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STATUS AND TRENDS OF THE BIOLOGICAL DIVERSITY OF INLAND WATER ECOSYSTEMS AND OPTIONS FOR CONSERVATION AND SUSTAINABLE USE

Note by the Executive Secretary

I. INTRODUCTION

1. In its decision III/13, the Conference of the Parties to the Convention on Biological Diversity requested the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) to provide the fourth meeting of the Conference of the Parties with scientific, technical and technological advice on the status and trends of the biological diversity of inland water ecosystems and the identification of options for conservation and sustainable use. For the third meeting of the SBSTTA, the Executive Secretary prepared a note (UNEP/CBD/SBSTTA/3/2) containing an assessment of the status and trends, as well as options for action.

2. In addition, in decision III/10, the Conference of the Parties instructed the SBSTTA to provide scientific advice and further guidance to the fourth meeting of the Conference of the Parties to assist in the national elaboration of Annex I of the Convention, using as guidance the elaboration of the terms as set out in paragraphs 12-29 of document UNEP/CBD/COP/3/12. In accordance with decision III/2, and in order to adopt a thematic approach to its work, the SBSTTA considered this matter by focusing on the biological diversity of inland water ecosystems. The note prepared by the Executive Secretary to assist the SBSTTA is contained in document UNEP/CBD/SBSTTA/3/7.

3. Furthermore, in decision III/10, the Conference of the Parties instructed the SBSTTA to further review methodologies for assessment of

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biological diversity, through its thematic work on ecosystems, and to advise the fourth meeting of the Conference of the Parties on their application. A note by the Executive Secretary, contained in document UNEP/CBD/SBSTTA/3/8, was prepared for this purpose.

4. At its third meeting, the SBSTTA considered these issues together and adopted its recommendation III/1, which contains advice on all three aspects of the biological diversity of inland water ecosystems, and on the urgent need for actions on taxonomy.

5. Recommendation III/1 of the SBSTTA is contained in Annex 1 of document UNEP/CBD/COP/4/2 (the report of the third meeting of the SBSTTA), which will be considered under item 4 of the agenda of the fourth meeting. In order to assist the consideration of the recommendation to the SBSTTA by the Conference of the Parties, some of the main points of the background documents considered by the SBSTTA are presented below.

II. STATUS AND TRENDS OF BIOLOGICAL DIVERSITY OF INLAND WATER ECOSYSTEMS

6. The note by the Executive Secretary (UNEP/CBD/SBSTTA/3/2) was prepared in order to assist the SBSTTA in its consideration of the status and trends of biological diversity of inland water ecosystems in accordance with decision III/13. With regard to the status and trends of biological diversity of inland water ecosystems, the document describes the main characteristics and functions of such ecosystems, human interventions and the resulting threats to biological diversity. The document emphasizes the importance of the biological diversity of inland waters for the three objectives of the Convention. To assist the SBSTTA in identifying options for conservation and sustainable use, the document further elaborates several key aspects. Concerning scientific, technical and technological advice, the importance of further work on identification and monitoring of the status of inland water biological diversity is highlighted. Concerning the means of implementation, consideration was given to impact assessment, access to and transfer of technology, institutional arrangements, capacity-building, and financial resources and mechanisms.

7. The key elements on the status and trends of the biological diversity of inland waters put forward in the document are as follows. The biological diversity of inland waters relies on ecosystems and habitats containing high diversity and large numbers of endemic and threatened species, which are unique or associated with key ecological processes. In addition, inland water ecosystems perform valuable ecological functions, and inland water species, genomes and genes are of social, scientific and economic importance. In addition to the direct benefits (food, income and livelihoods) that are derived from the biological diversity of inland waters, human societies also enjoy many other economic, social and cultural benefits from inland water ecosystems, such as water supply, energy production, transport, recreation and tourism. The essential ecological functions performed by inland water ecosystems include, inter alia, maintenance of the hydrological balance, retention of sediments and nutrients, and provision of habitats for various animals, including migratory birds and mammals. Other ecosystem functions are the breakdown of anthropogenic pollutants and the sequestering of excess nutrients.

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8. Human changes to the landscape are extensive and accelerating, and they have significant consequences for inland water ecosystems. The construction of dams, navigation channels, the drainage of wetlands, flood control and irrigation systems are the most obvious signs of human intervention in the aquatic environment. Land-use activities in the catchment area, including agriculture, deforestation, mining, grazing, and industrial and urban development, all contribute to the degradation of rivers and lakes and other water bodies through water withdrawals and/or additions of nutrients, pollutants and sediments. Other human interventions, such as the intentional or accidental introduction of alien species, can also cause severe damage to inland water ecosystems. Most importantly, their impact may be individually cumulative over time, and some effects may be synergistic. In accordance with Article 1 of the Convention, the biological diversity of inland waters should therefore be maintained through in situ and ex situ conservation, through the sustainable use of its components and through the fair and equitable sharing of the benefits arising out of the utilization of its genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and technologies, and with appropriate funding.

9. In preparing the document, the Secretariat worked closely with the Bureau of the Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Convention on Wetlands), in accordance with decision III/21, and received inputs and comments on the draft text. The Secretariat further benefited from comments received from various sources, including Governments, academic institutions and the private sector. The major organizations that contributed to the process include, the Food and Agriculture Organization of the United Nations (FAO), the International Bank for Reconstruction and Development (the World Bank), Wetlands International, and the International Centre for Living Aquatic Resources Management (ICLARM). The draft document was also sent to the Task Manager for Chapter 18 of Agenda 21 (Protection of the quality and supply of freshwater resources: Application of integrated approaches to the development, management and use of water resources).

10. In addition to the note by the Executive Secretary (UNEP/CBD/SBSTTA/3/2), the SBSTTA also had before it four relevant information documents: Organizations working on inland waters, prepared by the Secretariat (UNEP/CBD/SBSTTA/3/Inf.4); a submission by the Government of Norway, Report of the Workshop on Freshwater Biodiversity (UNEP/CBD/SBSTTA/3/Inf.18); a submission by the Convention on Wetlands, Report of Biodiversity of Inland Waters Workshop (UNEP/CBD/SBSTTA/3/Inf.26); and a submission by the Government of Germany, 1997 Annual Report of the German Advisory Council on Global Change (UNEP/CBD/SBSTTA/3/Inf.28).

11. The Report of the Workshop on Freshwater Biodiversity describes the outcome of an international workshop organized in June 1997 by the Norwegian Institute for Nature Research (NINR), in collaboration with the Directorate for Nature Management (Norway) and the National Environmental Protection Agency (Sweden). Scientists, policymakers and management officers from 16 countries participated in the workshop, which focused on four categories of

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major threats and challenges facing the management of freshwater biological diversity: introduction of alien species; sustainable exploitation of bio-resources in freshwater; technical encroachment on freshwater habitats; and chemical pollution.

12. In order to assist consideration of this issue by the SBSTTA, the Bureau of the Convention on Wetlands, together with the Commission on Ecosystem Management of the World Conservation Union and Wetlands International, organized the "Biodiversity of Inland Waters" workshop, held in Wageningen, Netherlands, from 10 to 12 July 1997. The workshop considered the note of the Executive Secretary (UNEP/CBD/SBSTTA/3/2) and produced a recommendation containing elements for a potential work programme, (contained in the report of the workshop which was made available to the SBSTTA as noted above). The conclusions of the workshop also formed the basis of the session on the biodiversity of inland waters of the eighth Global Biodiversity Forum (GBF), held in Montreal, Canada, from 29-31 August 1997. The outcome of the session was reported to the SBSTTA and subsequently included in the report of the "Biodiversity of Inland Waters" workshop.

13. The information document submitted by the Government of Germany (UNEP/CBD/SBSTTA/3/INF.28) contains the executive summary of the 1997 Annual Report of the German Advisory Council on Global Change, which focuses on the sustainable management of freshwater resources. The recommendations of the Council are twofold: first, to set priorities in order to address social, environmental and economic objectives; and second, to formulate a global strategy for the future management of water resources.

14. The Secretariat also collaborated with the Biodiversity Action Network in the publication of the third issue of Biodiversity Bulletin (August 1997), which focused on inland waters. The Bulletin dealt with a variety of issues related to the biological diversity of inland waters. Having been published just in time for the eighth session of the GBF and the third meeting of the SBSTTA, the Bulletin was widely available at both meetings.

15. During the third meeting of the SBSTTA, a panel discussion entitled "Biological Diversity in Inland Water Ecosystems: Initiative to strengthen the CBD process" was organized by the Secretariat. The session was chaired by Professor Per Wramner, from the delegation of Sweden. Dr. Odd Terje Sandlund of the delegation of Norway presented the results of the international workshop on Freshwater Biodiversity held in Norway (see paragraph 11, above). The Panel members included Ms. Janet Abramovitz (WorldWatch institute), Dr. Gunilla Bjorklund (Stockholm Environment Institute), Dr. Tom Brydges (Environment Canada), Professor Edward Maltby (Royal Holloway Institute for Environmental Research), Dr. Faizal Parish (Wetlands International-Asia Pacific), Mr. Colin Rees (World Bank), Dr. Michel Smart (the Bureau of the Convention on Wetlands), and Mr. Terry Williams (Tulalip Tribe). Views from a wide range of expertise were heard during the Panel discussion. The two key aspects stressed by the Panel were: an ecosystem-based approach; and the need to pay attention to local people and their interests.

16. The General Assembly, at its special session to review implementation of Agenda 21, called for a dialogue under the aegis of the Commission on Sustainable Development (CSD), beginning at its sixth session, aimed at

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building a consensus on the necessary actions and, in particular, on the means of implementation and on tangible results, in order to consider initiating a strategic approach for the implementation of all aspects of the sustainable use of freshwater for social and economic purposes.¹ It noted the urgent need to assign high priority to integrated watershed management, and listed biodiversity and the preservation of aquatic ecosystems and wetlands, among others, as issues to be included. It also noted the urgent need to recognize water as a social and economic good with a vital role in the satisfaction of basic human needs, food security, poverty alleviation and the protection of ecosystems.

17. Subsequently, the Economic and Social Council, during the coordination segment of its 1997 session, requested the ACC Subcommittee on Water Resources to analyse in detail the activities currently being carried out by the organizations of the United Nations system and the interrelationship between them, and to prepare a report, by the end of 1997, as a useful input to the preparatory process leading up to the sixth session of the CSD. Accordingly, the ACC Subcommittee on Water Resources was charged with preparing two reports for the sixth session of the CSD: Report of the Secretary-General on activities of the organizations of the United Nations system in the field of water resources; and Report of the Secretary-General on strategic approaches to freshwater management. The Secretariat attended the eighteenth session of the ACC Subcommittee on Water Resources, held in Vienna from 1-3 October 1997, which considered the preparation process for the sixth session of the CSD. Substantive inputs were made by the Secretariat in the preparation of these two reports.

III. IDENTIFICATION AND MONITORING OF COMPONENTS OF BIOLOGICAL DIVERSITY OF INLAND WATER ECOSYSTEMS

18. Document UNEP/CBD/SBSTTA/3/7 was prepared in accordance with decision III/10, which endorsed recommendation II/1 of the SBSTTA concerning indicators, monitoring and assessment of biological diversity, and instructed the Executive Secretary to undertake further work in consultation with a liaison or expert group for consideration by the SBSTTA at its third meeting. Accordingly, the Executive Secretary prepared the document with the assistance of a liaison group.

19. Document UNEP/CBD/SBSTTA/3/7 contains a term-by-term elaboration of the terms in Annex I of the Convention. Particular attention is drawn to the Ramsar Criteria for Identifying Wetlands of International Importance. These are considered particularly relevant, as the Conference of the Parties, in its decision III/21, invited the Convention on Wetlands to cooperate as a lead partner in the implementation of activities under the Convention related to wetlands, and also to explore the possibility of recommending procedures for harmonizing, to the extent desirable and practicable, the reporting requirements of Parties under the Convention on Wetlands and other relevant instruments and conventions. The key elements of the document are given below.

¹ Programme for the further implementation of Agenda 21: adopted by the General Assembly at its nineteenth special session (23 - 28 June 1997), Annex to Overall review and appraisal of the implementation of Agenda 21 (A/S-19/20), paragraph 35.

A. Inland water ecosystems and habitats

20. Containing high diversity. As with terrestrial ecosystems, the species diversity of inland water ecosystems in general increases strongly towards the equator, although there are some local exceptions and some taxa which may not follow this rule. Taken together with other general rules that were presented, it was stated that those general rules can be used to identify areas of high diversity, at least on a coarse scale. A more detailed picture can emerge using the assessment techniques for freshwater ecosystems outlined in document UNEP/CBD/SBSTTA/3/8. It should be remembered that the identification of areas of high diversity does not necessarily require the identification of all component species.

21. With a large number of endemic species. Major river systems are not only relatively large in extent, but as entities they also tend to be geologically old, even though the actual courses that individual waterways follow within these systems are constantly changing. Such systems usually have high rates of endemism.

22. The great majority of lakes are geologically very young and tend to have fairly low rates of endemism; this is particularly the case for the large number found at higher latitudes, where diversity in general is low. Only about 10 existing lakes are known to be much older than 10,000 years, and most of these occupy basins formed by large scale subsidence of the Earth's crust. These typically have very high rates of endemism.

23. There are, however, important exceptions to these generalizations, notably amongst tropical lakes, where rates of endemism, particularly amongst fishes, may be high or extremely high, despite the relative youth of the ecosystem. The guidelines to the Ramsar Criteria for Identifying Wetlands of International Importance suggest that a figure of 10 per cent endemism of the ichthyofauna should qualify a wetland or series of wetlands as being of international importance. The guidelines also note that, in areas with no endemic fish species, the endemism of genetically-distinct infraspecific categories, such as geographical races, should be used.

24. With large numbers of threatened species. Globally speaking, there has been less comprehensive coverage of the status of aquatic species than of terrestrial species, which is required for the identification of threatened species. However, when an assessment has been carried out, it has been widely found that a high proportion are threatened. Indeed, overall, inland water species appear to be among the most threatened of all groups. This accords with the observation that inland water ecosystems are some of the most extensively modified of all ecosystems.

25. Containing wilderness. In most cases, inland water ecosystems may perhaps best be considered in terms of the extent to which they occur within wilderness areas, rather than contain wilderness. Indeed, navigable rivers are often regarded as actual or potential avenues for human influence, and therefore by definition cannot usually be regarded as wilderness.

26. Required by migratory species. Many inland water ecosystems and habitats are of great importance for migratory species. There are two major groups of these, with largely complementary habitat requirements. The first is migratory waterfowl, mostly in the orders Anseriformes (the ducks, geese

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and screamers) and Ciconiformes. The Ramsar Criteria for Identifying Wetlands of International Importance suggest that a wetland should be so regarded if it regularly supports 20,000 waterfowl.

27. The second group consists of fishes which spend part of their life-cycle in freshwater and part in the marine environment. Those which ascend rivers to breed, generally having spent some years growing to maturity in sea-waters, are termed anadromous; those which descend to the sea to breed after spending several years in freshwaters are termed catadromous.

28. Of social, economic, cultural or scientific importance. Many inland water ecosystems have long been, and continue to be, of immense importance to mankind. Uses of such ecosystems are described in some detail in document UNEP/CBD/SBSTTA/3/2. However, this importance has often been deleterious for the ecosystems involved. Socio-economically, river systems and some lakes are generally regarded as being of major importance: for transportation, disposal of effluents, generation of power, provision of water for a range of uses, as a source of food, and as areas for recreation. In contrast, shallow-water inland ecosystems ("wetlands" in the narrower sense) have traditionally been perceived as of little value. In both cases, however, the effects of mankind's use have generally been deleterious to biological diversity, as the value of the latter within these ecosystems has been largely neglected.

29. A recent attempt to ascribe a global value to ecosystems (Costanza et al., 1997, Nature 387: 253-260) estimated mean values per hectare of major ecosystem types, taking as many of these factors as possible into account. Taken together, inland water ecosystems were estimated to contribute more to total global flow value (US\$ 6579 x 10⁹ per year) than all other non-marine ecosystems combined (US\$ 5740 x 10⁹ per year), despite their far lesser extent. This indicates that there may be a strong argument for considering all extant inland water ecosystems to be of social, economic or cultural significance.

30. Representativeness. Inland water ecosystems may be chosen as representative on the basis of a range of different criteria, of which the two most important are biogeographic and ecological. In the first instance, ecosystems may be chosen which contain representative fauna and flora of a given biogeographic region. In the second, they may be chosen because they represent a particular type of inland water system (deep tectonic oligotrophic lake, vernal pool, inland estuary). There are a number of ways of classifying inland water systems by type, rather than by biogeographic region. For example, nutrient status of trophic state has proven extremely valuable in classifying and assessing lakes.

31. Uniqueness. In terms of importance for biological diversity, it may well be that uniqueness is best defined in terms of the possession of outstanding attributes in the other categories here outlined, such as high species diversity or a large number of threatened species. The presence of endemic species makes ecosystems de facto unique.

32. Association with key evolutionary processes. As noted in document UNEP/CBD/COP/3/12, too little is currently known of the mechanics of evolution to be able to make this criterion easily operational. However, it

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is noteworthy that studies of tropical freshwater ecosystems, especially Lake Victoria, have indicated that these may well be sites of exceptional evolutionary activity.

33. Association with other biological processes. As noted in document UNEP/CBD/SBSTTA/3/2, inland waters play a key role in many ecological processes, perhaps most importantly in mediating the water cycle.

B. Species and communities

34. Threatened. As noted in document UNEP/CBD/COP/3/12, the term community is undefined, but may be taken to mean assemblages of species that commonly occur together. In general, methodologies for identifying threatened species in inland waters are similar to those for other groups, although where fairly detailed assessments have been carried out, it has generally been found that a higher proportion of freshwater species are threatened than is the case with terrestrial or marine species.

35. Wild relatives of domesticated or cultivated species. The major inland water animals which have been domesticated are ducks and geese (family Anatidae). An increasing range of fish species is subject to inland aquaculture, the most important of which are a range of cyprinids, especially the common carp Cyprinus carpio, as well as catfish, eels, salmonids, sturgeons and whitefish. It is a moot point whether these may truly be considered domesticated at present, as many are generally very similar to wild genotypes.

36. The major cultivated inland water plant is rice, of which principally two forms are cultivated: Asian Rice Oryza sativa and African Rice O. glaberrima.

Other cultivated inland water plants are globally of far lesser importance, but may locally be highly significant. Most important are some forms of edible aroid, notably some cultivars of Colocasia (taro) and the giant swamp taro Cyrtosperma chamissonis which grow in flooded conditions and are important food crops in the Caribbean and Pacific islands and in West Africa. Conservation and collection of wild forms of these is considered a high priority. Sago palms Metroxylon spp. in South-east Asia and the Pacific and watercress Rorippa nasturtium-aquaticum in Europe are other examples of cultivated aquatic plants whose wild relatives merit conservation.

37. Of medicinal, agricultural or other economic value. Amongst animals, the most important species of economic value are undoubtedly finfishes. Inland water fisheries are discussed at greater length in documents UNEP/CBD/SBSTTA/3/2 and UNEP/CBD/SBSTTA/3/8. In many parts of the world fishing, as well as providing food, is also of high recreational value. Locally, notably in the Amazon Basin and in parts of South-east Asia, capture for the ornamental fish trade may be an important source of income and of potential impact on wild populations. It is becoming increasingly difficult to distinguish between truly wild fish stocks and those which are artificially managed or enhanced in some way.

38. Other exploited animal groups in inland waters are far less important globally than finfishes, but may still be highly significant. These include: freshwater crustaceans, notably crayfishes and freshwater shrimps, both

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exploited for food; freshwater bivalve molluscs, taken for pearls and for food; frogs (chiefly family Ranidae), exploited for food; crocodilians, hunted mainly for leather; freshwater chelonians, taken for food and to a lesser extent for medicinal purposes, particularly in eastern Asia; waterfowl which are hunted for recreation and for food; fur-bearing mammals, such as beavers Castor spp., otters (subfamily Lutrinae) and muskrats (Ondatra zibethicus and Neofiber alleni), taken for their skins; manatees (family Trichechidae), mostly for food, although also used non-consumptively on a small scale for biological control of weeds.

39. Of social, scientific or cultural importance. As noted above, many exploited freshwater species are hunted for recreational purposes, as well as to provide goods such as food or clothing. In this sense, they are of social and cultural, as well as economic importance. These aspects are elaborated in document UNEP/CBD/SBSTTA/3/2.

40. Of importance for research into the conservation and sustainable use of biological diversity, such as indicator species. Most of the species and communities which may be included under the other categories above may also be included here. In addition, a number of freshwater species are widely held to be good indicators of water quality, of importance not merely for biological diversity but also for human use (see for example: Chapman, D. (ed), 1992, Water Quality Assessments, Chapman and Hall, on behalf of the United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Health Organization (WHO) and UNEP).

C. Described genomes and genes of social, scientific and economic importance

41. As described in document UNEP/CBD/COP/3/12, the identification of particular genes and genomes of social, scientific and economic importance is difficult. Nevertheless, it is clear that particular genetically differentiated populations of some inland water species may be of importance. Examples include different seasonal "runs" or spawning stocks of anadromous fishes. Many species of salmonid, for example, have different spring and autumn stocks inhabiting the same river.

IV. METHODOLOGY FOR THE ASSESSMENT OF BIOLOGICAL DIVERSITY OF INLAND WATER ECOSYSTEMS

42. As with the case of identification and monitoring of components of biological diversity of inland water ecosystems, document UNEP/CBD/SBSTTA/3/8 was prepared in accordance with decision III/10 and in consultation with a liaison group. The document outlines major differences between inland water ecosystems and terrestrial ecosystems, identifies some of the most important components of the biological diversity of inland waters and discusses principles and problems in their monitoring and assessment. A summary of the document is given below.

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A. Major differences between inland water ecosystems and terrestrial ecosystems

43. The major differences are:

(a) True aquatic ecosystems, either inland water or marine, are generally buffered from direct human observation; therefore, monitoring techniques have to depend heavily on various forms of indirect observation, using remote sampling, such as nets, traps and other collecting devices, or remote-sensing such as sonar.

(b) In overall extent, inland water ecosystems are far smaller than either terrestrial or marine ecosystems. They might thus be regarded as generally less problematic to monitor and assess. They are, however, highly variable in physical and chemical characteristics, certainly more so than the marine environment.

(c) The vast majority of inland water ecosystems have been modified by human activities. This modification is often heavy and is almost certainly greater overall than modification to terrestrial or marine ecosystems.

(d) Many inland water ecosystems, notably rivers and large lakes, are transboundary in nature.

B. The principal components of freshwater biological diversity

44. Aquatic organisms may be classified in a number of different ways. For the purposes of assessment, the two most important approaches are by systematics (that is, by taxonomic group) and by ecological zonation, the latter being chiefly a reflection of the size of the organism and the position it occupies within the freshwater ecosystem. These two approaches should be regarded as complementary.

C. Identification and monitoring techniques

45. Some of the methodologies and attendant problems in the identification and monitoring of the major groups of aquatic organisms are outlined in document UNEP/CBD/SBSTTA/3/8. They include: aquatic plants; aquatic invertebrates; fishes; amphibians; crocodilians; chelonians; aquatic mammals; and waterbirds. In addition, monitoring of wetlands is described.

D. Assessment of inland aquatic ecosystems

46. Overall assessments should be made of the changing extent and quality of ecosystems. Because it is not possible to monitor and assess all components of biological diversity, it is clearly necessary to adopt other approaches. Three important techniques are the use of remote-sensing, of indicators and of expert assessments. In some parts of the world, use of dispersed teams of non-professionals can greatly increase the amount of non-technical monitoring that can be carried out. In many cases, a high priority is likely to be the assessment of those components of biological diversity which are consumptively used.

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E. Assessment of fisheries

47. Fishery is singled out as the most important sector interacting with the biological diversity of inland water ecosystems. Some problems associated with assessment of freshwater fishery resources are outlined. Accurate assessment of inland fishery resources is highly problematic. The reported inland capture production is certainly an underestimate, because much of the catch is made far from recognised landing places where catches are monitored, and is consumed directly by fishers or marketed locally without being reported.

48. It is also difficult to rigorously assess the condition of inland fish stocks because they appear able to respond rapidly to changing environmental conditions. However, there is a consensus that, regionally, most stocks are fully exploited and in some cases over-exploited.

49. There is, moreover, increasing realization that inland fisheries, like marine fisheries, cannot be effectively assessed or managed in the long term by using traditional single-species stock assessments, but rather require integrated approaches. These should include not only multi-stock assessments, but should also take into account factors other than harvest, which may impinge on the state of the species concerned.

V. RECOMMENDATION

50. Recommendation III/1 of the third meeting of the SBSTTA (contained in document UNEP/CBD/COP/4/2), constitutes a programme of work on the biological diversity of inland water ecosystems. The Conference of the Parties is invited to endorse the recommendation and to include the programme of work in the longer-term programme of work which will be considered under item 13 of the agenda. The Conference of the Parties will note that, in addition to identifying information gaps that need to be addressed in order to obtain a global assessment of the biological diversity of inland waters and to developing regional guidelines for assessments, the programme of work includes elements relating to applying the ecosystem approach, integrating the consideration of the biological diversity of inland waters into sectoral planning, restoring and rehabilitating of ecosystems, valuation and incentives, environmental impact assessments, education and public awareness, traditional knowledge, and the development of indicators.

51. These matters will be addressed under other items of the agenda of the meeting of the Conference of the Parties. The recommendation of the SBSTTA also addresses the role of the clearing-house mechanism (agenda item 8) and of the financial mechanism of the Convention (agenda item 14.5). The Conference of the Parties will thus wish to recall the specific recommendations of the SBSTTA on the conservation and sustainable use of the biological diversity of inland water ecosystems when considering these other items on the agenda and developing its longer-term programme of work.

52. An indication of the time-frame of the programme of work pertaining to SBSTTA activities and budget implications is given in the Annex to the present note.

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53. In addition, the Conference of the Parties may wish to take into account the outcome of the sixth session of the CSD on strategic approaches to freshwater management.

54. The Conference of the Parties is thus invited to adopt the following decision regarding the biological diversity of inland water ecosystems:

The Conference of the Parties,

1. Adopts recommendation III/1 of the SBSTTA as a work programme on the biological diversity of inland water ecosystems;

2. Notes the outcome of the sixth session of the Commission on Sustainable Development;

3. Urges Parties and Governments to integrate those elements highlighted by the SBSTTA as important for Parties, contained in sections A.III., B, C, and D of recommendation III/1, as appropriate, into their national and sectoral plans and to implement these as soon as possible;

4. Requests the financial mechanism to:

(a) Provide adequate and timely support to eligible Parties for the implementation of national and sectoral plans for the conservation and sustainable use of the biological diversity of inland water ecosystems;

(b) Consider the importance of the biological diversity of inland waters in projects in its other focal areas, as contained in section A.IV. of recommendation III/1 of the SBSTTA;

5. Requests the SBSTTA to:

(a) Decide on the time-frame and the ways and means of its work plan, taking into account the schedule suggested by the Secretariat as contained in Annex [] of this decision,** and to report to the fifth meeting of the Conference of the Parties;

(b) Incorporate the outcome of the sixth session of the CSD into its work plan, as necessary, and report back to the fifth meeting of the Conference of the Parties;

6. Invites all relevant organizations to support efforts by Parties to implement their national and sectoral plans for the conservation and sustainable use of the biological diversity of inland water ecosystems;

7. Requests the Executive Secretary to:

(a) Continue to participate in the ACC Subcommittee on Water Resources;

(b) Implement the relevant elements in sections A.I., B and D of recommendation III/1 of the SBSTTA.

** See Annex to the present note.

Annex

Possible time-frame of a work programme pertaining to SBSTTA activities

| Activities | Year | COP | SBSTTA | Secretariat | Other |
|--|-------------|---|---|--|---------------------------------|
| Implication of the outcome of the sixth session of the CSD | | | | | |
| Integration of the outcome of the CSD6 | 1998 | Consideration of the outcome of the CSD6 | Consideration of the follow-up of the CSD6 and make recommendation to the COP | | |
| | 1999 | Consideration of the recommendation of the SBSTTA | Possible follow-up activities | Possible follow-up activities | |
| Status and trends | | | | | |
| Using existing information and drawing upon relevant organizations and experts, develop an improved picture of inland water biological diversity, its uses and the threats to it, around the world. Identification of gap. | 1998 | | Consideration of ways and means for the activity | Preparation of proposal for the ways and means of the assessment | Establishing network of experts |
| | 1998 - 2002 | | Carrying out the activity | Assist the SBSTTA in carrying out the activity | Possible regional workshops |
| | 2002 | | Consideration of the outcome and make recommendation to the COP | | |
| | 2003 | Consideration of the recommendation of the SBSTTA | | | |

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| Activities | Year | COP | SBSTTA | Secretariat | Other |
|---|-------------|--|--|---|-----------------------------|
| Develop regional guidelines for rapid assessment | 2002 | | Consideration of ways and means for the activity | Preparation of proposal for the ways and means for the development of regional guidelines | |
| | 2002 - 2004 | | Development of regional guidelines | Assist the SBSTTA in the development of regional guidelines | Possible regional workshops |
| | 2004 | | Consideration of the regional guidelines and recommendation to the COP | | |
| | 2005 | Consideration of the SBSTTA recommendation | | | |
| Conservation and sustainable use | | | | | |
| Compilation of case studies on conservation and sustainable use | 1998 - 2002 | | | Compilation of case studies and make synthesis | disseminate through CHM |
| | 2002 | | Consideration of case studies and make recommendation | | |
| | 2003 | Consideration of the SBSTTA recommendation | | | |
| | 2003 - | | Activities may be continued | | |

| Activities | Year | COP | SBSTTA | Secretariat | Other |
|--|-------------|--|--|---|--|
| Development of methods and techniques for the valuation of goods and services of inland water ecosystems, incentives and policy reforms and understanding of ecosystem function | 2002 | | Consideration of ways and means of the activity | Preparation of proposal for the development of methods and techniques for the proposed topics | |
| | 2002 - 2005 | | Development of methods and techniques for the proposed topics | Assist the SBSTTA in the activity | Expert meetings / Liaison group meetings |
| | 2005 | | Consideration of the methods and techniques for the proposed topics and make recommendation to the COP | | |
| | 2006 | Consideration of the SBSTTA recommendation | | | |
| The national elaboration of Annex 1 of the CBD | | | | | |
| Work closely with the Convention on Wetlands to achieve desirable convergence between approaches on criteria and classification of inland water ecosystems between the two Conventions | 1998 - 2001 | | Work closely with the Science and Technical Review Panel of the Convention on Wetlands | Work closely with the Bureau of the Convention on Wetlands | |
| | 2001 | | Consideration of the outcome and make report to the COP | | |
| | 2002 | Consideration of the SBSTTA report | | | |
| Urgency of needed action on taxonomy | | | | | |
| Global Taxonomy Initiative | 1998 - 2001 | | | | Regional workshops |

Budget implication:

| | |
|--------------------------------|----------------------------------|
| Studies for assessments: | US\$ 300,000-500,000 per study |
| Scientific/technical meetings: | US\$ 100,000-300,000 per meeting |

The Secretariat will require a Programme Officer at P-4 level, specialized in the biological diversity of inland waters. The Secretariat will benefit from the services of a Junior Professional Officer (P-2) for this programme of work. However, as Junior Professional Officers are seconded by Governments, there will be no budget implications in this regard.