For example, a school may gain revenue from its use as a campground or conference venue. Improved and cheap transport services might also be brought to local communities by increased tourism;

(b) Providing jobs. Tourism generates job opportunities in the sector and offers various related business opportunities derived from tourism. People involved in tourism activities may become more conscious of the value of conserving their natural areas;

(c) Providing funds for development or maintenance of sustainable practices. Increasing revenue flows in a region may also allow development of more sustainable land-use practices, by allowing, for example, farmers to use improved rotations and some level of fertilizer input, rather than relying on slash-and-burn cultivation to restore soil fertility through fallow periods;

(d) Providing alternative and supplementary ways for communities to receive revenue from biological diversity. Tourism can also provide a viable economic alternative to unsustainable production or harvesting practices or other activities deleterious to the environment, particularly in marginal areas, helping to eradicate poverty;

(e) Generating incomes. In some areas, low-input and small-scale agricultural activities that result in both an attractive environment and the maintenance of high levels of biological diversity can also offer an opportunity for tourism. Sale of products (souvenirs, crafts and arts) derived from sustainably harvested natural resources may also provide significant opportunities for income-generation and employment. Tourists who have experienced a country associated with clean and green values may be encouraged to select products from that country.

13. Sustainable tourism can make positive improvements to biological diversity conservation especially when local communities are directly involved with operators. If such local communities receive income directly from a tourist enterprise, they, in turn, increase their evaluation of the resources around them. This is followed by greater protection and conservation of those resources as they are recognized as the source of income.

14. Public education and awareness. Tourism can serve as a major educational opportunity, increasing knowledge of natural ecosystems and local communities amongst a broad range of people, in particular by tour operators and guides with specialized training in biological diversity conservation, indigenous and local communities. Such education may be reciprocal. In some parts of the world, local people have become more aware of the uniqueness of their local biological resources, for example the presence of endemic species, through the advent of tourism. Better-informed tourists are more willing to pay for the access to natural sites. Tourism can also provide incentives to maintain traditional arts and crafts and opportunities to learn about different cultures. Furthermore, tourism may, under some circumstances, encourage the maintenance or revitalization of traditional practices that are favourable to the sustainable use of biological resources and that would otherwise be in danger of being lost.

II. POTENTIAL IMPACTS ON BIOLOGICAL DIVERSITY OF TOURISM

15. In considering the role of tourism in the sustainable use of biological resources and their diversity, it is important that the potential adverse impacts of tourism are fully considered. These are roughly divided into environmental impacts and socio-economic impacts, the latter generally being those imposed on local and indigenous communities. Although such impacts on biological resources may be less easy to quantify and analyse systematically, they may be at least as important as, if not more important than, environmental impacts in the long term. Section A below addresses the potential adverse impacts on environment, while section B contains the potential socio-economic impacts.

A. Environmental impacts

16. Use of land and resources. Direct use of natural resources, both renewable and non-renewable, in the provision of tourist facilities is one of the most significant direct impacts of tourism in a given area. Such use may be one-off or may be recurring. The most important are: (i) the use of land for accommodation and other infrastructure provision, including road networks; and (ii) the use of building materials. Strong competition for the use of land between tourism and other sectors results in rising prices, which increase the pressures on, for example, agricultural land. The choice of site is also an important factor. Generally preferred "attractive landscape sites", such as sandy beaches, lakes and riversides, and mountain tops and slopes, are often transitional zones, normally characterized by species-rich ecosystems. As a result of the construction of buildings in these areas,

they are often either destroyed or severely impaired. 6/ Deforestation and intensified or unsustainable use of land also cause erosion and loss of biological diversity. Due to lack of more suitable sites for construction of buildings and other infrastructure, coastal wetlands are often drained and filled. Construction of marinas in certain sites and water-based tourist activities can also impact on ecosystems and even coastal coral reefs. In addition, building materials are often extracted in an unsustainable manner from ecosystems. Excessive use of fine sand of beaches, reef limestone and wood can cause severe erosion. 7/ Furthermore, creation of congenial conditions for tourists may often entail various forms of environmental manipulation that may have consequences for biological resources beyond the limits of acceptable change.

17. Impacts on vegetation. Direct impact on the species composition of vegetation on the ground layer can be caused by trampling and off-road driving. Off-road driving is often carried out in ecosystems perceived as a low value, such as deserts. Deserts are fragile ecosystems which can be seriously damaged by a single passage of a motor vehicle. Plant-picking and uprooting by plant collectors and casual flower-pickers can also lead to loss of individual species. Passage of tourism vehicles, particularly in high volumes along popular routes, and associated vehicle pollution also have adverse effects on vegetation, resulting in a loss of vegetation cover. Furthermore, forest fires may be caused by the careless use of campfires. The choice of sites for construction facilities can also affect vegetation patterns and species diversity. 8/

18. Impacts on wildlife. Wildlife tourism and other types of nature-oriented tourism may have a number of direct impacts on natural resources. The severity of these impacts is variable and has rarely been quantified for any specific cases. Actual or potential impacts include: (i) damage caused by tourism activities and equipment; (ii) increased risk of the spread of pathogens from humans or companion animals to wild species; (iii) increased risk of introduction of alien species; (iv) disturbance of wild species, thereby disrupting normal behaviour and conceivably affecting mortality and reproductive success; (v) alterations in habitats; and (vi) unsustainable consumption of wildlife by tourists.

19. One of the direct effects on wildlife of unregulated tourism may be the depletion of local populations of certain species caused by unregulated hunting, shooting and fishing. Uneducated divers and tour operators can cause extensive damage to coral reefs through trampling and anchoring. Tourists and tourist transportation means can increase the risk of introducing alien species. In addition, the manner and frequency of human presence can cause disturbance to the behaviour of animals, in particular, noise caused by radios, motorboat engines and motor vehicles. Even without much noise, some waterfowl can be agitated by canoes and rowing boats.

6/ Biodiversity and Tourism: Conflicts on the world's seacoasts and strategies for their solution, German Federal Agency for Nature and Conservation ed., 1997.

7/ Ibid.

8/ Ibid.

Construction activities related to tourism can cause enormous alteration to wildlife habitats and ecosystems. Furthermore, increased consumption of wildlife by tourists can affect local wildlife populations and local fisheries as well as the amount available for consumption by local people. Souvenir manufacturing using wildlife, in particular such endangered species as corals and turtle shells, can also seriously affect those populations.

20. Impacts on mountain environments. Tourism has for many years been focused on mountain areas, which provide opportunities for hiking, white-water rafting, fly fishing, para-gliding and winter sports, especially skiing and related activities. Pressures from these activities on biological resources and their diversity are enormous and include: erosion and pollution from the construction of hiking trails, bridges in high mountains, camp sites, chalets and hotels. There has been increasing awareness of and publicity on the negative effects of tourism on mountains. The Kathmandu Declaration on Mountain Activities was adopted as long ago as 1982 by the International Union of Alpine Associations, in order to address these pressures on the fragile mountain ecosystems and to call for improved practices. The Convention on the Protection of the Alps, signed in 1991, and its Protocol on Tourism are the first international legal instruments addressing the potential risks associated with mountain tourism. The case-study on the Annapurna Conservation Area project also points out the difficulty in managing increased tourism activities in the fragile mountain ecosystems.

21. Impacts on the marine and coastal environment. Tourism activities may have major impacts on the marine and coastal environment, the resources they host and the diversity of those resources. Most often, those impacts are due to inappropriate planning, irresponsible behaviour by tourists and operators and/or lack of education and awareness of the impacts by, for example, tourist resorts along the coastal zones. But sometimes decisions for tourism development are based only on the potential economic benefit, in spite of the known potential damage to the environment, as in the case of various coral reef resorts. Coastal erosion often affects many coastal infrastructures that have been built for tourism purposes. However, it is often those very infrastructures that have altered dune-replenishment processes (causing beach erosion), modified local currents by building harbour-like structures (causing, for example, the smothering of superficial corals), and led to eutrophication through inappropriate positioning of the resort sewage systems and the often absent treatment of the water discharged. In open waters, shipping for tourism purposes has sometimes been found to cause pollution due to intentional release, and to carry alien invasive species into new environments.

22. While the impact of tourism on coastal resources may already be a serious issue, the degradation of these resources may cause the impoverishment of their diversity, as in the case of mangrove ecosystems adjacent to tourist resorts. This may have significant ecological and economic implications for and displacement of local populations.

23. Impacts on water resources. Freshwater, in general, is already facing growing demand from agriculture, industry and households in many parts of the world. In some locations, such as in many small island developing States, additional demand from tourism, which is extremely water-intensive, is an

acute problem. 9/ The extraction of groundwater by some tourism activities can cause desiccation, resulting in loss of biological diversity. For the quality of water, some activities are potentially more damaging than others. For example, use of motorboats can lead to beach and shoreline erosion, dissemination of aquatic weed nuisances, chemical contamination, and turbulence and turbidity in shallow waters. 10/ The disposal of untreated effluents into surrounding rivers and seas can cause eutrophication. It can also introduce a large amount of pathogens into the water body, making it dangerous for swimming. Naturally nutrient-rich ecosystems, such as mangroves, can perform buffer and filtering functions to a certain extent. 11/

24. Waste management. Disposal of waste produced by the tourism industry may cause major environmental problems. Such waste can generally be divided into: sewage and waste-water; chemical wastes, toxic substances and pollutants; and solid waste (garbage or rubbish). The effect of direct discharge of untreated sewage leading to eutrophication, oxygen deficit and algal blooms has already been pointed out.

25. Environmental impact of travel. Travel to and from international tourist destinations causes significant environmental impacts through pollution and production of "greenhouse" gases. A high proportion of international tourist travel is by air. Such travel is believed to be the most environmentally costly per passenger-kilometre, although the true costs are difficult to assess accurately, as are the impacts on biological resources and their diversity.

B. Socio-economic and cultural impacts of tourism

26. Influx of people and related social degradation. Increased tourism activities can cause an influx of people seeking employment or entrepreneurial opportunities, but who may not be able to find suitable employment. This may cause social degradation, such as local prostitution, drug abuse and so forth. 12/ In addition, due to the unstable nature of international tourism, communities that come to rely heavily on tourism in economic terms are vulnerable to the changes in the flow of tourist arrivals and may face sudden loss of income and jobs in times of downturn.

9/ Report of the Secretary-General on sustainable tourism development in small island developing States (E/CN.17/1996/20/Add.3), submitted to the Commission on Sustainable Development at its fourth session, held in 1996,

10/ Tourism, ecotourism, and protected areas, Hector Ceballos-Lascurain, IUCN, 1996.

11/ Biodiversity and Tourism: Conflicts on the world's seacoasts and strategies for their solution, German Federal Agency for Nature and Conservation ed., 1997.

12/ For further elaboration, see the addendum to the report of the Secretary-General on tourism and sustainable development entitled "Tourism and social development", submitted to the Commission on Sustainable Development at its seventh session, held in 1999.

27. Impacts on local communities. When tourism development occurs, economic benefits are usually unequally distributed amongst members of local communities. There is evidence suggesting that those who benefit are often limited in number and that those who benefit most are often those who were at an economic advantage to begin with, particularly landowners who can afford the investment. Specialist tourism can also involve a relatively small segment of a local community, possibly removing contact of the larger community with the resources in question. In the case of foreign direct investment, much of the profit may be transferred back to the home country. Therefore, tourism can actually increase inequalities in communities, and thus relative poverty. In addition, tourism increases local demand for goods and services, including food, resulting in higher prices and potentially decreased availability for local people. Such trends are often more prevalent where there is a lack of consultation with the peoples and communities involved in tourism.

28. A more direct example of where tourism may conflict directly with the needs and aspirations of local peoples is where the latter are excluded from particular areas given over to tourism, or at least have their rights of access severely curtailed. This is most likely to occur in protected areas created to conserve wildlife. In most cases, however, the designation of such areas as protected, and the exclusion of local people from them, have preceded the development of tourism in such areas, rather than having been a product of it. On the other hand, as in the case of the Maldives, direct conflict can be avoided by isolating the tourism industry from the bulk of the indigenous population. This isolation has been possible in the Maldives because of the availability of a large number of uninhabited islands that can be developed into tourist-resort islands. 13/

29. Impacts on cultural values. Tourism has a highly complex impact on cultural values. Tourism activities may lead to inter-generational conflicts through changing aspirations of younger members of communities who may have more contact with, and are more likely to be affected by, the behaviour of tourists. Furthermore, they may affect gender relationships through, for example, offering different employment opportunities to men and women. Traditional practices and events may also be influenced by the tourist preferences. This may lead to erosion of traditional practices, including cultural erosion and disruption of traditional lifestyles. Additionally, tourism development can lead to the loss of access by indigenous and local communities to their land and resources as well as sacred sites, which are integral to the maintenance of traditional knowledge systems and traditional lifestyles.

13/ Tourism and the Environment Case Studies on Goa, India, and the Maldives, Kalidas Sawkar, Ligia Noronha, Antonio Mascarenhas, O.S. Chauhan, and Simad Saeed, Economic Development Institute of the World Bank, 1998.

Annex II

PROVISIONAL AGENDA OF THE FIFTH MEETING OF THE SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE

1. Opening of the meeting.

2. Organizational matters:

   2.1 Election of officers;

   2.2 Adoption of the agenda;

   2.3 Organization of work.

3. Reports:

   3.1 Cooperation with other bodies;

   3.2 Independent review of the pilot phase of the clearing-house mechanism;

   3.3 Review of the Global Taxonomy Initiative;

   3.4 Alien species: guiding principles for the prevention, introduction and mitigation of impacts;

   3.5 Specific issues in ongoing work programmes on thematic areas:

      3.5.1 Inland waters biological diversity: ways and means to implement the work programme;

      3.5.2 Marine and coastal biological diversity: consideration of implementation tools for the programme of work, and analysis of coral bleaching;

      3.5.3 Forest biological diversity: status and trends and identification of options for conservation and sustainable use.

4. Priority issues:

   4.1 Thematic areas:

      4.1.1 Programme of work for dryland, Mediterranean, arid, semi-arid, grassland and savannah biological diversity;

      4.1.2 Agricultural biological diversity: assessment of ongoing activities and priorities for a programme of work;

4.2 Cross-cutting issues:

4.2.1 Ecosystem approach: further conceptual elaboration;

4.2.2 Development of indicators of biological diversity;

4.2.3 Sustainable use of the components of biological diversity: identification of sectoral activities that could adopt biodiversity-friendly practices and technologies;

4.3 Mechanism for implementation:

4.3.1 Establishment of guidelines for the second national reports, including indicators and incentive measures;

4.3.2 Ad hoc technical expert groups: terms of reference, and rosters of experts and proposal on a uniform methodology for their use.

5. Draft provisional agenda for the sixth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice.

6. Dates and venue of the sixth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice.

7. Other matters.

8. Adoption of the report.

9. Closure of the meeting.
