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**JAKARTA MANDATE ON MARINE AND
COASTAL BIOLOGICAL DIVERSITY**

First Meeting of Experts

Jakarta, Indonesia

7 to 10 March 1997

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

*For the purpose of economizing the cost of mailing, the recommendation 1/8
of the document is attached. The complete document will be available
in Jakarta*

Recommendation I/8: Scientific, technical and technological aspects of the conservation and sustainable use of coastal and marine biological diversity

Recalling that the Conference of the Parties decided to address, at its second meeting, advice from the SBSTTA on the scientific, technical and technological aspects of the conservation and sustainable use of coastal and marine biological diversity;

Recalling further that, in its decision I/7 taken at its first meeting, the Conference of the Parties requested the SBSTTA to advise on how the Conference of the Parties could start the process of considering those aspects;

1. In order to advance this work the SBSTTA has before it a number of papers on marine and coastal biological diversity. From these papers and a detailed discussion in plenary, a number of key areas were selected for consideration. Included in the overall aspect of integrating coastal and marine area management were the more specific issues of sustainable use of living coastal and marine resources, mariculture and the control of alien organisms. Recommendations on all these issues are included below. The rationale for these recommendations, which was based on the documentation before the SBSTTA and, in particular, document UNEP/CBD/SBSTTA/1/8, is included in the annex.
2. Although education, training and raising public awareness at the international and regional level were regarded as key delivery mechanisms, it was felt that, due to the insufficient time and complexity of issues in question, they should be comprehensively considered at the next session of the SBSTTA. The same session of the SBSTTA should also address the questions related to bio-prospecting on the deep sea bed, including access to its genetic resources.
3. The SBSTTA considers the conservation and sustainable use of marine and coastal biological diversity to be of such significance that it recommends the establishment of an ad hoc expert panel to provide advice on current issues. The expert panel shall be established for a period of three years and shall make an annual progress report. Issues which should be immediately reviewed by this panel are: the gaps in knowledge of the distribution and abundance of marine and coastal biodiversity; the particular needs for marine and coastal conservation and sustainable use of biodiversity in the context of threat alleviation, technology transfer; the linkages between the status of marine and coastal biodiversity and management of watersheds as well as pollution from marine vessels. It should also review the achievements of the scientific bodies associated with other international legal agreements, programmes and bodies dealing with aspects of marine and coastal biodiversity.
4. The SBSTTA intends to review this panel's conclusions at its fourth session in order to provide the fifth meeting of the Conference of the Parties with recommendations on this issue.
5. The following recommendations in this report for the Conference of the Parties are issues on conservation and sustainable use of marine and coastal biological diversity that the Conference of the Parties may wish to suggest to the fourth session of the Commission on Sustainable Development (CSD).
6. The SBSTTA recommends to the Conference of the Parties to forward the following statements to the next session of the CSD:
 - (a) The Conference of the Parties endorses integrated marine and coastal area management as the most suitable framework for addressing human impacts on marine and coastal biological diversity

and for promoting conservation and sustainable use of these biological diversity. Governments are encouraged to establish and/or strengthen, as appropriate, institutional, administrative, and legislative arrangements for the development of integrated management of marine and coastal ecosystems, plans and strategies for coastal and marine areas, and their integration within national development plans.

(b) Research and monitoring are urgently needed to assess the status and trends of marine and coastal biodiversity, evaluate the success of management and conservation actions, and develop more effective management practices. Research and monitoring programmes should include biological, physical, social, cultural and economic studies, consistent with the time-frame commensurate with their objectives. They should be supported by information management, interpretation and dissemination. Resource owners, users and managers should be involved to the maximum extent possible.

(c) Recognizing the need for global and regional action to address the loss of coastal and marine biodiversity, the Conference of the Parties recommends that the CSD call for the implementation of existing national and regional strategies to conserve coastal and marine biodiversity. The Conference of the Parties further recommends that the CSD recognize the International Coral Reef Initiative (ICRI) and other similar initiatives and endorse the ICRI Call to Action.

(d) The Conference of the Parties endorses and highlights the inclusion of representative systems of marine and coastal protected areas within integrated area management, consistent with the objectives of the Convention on Biological Diversity.

7. The SBSTTA further recommends to the Conference of the Parties that it recommend to the CSD the need for the CSD to evaluate the world-wide over-capitalization of fishing fleets and its impact on marine and coastal biodiversity, and to review the role of national government subsidies in contributing to the over-capitalization.

8. The SBSTTA further recommends to the Conference of the Parties that it recommend to the CSD to highlight and urge the need for international cooperation to stem the adverse impacts of alien species introductions.

9. The following recommendations are recommended for the consideration of the second meeting of the Conference of the Parties.

10. On integrated marine and coastal area management, the SBSTTA recommends to:

(a) Promote integrated marine and coastal area management as the framework for addressing impacts of land-based activities on marine and coastal biodiversity by, *inter alia*, minimizing or eliminating inputs of pollutants (including persistent organic and radioactive substances, excessive nutrients and sediments), in particular those arising from municipal waste, industrial effluents, deforestation, watershed degradation, unsustainable forms of agriculture and mining.

(b) Promote integrated marine and coastal area management as the framework for addressing human impacts on marine and coastal biological diversity and encourage governments, communities, and users to develop and adopt integrated management measures, including:

- (i) land/habitat use capability analysis and planning for multiple use;
- (ii) environmentally sound land and coastal resource use practices based on precautionary ecosystem management approaches and best management practices; and
- (iii) sustainable tourism planning and management.

(c) Carry out environmental impact assessment of all major coastal and marine development activities with special attention to marine and coastal biological diversity, and taking into account cumulative impacts. Undertake systematic monitoring and evaluation of project impacts during implementation.

(d) Address socio-economic needs of coastal communities in the planning and implementation of the marine and coastal area management.

(e) Promote rapid appraisal techniques to improve the conservation and management of marine and coastal biological diversity.

(f) Address impacts of land-based activities on marine and coastal biological diversity and identify methodologies and research to assess these impacts, in close cooperation with the implementation of the Global Programme of Action for the Protection of the Environment from Land-Based Activities, the major product of the UNEP Conference on Protection of the Marine Environment from Land-Based Activities.

(g) Address impacts of desludging and pollution by maritime vessels on marine and coastal biological diversity, in particular in those countries which border international waterways, and adopt measures to mitigate adverse effects.

(h) Consider the effectiveness of both area management and species management as tools to provide a balanced approach to use and conservation of marine and coastal biological diversity.

11. On marine and coastal protected areas the SBSTTA recommends to:

(a) Based on consideration of biogeography and scale, and the objectives of the Convention on Biological Diversity, establish or consolidate representative systems of marine and coastal protected areas. Enhance linkages and information exchange among the sites.

(b) Promote research and monitoring of marine and coastal protected areas to assess their value for the conservation and sustainable management of biodiversity. Apply, as appropriate, rapid assessment techniques to identify and improve the management of protected areas.

(c) Explore means to incorporate marine and coastal protected areas within a broader framework for multiple use planning, as exemplified by UNESCO MAB Biosphere Reserves.

(d) Encourage the participation of local communities concerned and of resource users in the planning, management and conservation of coastal and marine areas.

(e) Consider all three levels of biological diversity, and factors determining their structure and function, in the development and implementation of management plans.

12. On sustainable use of coastal and marine living resources, the SBSTTA recommends to the Conference of the Parties that, as far as possible and appropriate, Parties should include in their national plans and programmes the following basic management elements ensuring that:

(a) Management decisions are based on application of the precautionary approach;

(b) Management decisions are based on the best available and sound scientific knowledge, research and information, taking into account ecosystem impacts;

(c) Waste (such as waste through discard, spoilage, or mortality in the trade in living organisms) is reduced;

(d) Local communities, users and indigenous people are involved in the conservation and management of resources;

(e) National legislation ensuring the conservation and sustainable use of living marine and coastal resources in conformity with the Convention on Biological Diversity, the United Nations Convention on the Law of the Sea (UNCLOS) and Agenda 21, and that the provisions of the draft FAO Code of Conduct for Responsible Fisheries once approved, will be followed;

(f) Existing international agreements addressing over-exploitation and conservation of marine and coastal resources, are acceded to, and fully implemented and enforced, especially the Agreement on Straddling and Highly Migratory Fish Stocks; and

(g) Monitoring mechanisms are used or established to assist sustainable management of marine and coastal living resources.

13. Regarding the management and technology tools recommended by FAO's Code of Conduct, the SBSTTA recommends that the Conference of the Parties support the efforts of FAO to provide advice on these tools, and request an opportunity for the input of the Conference of the Parties into the draft Code of Practice in order to ensure that the Code becomes fully consistent with the objectives and provisions of the Convention on Biological Diversity.

14. In addition, the SBSTTA recommends to the Conference of the Parties:

(a) To identify constraints, including economic, for conversion of fishing gear and phase-out of fishing over-capacity, and the possibility of reducing subsidies for fisheries;

(b) To offer the technical expertise of the SBSTTA to offer advice on the draft FAO Code of Conduct for Responsible Fisheries in order to ensure its consistency and conformity with the objectives and provisions of the Convention on Biological Diversity;

(c) To take into account the ecosystem functions and processes identifying and targeting critical processes for the conservation and sustainable use of biodiversity;

(d) To ask the FAO, or other appropriate bodies, to collate information on the availability of selective fishing gear and methods, possibly through the convening of an ad hoc intersessional panel on marine and coastal biodiversity; and

(e) To urge the Parties not yet signatories to the Agreement on Straddling and Highly Migratory Fish Stocks to sign the Agreement.

15. On mariculture, the SBSTTA recommends to the Conference of the Parties:

I. Parties should, as far as possible and as appropriate, implement environmentally sustainable mariculture practices, including the following:

(a) mariculture should be incorporated into integrated marine and coastal zone management plans, particularly taking into account the vulnerability of areas of high biological value;

(b) mariculture should be subject to prior environmental and social impact assessments (in accordance with Article 14) and regulations (Article 10) and should incorporate the participation and needs of local and indigenous communities;

(c) use of chemicals for therapeutics and other applications, high nutrient release and freshwater diversion should be minimized. Eutrophication should be avoided. Specific steps to achieve this include use of chemicals only in a prescribed and responsible manner, improvement in waste treatment, improvement in feed technology, and in promotion of integrated farming and polyculture;

(d) mariculture operations should not result in the overexploitation of natural stocks through harvesting of wild larvae;

(e) because of the difficulties of complete containment, introduction of alien species, products of selected breeding and living modified organisms resulting from modern biotechnology should be treated as an introduction into the wild. Therefore, adherence to international codes of practice such as the International Commission for Exploration of the Sea and the "Organisation Internationale Epizootique" should be a minimum requirement. Because of the potentially high risks, assessments should be rigorous, must correspond with the precautionary principle, and an appropriate monitoring programme must be put in place if introduction goes ahead. Preference should be given to the use of local species. Furthermore, development of technology to ensure a more complete containment should be encouraged;

(f) the conservation of genetic diversity in the wild stocks which farmed populations are derived should be an objective of overall management; and

(g) in areas where unsustainable mariculture operations have already substantially reduced or destroyed natural habitats and ecosystems, Parties should, where possible, undertake restoration programmes.

II. The clearing-house mechanism should be used to link databases and information networks to collect, share and disseminate data related to responsible mariculture measures.

III. The Conference of the Parties is invited to request the SBSTTA to monitor the development and provide input into the draft FAO Code of Conduct for Responsible Fisheries, in order to ensure that the Code is consistent with the objectives and provisions of the Convention on Biological Diversity.

IV. National reports (Article 25) and national biodiversity strategies and action plans (Article 6) should include an examination of mariculture operations within the jurisdiction of Parties, and steps to avoid significant adverse impacts on marine and coastal biodiversity in the above ways.

16. On alien species, the SBSTTA recommends to the second meeting of the Conference of the Parties that, consistent with Articles 8(h) and 8(i) of the Convention on Biological Diversity, the Parties should, as far as possible and appropriate:

I. Include in their national plans:

(a) Means to prevent, control, or eradicate, where possible, those alien species which threaten ecosystems, habitats or species (Article 8, paragraph (h)). These means might include the implementation of international protocols and guidelines (e.g. the International Maritime Organization (IMO) ballast water guidelines or the International Council for the Exploration of the Sea (ICES) Code of Practice).

(b) Conduct of environmental impact assessments, including risk assessment, prior to the intentional introduction of alien species (Article 14.1, paragraph (a)) and consult with neighboring States before introducing alien species into shared waters. To minimize unintentional introductions, components of an assessment might include identification of primary pathways for unintentional introductions; identification of types of organisms with the greatest potential to be dangerous; mitigation techniques to minimize unintentional introductions; monitoring to identify the establishment of alien species; and development of means for elimination of hazardous alien species.

(c) Prior to intentional introduction, an assessment should be made of possible indigenous species alternatives, whether the introduced species can be adequately monitored (per Article 7, paragraph (c)), and whether adverse effects can be reversed within two human generations (as recommended by the draft FAO Code of Conduct for Responsible Fisheries). Additional assessment should include: (i) biological information on the species in its native habitat, including life stages and trophic level; (ii) results of previous introductions elsewhere; (iii) potential impact on indigenous species, through, e.g. predation and competition, or on ecosystem function; (iv) associated pathogens and parasites and ability to treat or screen for such organisms; (v) potential for habitat modification; and (vi) the potential for interbreeding with and deleterious genetic impacts on indigenous species/stocks. The assessment should take into account that organisms transferred from one ecosystem to another may not maintain the same characteristics in the new ecosystem.

(d) Conduct of environmental impact assessments prior to constructing canals linking coastal water bodies.

(e) Education of the general public to the possible dangers to the ecosystem that could result from the release of ornamental species and unauthorized releases of species for sport fisheries.

II. Be encouraged to conduct research (Article 12) where additional targeted studies would further the understanding of the impacts of alien species on *in-situ* conservation, including, for example:

(a) undertake ecological surveys and ballast discharge water surveys to help establish baseline data and level of risk associated with introductions through ballast water, including on the effects of introduction of harmful algal species through ballast water;

(b) undertake research on the long-term effects of species replacements due to introductions on ecosystem functioning.

17. Furthermore, the SBSTTA recommends that, consistent with Article 18 (Technical and scientific cooperation), the Conference of the Parties:

(a) Establish under the Clearing-house mechanism (CHM), or other data exchange mechanism, information on normal or pathogenic flora and parasites of aquatic species being introduced for mariculture or stocking programmes. Information to be included in the clearing-house would be on infectious agents detected in indigenous, wild or alien cultured stocks, parasitic life-cycles, pathogen-specific methods of detection, and information on disease outbreaks and immune status in commercially shipped stocks. An existing mechanism for epizootics has been established in France (Organisation Internationale Epizootique);

(b) Establish, under the CHM, information from results of environmental impact assessments or similar assessments on introduced species to provide a means of evaluating effective and ineffective methodologies for preventing the introduction of, controlling, and eradicating alien species and minimizing their adverse effects.

18. Additional recommendations for future action by the Conference of the Parties:

(a) The SBSTTA suggests that the Conference of the Parties support efforts of the IMO to draft ballast water guidelines and request an opportunity for the input of the Conference of the Parties into those guidelines. The Conference of the Parties should ensure that the guidelines are consistent with the objectives and provisions of the Convention on Biological Diversity;

(b) The Conference of the Parties should contact relevant international bodies and instruments (for example, FAO) with a view to ensuring adequate controls of intentional introductions of alien or living modified organisms that have adverse effects on marine biodiversity.

19. Recommendations for the second meeting of the Conference of the Parties to consider for the medium-term work programme:

(a) Review the draft IMO ballast water guidelines to ensure that the guidelines are consistent with the objectives and provisions of the Convention on Biological Diversity;

(b) Review information provided by Parties and other sources on the assessment of alien species introduction to gain from past experience.

Annex to Recommendation I/8

I. INTEGRATED MARINE AND COASTAL AREA MANAGEMENT

Introduction

1. Coastal and marine areas contain some of the world's most diverse and productive systems. They include extensive areas of complex and specialized ecosystems, such as enclosed seas and tidal systems, estuaries, salt marshes, coral reefs, seagrass beds and mangroves that are sensitive to human activities, impacts and interventions.
2. Pressures on these systems are growing more intense. As rapid development and population growth continue in coastal areas, increasingly heavy demands will be placed on the natural resources and remaining natural habitats along the coasts. Unless corrective measures are taken, environmental degradation and over-exploitation will erode marine and coastal biological diversity, undermine productivity, and intensify conflicts over the increasingly scarce resources of the coastal zone.
3. The most important present and potential threats to marine and coastal biological diversity are well known:
 - (a) alteration and loss of habitat, including destruction of watersheds;
 - (b) chemical pollution and eutrophication, including from land-based activities;
 - (c) global climate change;
 - (d) invasions of alien species; and
 - (e) over-exploitation of living marine and coastal resources.
4. These threats cannot be treated separately, as ecosystem functions and processes are connected over wide distances. Singly, or in combination, these human perturbations can lead to structural and functional transformations of ecosystems.
5. Since threats will vary between regions and countries, depending on differences in ecological processes, level of availability of funding and economic and social activities, the Parties will need to tailor management regimes to the specific needs of each area.

Integrated Marine and Coastal Area Management

6. Current sectoral approaches to the management of marine and coastal resources have generally not proven capable of conserving marine and coastal biological diversity. New models are needed to move planners toward multiple-use, systems-oriented modes of management, based on precautionary approaches and ecosystem management principles. Wide adoption and implementation of integrated marine and coastal area management are necessary for effective conservation and sustainable use of marine and coastal biological diversity.
7. Integrated marine and coastal area management is a participatory process for decision-making to prevent, control, or mitigate adverse impacts from human activities in the marine and coastal environment, and to contribute to the restoration of degraded coastal areas. It involves all stakeholders,

including: decision makers in the public and private sectors; resource owners, managers and users; nongovernmental organizations; and the general public. Community-based management approaches have proven particularly important. Integrated management programmes have already demonstrated their potential as an effective tool in developed and developing countries around the world.

8. On the regional level, integrated management of marine and coastal ecosystems could be promoted through the Large Marine Ecosystem approach to monitor and evaluate ecosystem health. Through ensuring the integrity and productivity of large-scale ecosystems, continuous benefits can be derived from the vast array of biological resources they contain.

Marine and Coastal Protected Areas

9. Within the context of national and regional efforts to promote integrated marine and coastal area management, networks of marine and coastal protected areas, other conservation areas, and biosphere reserves, provide useful and important management tools for different levels of conservation, management and sustainable use of marine and coastal biological diversity and resources, consistent with customary international law.

II. SUSTAINABLE USE OF LIVING MARINE AND COASTAL RESOURCES

10. Many of the world's fishery resources are in danger of depletion. The impacts of these activities can be direct and indirect. In addition, other living resources, for example mangroves, coral species and species amenable to bio-prospecting, are subject to or under threat of over-exploitation. The principal impact of over-exploitation is unsustainable removal of living marine and coastal resources. The most significant indirect impacts on biodiversity include habitat destruction, bycatch and ancillary impacts on interacting species or ecosystems. The overall goal is to achieve conservation and long-term sustainable use of living marine and coastal resources in a manner that respects both societal interests and the integrity of ecosystems.

III. MARICULTURE

11. Mariculture production worldwide is growing at the rate of about 5 to 7 per cent annually. Currently, the main types of marine organisms being produced through mariculture include seaweeds, mussels, oysters, shrimps, prawns, salmon and other species of fish. Mariculture offers possibilities for sustainable protein-rich food production and for economic development of local communities. However, mariculture on an industrial scale may pose several threats to marine and coastal biodiversity due to, for example, wide-scale destruction and degradation of natural habitats, nutrients and antibiotics in mariculture wastes, accidental releases of alien or living modified organism resulting from modern biotechnology, transmission of diseases to wild stocks, and displacement of local and indigenous communities. Noting this situation, a precautionary approach should be applied to any mariculture development, in accordance with the preamble of the Convention on Biological Diversity.

IV. ALIEN SPECIES

12. Alien components of biodiversity, including species, genetic strains, mixed genetic stock and living modified organisms, have the potential for significant, non-reversible, adverse impacts on marine and coastal biodiversity. Such impacts generally tend to be unpredictable. When they are adverse, they tend to homogenize and simplify biotic communities. Eradication of established alien species is difficult, if not impossible. One means to mitigate damage due to these components is to make introductions subject to rigorous prior environmental impact assessments.

13. Alien species can be introduced inadvertently and intentionally. Non-intentional introductions primarily result from the discharge of ballast water, escapees from mariculture, organisms associated with species introduced intentionally, and unauthorized releases by the public. Furthermore, it should be recognized that introductions result from the engineering of waterways connecting previously separate bodies of water.

14. Intentional introductions occur primarily for mariculture production, including marine ranching, although an additional significant pathway is by release of hatchery-spawned organisms into the wild for the purpose of augmenting wild populations, generally for future capture in fisheries or in an attempt to enhance a population that is under threat. Particularly in the case of intentional introductions, alien species may include those resulting from the interbreeding of different genetic stocks or that have been genetically modified.

Recommendation I/9: Draft provisional agenda of the second meeting of the Subsidiary Body on Scientific, Technical and Technological Advice

1. Opening of the meeting.
2. Organizational matters:
 - 2.1 Election of the officers;
 - 2.2 Adoption of the agenda;
 - 2.3 Organization of work.
3. Matters on which advice from the SBSTTA is required by the third meeting of the Conference of the Parties:
 - 3.1 Review of assessment of biological diversity made in 1995, and methodologies for future assessments, as well as the minimum standard data required, as appropriate, to be applied in accordance with national priorities and programmes.
 - 3.2 Alternative ways and means in which the Conference of the Parties could start the process of identification, monitoring and assessment of components of biological diversity, as well as processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity, in accordance with Article 7.
 - 3.3 Review and promotion of indicators of biological diversity to be used for assessment of effectiveness of measures taken in accordance with the provisions of the Convention.
 - 3.4 Identification of sound technologies, including biotechnology, and description of ways and means to promote and facilitate access to, and transfer and development of these technologies, and the role of the clearing-house mechanism.

- 3.5 Ways and means to identify and protect the knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles and to compensate through the equitable sharing of the benefits arising from the use of such knowledge, innovations and practices, in accordance with Article 8(j) of the Convention on Biological Diversity.
 - 3.6 Capacity-building in relation to the safe transfer, handling and use of living modified organisms resulting from biotechnology that may have adverse effect on the conservation of biological diversity and the sustainable use of its components.
 - 3.7 Role of the clearing-house mechanism in facilitating and promoting technical and scientific cooperation in research and development related to conservation of biological diversity and sustainable use of its components.
 - 3.8 Scientific, technical and technological aspects of the conservation of agricultural biological diversity and sustainable use of its components (also taking into account the other provisions in Article 25, paragraph 2).
 - 3.9 Scientific, technical and technological aspects of the future programme of work for terrestrial biological diversity in the light of the outcome of deliberations of the third session of the Commission on Sustainable Development in 1995.
 - 3.10 Scientific, technical and technological advice on economic valuation of biological diversity and its components, in particular in relation to access to genetic resources.
 - 3.11 Contribution of the Convention on Biological Diversity to the forthcoming special session of the General Assembly to review implementation of Agenda 21.
4. Programme of work of the SBSTTA for 1995-1997.
 5. Draft provisional agenda of the third meeting of the SBSTTA.
 6. Date and venue of the third meeting of the SBSTTA.
 7. Other matters.
 8. Adoption of the report.
 9. Closure of the meeting.

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