

FOIA MARKER

This is not a textual record. This is used as an administrative marker by the William J. Clinton Presidential Library Staff.

Collection/Record Group: Clinton Presidential Records
Subgroup/Office of Origin: Council on Environmental Quality
Series/Staff Member: Kathleen (Katie) McGinty
Subseries:

OA/ID Number: 2891
FolderID:

Folder Title:
Preparatory Committee 3 [Folder 2]

Stack:	Row:	Section:	Shelf:	Position:
S	61	5	11	1

Clinton Presidential Records Digital Records Marker

This is not a presidential record. This is used as an administrative marker by the William J. Clinton Presidential Library Staff.

This marker identifies the place of a publication.

Publications have not been scanned in their entirety for the purpose of digitization. To see the full publication please search online or visit the Clinton Presidential Library's Research Room.



Earth Summit Update

No. 4, October 1991

Environmental and Energy Study Institute ■ 122 C Street, N.W., Suite 700, Washington, D.C. 20001 ■ (202) 628-1400

Key House Subcommittee Chairman Drafts UNCED Resolution

Rep. Gus Yatron (D-Pa.), chairman of the House Foreign Affairs Subcommittee on Human Rights and International Organizations, is drafting a concurrent resolution calling on the United States to put higher priority on the success of the United Nations Conference on Environment and Development (UNCED, or "Earth Summit") in Rio de Janeiro next June. Yatron hopes to introduce the resolution before the end of the current session of Congress, according to

subcommittee staff.

Yatron told *Earth Summit Update*, "The Earth Summit has the potential to be one of the most important international conferences of our time. The purpose of the resolution is to ensure that the United States plays a leadership role at UNCED so that significant progress on these vital questions of environment and development can be achieved."

See Yatron Resolution, back page

NGOs to Propose Bill Targeting U.S. UNCED Policy

A group of development and environment non-governmental organizations (NGOs) affiliated with the U.S. Citizens Network on UNCED has begun discussions on a legislative proposal to strengthen U.S. policies on UNCED and key sustainable development issues. The group will try to complete a draft of the legislation by early December for introduction early in the next session of Congress.

A draft "Outline of Options for 1992 UNCED Legislation," by Alex Counts of RESULTS has served as the basis for initial discussions. The draft lists several topics that could serve as the basis of eventual "titles" in the legislation, including innovations in U.S. bilateral development assistance, shifting resources from military assistance to development, changing unsustainable domestic consumption patterns and financing Agenda

21 and other sustainable development programs. (Agenda 21, a non-binding agreement on national and international actions on environment and development, will be a major product of the UNCED negotiations.)

Organizations participating in preparing the legislation include RESULTS, Bread for the World, InterAction, National Wildlife Federation, Environmental and Energy Study Institute, Sierra Club, National Audubon Society, Environmental Defense Fund and Natural Resources Defense Council.

For more information on this initiative, contact Gareth Porter, EESI, 122 C St. N.W., Suite 700, Washington, D.C. 20001 (202-628-1400) or Alex Counts, RESULTS, 236 Massachusetts Ave., N.W., Suite 110, Washington, D.C. 20002 (202-543-9340).

Sikorski Calls for U.S. Initiative on Financial Resources

Rep. Gerry Sikorski (D-Minn.), one of two Congressional advisers to the U.S. delegation to PrepCom 3, has called for the United States to exercise more leadership in the final PrepCom next March than it did in PrepCom 3, especially on the issue of financial resources.

In an interview with *Earth Summit Update* on October 16, Sikorski, second-ranking Democrat on the House Energy and Commerce Subcommittee on Health and the Environment, said, "The United States needs to do a better job if UNCED is to succeed." He singled out financial resources and technology as issues on which "we need U.S. leadership."

Sikorski said the U.S. delegation was "right to say we shouldn't be continuing World Bank loans when they degrade the environment. But you have to look at other initiatives that may cost more money." He suggested the U.S. delegation "will be in a stronger bargaining position if it comes to the final PrepCom with a position

See Sikorski, page 3

Inside this issue...

Special Supplement:

Issue-by-Issue

Summary

of PrepCom 3

EARTH SUMMIT UPDATE

No. 3, September 1991

Environmental and Energy Study Institute
122 C Street, NW, Suite 700
Washington, DC 20001
(202) 628-1400

AGENDA 21 NEGOTIATIONS PUT OFF TO PREPCOM 4

The third preparatory meeting of the United Nations Conference on Environment and Development (UNCED) ended without any substantive negotiation on several of the issues to be covered in its "Agenda 21," a framework for action on the environment and development.

No effort was made to resolve the differences in the negotiating texts, shifting a much heavier burden than expected onto PrepCom 4 in New York beginning in March 1992.

Both developed and developing countries pressed their maximum positions and pet causes at the third Preparatory Committee (PrepCom 3), with no willingness to negotiate any compromise formulas. "It's too early to give anything up," said one U.S.

delegation member on the last day of the conference. The draft texts on Agenda 21 generally consisted of an amalgamation or merely

compilations of the views of various delegations. As a result, diametrically opposed positions on the same issue often were juxtaposed. When working groups had time to read through the documents paragraph by paragraph, the texts were full of brackets, indicating that paragraphs or subparagraphs had been rejected by one or more delegations.

Time simply ran out before there was an opportunity for substantive negotiations on such subjects as institutional reform and forests. The PrepCom requested only that countries submit their proposals on these subjects and compile them in a document for discussion at the next PrepCom. Debates on biodiversity were marked by highly polemical statements by developing countries in which the major themes were the North's responsibility for

environmental degradation, the necessity for the North to take financial responsibility for conservation and demands for additional funding and transfer of technology to the South.

The Agenda 21 text on atmosphere, which is more developed than most others, reflects unresolved issues between developing countries and developed countries, especially the United States, over energy consumption and greenhouse gas emissions. Statements such as that of the Myanmar (formerly Burma) delegation that industrialized nations use three-quarters of the world's energy resources, with only one-fourth of its population, set the tone for the discussion.

The United States and other developed countries opposed efforts to single them out in a number of areas, such as managing energy demand, setting energy efficiency standards, waste minimization, increasing funding for research and development on renewable energy sources, and energy taxes.

In some cases, strong political differences threatened the status of an entire text. The United States threatened to reject the text on oceans if it contained an Icelandic proposal for a ban on ocean dumping of low-level radioactive wastes.

The United States frequently stood alone in opposing demands by other countries for new legal instruments. On biotechnology, the United States resisted a German proposal for a legally binding code of conduct for safety procedures. The U.S. delegation also opposed a proposal by developing countries, supported by the European Community countries, for a new legally binding instrument on toxic chemicals and hazardous wastes. The United States argued that countries should be encouraged to ratify the 1989 Basel Convention on international trade in hazardous wastes. It also opposed a proposal for developing a code of practice for solid waste disposal and another proposal for national per capita waste production rates.

An underlying source of tension at the PrepCom was the feeling widely shared by developing countries that the agenda and secretariat documents focus primarily on environmental issues of concern to the developed countries, while giving less attention to development and international economic issues of primary concern to

the developing countries. The latter issues were not discussed at all until the third week of the PrepCom.

China and the Group of 77 (G77) developing countries submitted a draft on the structure and organization of Agenda 21, which called for the Agenda 21 document to include a section under each

program area on the means of implementation, including financial resources and capacity-building. The draft was approved by the PrepCom with relatively minor modifications.

Despite earlier resistance by developing country delegations, as well as PrepCom Chairman Tommy Koh of Singapore, delegates to the PrepCom agreed to extend PrepCom 4 from four weeks to five and to include weekend meetings. Even so, some delegates and observers are doubtful that PrepCom 4 will be able to complete the negotiations on the wide range of program areas that have been proposed in UNCED secretariat documents. According to one estimate, there could be as many as 100 program areas to be negotiated in New York next March. //

DELEGATES CLASH ON TITLE, PROCEDURE IN CHARTER DISCUSSION

PrepCom 3 produced a compilation of provisions suggested by different delegations for a "charter" or declaration of principles, but it was unable to agree on whether the document should be called the "Earth Charter" or the "Rio de Janeiro Charter on Environment and Development."

The Group of 77 (G77) developing countries insisted on the "Rio Charter" as the title, arguing that the "Earth Charter" suggested that the emphasis was on environment, rather than environment and development. The "Earth Charter" title had been suggested by UNCED Secretary General Maurice Strong.

During the third week of the PrepCom, the secretariat compiled a consolidated draft from all countries wishing to make suggestions. The draft included a unified G77 proposal and 144 other proposals grouped under 17 general headings. The G77 insisted that their proposal be the basis of discussion rather than the consolidated draft, but they did not prevail.

The G77 proposal called for the document to include:

- * The "right to a sound environment."
- * The need for developed countries to address "unsustainable patterns of production and consumption."
- * The "right of development."
- * The "transfer of adequate, new and additional finance resources to the developing countries."

As a result of procedural wrangling over the G77 demand, the only agreement that could be reached was that a revised version of the consolidated document would be forwarded to PrepCom 4.

PREPCOM MAKES NO PROGRESS ON FINANCIAL RESOURCES

Delegates to PrepCom 3 failed to begin negotiations on the critical issue of financial resources, agreeing only to begin those negotiations at PrepCom 4 in New York next March.

Until the final day of the PrepCom, the developed countries and the Group of 77 (G77) developing countries were deadlocked on whether a G77 text on financial resources would be the basis for negotiation in New York. The United States insisted that other proposals should be given equal status in negotiations at PrepCom 4, while the G77 demanded that negotiations begin with their text. Before the final session, both sides agreed that negotiations "should be based on" the G77 text, "without prejudice to the status of other proposals."

~~The Group of 77 developing countries temporarily walked out of PrepCom 3 meetings on Aug. 30 to dramatize their anger at the developed countries for not responding to the G77 paper on financial issues. Work resumed after a weekend meeting at which delegates from the United States, Canada, the European Community and the Group of 77 agreed to debate fully the G77 paper at PrepCom 4 in New York.~~

In the first full discussion of how to finance Agenda 21 actions to be adopted at the Earth Summit (see this page), key delegations stated widely divergent positions on environmental * * conditionality (requirements that funded projects meet specified environmental criteria), on the World Banks Global Environmental Facility as a funding mechanism and on mandatory vs. voluntary financial contributions by developed countries.

The United States called for tougher environmental conditionality in both bilateral and multilateral development assistance as a way to reallocate existing financial resources to support Agenda 21 actions. India, speaking for the Group of 77, recalled that the U.N. General Assembly resolution that authorized the UNCED ruled out "new forms of conditionality," citing rejection of a new power plant project for environmental reasons as an example of such unacceptable restrictions. Japan and the European Community did not take clear positions on the issue.

The United States and Japan also rejected G77 demands for mandatory contributions to finance Agenda 21 and for separate funds for each global environmental agreement signed at the Earth Summit.

The Japanese delegate observed, however, that his governments budget for development assistance "very probably will increase in the future."

Assistant Secretary of State Curtis Bohlen, head of the U.S. delegation, said, "I would hope that we would never fund projects that don't promote environmentally sustainable development." He did not directly refuse the developing country demand for new and additional resources but defended the reallocation of funds from unsustainable projects to those that are environmentally sound. Bohlen said, "We are aware there are some development activities that are not environmentally sound. It would be a mistake to say we were going to do business as usual and then ask for extra money."

U.S. REJECTS TARGETS IN FOREST NEGOTIATIONS

The U.S. delegation requested the deletion of "targets and time frames" from a provision on national plans for forest management and conservation in negotiations on a draft statement of principles on forests.

At an earlier negotiating session, the draft provision had been accepted by all participating states. The provisions relating to national plans are a key to future international cooperation to save forests in developing countries.

The draft text makes clear that each state would have total discretion in setting targets and time frames as part of its national plan. However, a U.S. official participating in the negotiations told Earth Summit Update that the United States did not want to agree to commitments that are not spelled out in detail. The official added that in any event, the delegation had no authority to accept targets or timetables.

Most of the provisions of the draft document are still in brackets, meaning that the provision has met official opposition from at least one participating state. Among the paragraphs now in contention are those calling for:

- * Governments to assure a "timely and accurate flow of information on forests and forest ecosystems."
- * Support for implementation of national policies and programs with international financial and technical assistance.
- * Protection of "representative and unique examples of native forests."

Despite the fact that much of the draft document is still in

dispute, the U.S. official told Earth Summit Update that the United States is content with the text overall. He said that at the outset of the negotiations, the U.S. delegation was not sure that any draft would be produced at PrepCom 3 because of procedural wrangling over how to assemble the negotiating text. Developing countries have threatened to scuttle the forest principles document as well as other products of the conference if there is not adequate progress on the issue of financial resources (see p. 1).

The forest principles being negotiated would not be legally binding. Negotiations on the text of the forest principles will resume at PrepCom 4 to be held in New York City next March.

While the United States had hoped prior to PrepCom 2 in May to have an international legal instrument on forests ready for signing at the Earth Summit in June 1992, it is now agreed that such an agreement will not happen.

However, a well-informed U.S. delegation member told Earth Summit Update that the United States believed that a legally binding convention on forests might be negotiated by the end of 1992. In spite of current U.S. opposition to targets and time frames for forest conservation and management in the draft statement of principles for forests, the delegation member said that a subsequent international legal convention might include this kind of provision.

FINISH WORK BEFORE RIO, BRAZIL WARNS

Brazilian officials, in an effort to pressure delegates to reach agreement at the next PrepCom in March, have made it clear that all negotiations on the documents to be adopted or signed at the Earth Summit must be completed before delegations arrive in Rio. They informed delegates at PrepCom 3 that there will be no conference facilities to carry out further negotiations on final texts in Rio.

Brazilian Deputy Foreign Minister Marcos Azembuja, addressing the PrepCom plenary session, warned delegates, "Unless we put the package together before Rio, it will fail." He said the practice in international conferences of waiting until the last minute to make concessions would be self-defeating.

U.S. BLOCKS MOVE TO BAR NGOS FROM PREPCOM MEETINGS

The United States fended off a Japanese and Swedish effort to prevent non-governmental organizations (NGOs) from attending any meetings where negotiations will take place at PrepCom 4 in New York next March.

The Japanese-Swedish action was apparently at the behest of developing country delegations who wished to avoid the scrutiny of NGOs during the negotiating sessions. At PrepCom 3, NGOs were allowed to attend these meetings at the discretion of the chairman of the meeting.

Swedish delegation head Bo Kjellen, who is also chairman of Working Group I, argued that the proposal was in line with the original PrepCom 1 decision on NGOs, which had been approved by the

U.N. General Assembly. Curtis Bohlen, head of the U.S. delegation, recalled that the actual text of that decision only barred NGOs from making statements in meetings other than plenary sessions. Ambassador Tommy Koh of Singapore, chairman of the Preparatory Committee, then suggested that no new decision be issued, thus retaining the original U.N. ruling.

EARTH CHARTER DRAFT INCLUDES CITIZENS NETWORK LANGUAGE

The U.S. delegation used language from a set of principles drafted by a working group of the U.S. Citizens Network for the first negotiating draft of the Earth Charter, a declaration of principles by which nations should conduct themselves in relation to the environment.

The U.S. proposed two principles from the Citizens Networks draft for the preamble of the Earth Charter. The first states, "Many of our past perceptions and relationships are no longer adequate." The second asserts, "We fully recognize our mutual interdependence. We must live in balance with nature to ensure the continuity and quality of life for future generations."

The Citizens Network draft was also the basis for U.S. proposals for language on access to information and on the precautionary principle, which holds that environmental impact statements should be publicly prepared and presented in advance of any proposed activity which is "likely to have a significant impact on the national environment." Co-Chair of the Citizens Network Working Group on the Earth Charter, Angela Harkavy, worked with the U.S. delegation on their suggestion for language for the preamble

to the document.

Earth Summit Update is produced by the Environmental and Energy Study Institute, a non-profit, non-governmental organization. For more information, contact EESI at 202-628-1400.

Earth Summit Update Staff
Gareth Porter, Editor
Karen Schmidt, Contributor, Design and Layout
Derek Denniston, Contributor
Michael Fallon, Production

A proposal to call on the Montreal Protocol parties to expedite the control schedules was rejected as prejudging the results of ongoing scientific assessments. Eastern European countries in particular, seemed concerned about the feasibility of accelerating the phaseout of CFCs.

The transboundary air pollution decision focused on improved research and cooperative programmes for monitoring, sharing of information and abatement.

2. Land Resources

Comparatively little time was allotted for the informals on land resources. However, the Working group was able to review and revise the Secretariat's paper on Agenda 21 options thus producing a bracketed text. The Working Group adopted a decision (WG.I/L.34/rev.1) which notes broad agreement on the objectives and programme areas contained in the Secretariat's Agenda 21 options paper, but notes that the section on fragile ecosystems requires further elaboration and that agreement has been reached on the need to develop separate programmes for mountainous regions. The decision also notes that the section on an integrated approach to planning and management of land resources requires further elaboration and that issues related to programmes on water resources for agriculture, genetic resources, integrated pest management and rural energy have not been discussed in detail.

A. Deforestation

The discussions on Forests resumed on Monday night in the informal session of Working Group I. This meeting was closed to NGOs even though they had been permitted by the Chairman of the Contact Group on Forests to accompany as observers much more sensitive discussions. The draft statement of non-binding forest principles (PC/WG.I/CRP.14), that had been discussed in the Contact Group meetings during the previous two weeks, was considered. There was concern by many governments that the discussions of these sessions could not have been considered negotiations since not all countries were able to attend and thus any text that was represented in the CRP.14 document as un-

bracketed, and thus negotiated to consensus, would have to be put back into bracketed text. It seems that the Working Group has decided to accommodate these countries unable to attend all of the Contact Group meetings on the Forest Principles document by deciding in A/CONF.151/PC/WG.I/L.35/Rev.1 that "comments or additions submitted by Governments to the Chairman during the third session will be included in CRP.14/Rev.1, which will be considered at the fourth session of the Preparatory Committee." What this means is that the draft Forest Principles is still an open document and that there is still time for both governments and NGO through governments to suggest new principles and modify text in New York during a whole new round of negotiations.

Although much of the text remains bracketed, unbracketed sections include the following principles:

- 1) UNCED is the most appropriate forum for discussions of forests;
- 2) Forests should be sustainably managed to meet present and future social, economic, ecological, cultural and spiritual human needs;
- 3) Governments should ensure and promote popular participation of interested parties;
- 4) Forests play a vital role in maintaining the ecological balance at the local, national, regional and global levels;
- 5) The functions of forests include use by forest dwellers, local communities and indigenous peoples, and forest policy should recognize and respect the rights and interests of these groups;
- 6) Women should fully participate in all aspects of management, conservation and sustainable development of forests;
- 7) The demands for fuelwood should be met in ways that avoid deforestation and degradation of forests;
- 8) Decisions affecting forests should be based on a full economic accounting, assessment and valuation of the broad range of goods and services provided by forest;
- 9) Efforts should be made to promote a supportive international economic climate;
- 10) National and international policies and programmes should fully take into account the environmental benefits of forests.

A Canadian proposal to require states to include targets and time

frames in national forestry was opposed by the US, and the language was bracketed. Other bracketed language concerns the need for national policies to comply with international forest guidelines, protection of native forests, environmental impact assessment requirements, external indebtedness, financial transfers and the transfer of technology.

The Agenda 21 options for programme areas for forests was not considered in detail by this session and the governments have until October to submit new or revised proposals for Agenda 21 items to the Secretariat for a new and revised PC/42/Add.3.

B. Desertification

Because the Secretariat papers on this issue were delayed, the issue of desertification received relatively little attention. This exacerbated fears by African delegation that their issues were being marginalized. Concern was also expressed about the lack of attention given to the results of the UN Plan of Action to Combat Desertification. To address these concerns, the Chair said that priority would be given at PrepCom IV to the desertification issue.

Although the Secretariat papers were praised by some for their analysis, the proposals for Agenda 21 were comparatively weak. African states proposed the creation of a special desertification fund. However, this was opposed by the US and the proposal was therefore bracketed. The U.S. stressed the need to improve national economic and land management policies.

The desertification decision (WG.I/L.326/Rev.1) notes that "while the problem of desertification is one of the central environmental and developmental issues in its own right, it is also part of the more general problems of how to preserve and manage fragile ecosystems." The annex to the decision sets out the following programme areas for Agenda 21:

- (a) strengthening the knowledge base and developing information and monitoring system of fragile ecosystems and the economic and social aspects of these systems;
- (b) intensifying afforestation and reforestation activities, combating land degradation, support of the

- management of biotic resources;
- (c) developing and strengthening programmes for integrated development actions and alternative livelihood systems in areas prone to desertification;
- (d) encourage and support popular participation and environmental education;
- (e) design programmes to cope with environmental refugees
- (f) eradication of poverty;
- (g) integrating anti-desertification programmes into national development programmes and/or national environmental action plans;
- (h) developing and improving an integrated approach to planning and management of land resources already desertified or subject to desertification;
- (i) develop comprehensive drought preparedness and drought relief scheme for drought prone areas.

5. Biodiversity and Biotechnology

The informal-informal consultations resulted in redrafted Agenda 21 documents on biodiversity (WG.I/L.28) and biotechnology (WG.I/L.30). However, there was insufficient time to consider the revised documents. For the next PrepCom, governments will have an opportunity to submit additional proposals and the Secretariat will prepare new documents based on these proposals as well as the comments made at this PrepCom. PrepCom IV will also consider a proposal (WG.I/L.26) put forward by a number of Latin American delegations to promote better exploitation by developing countries of the potential of biotechnology that could be generated from their biological resources and traditional knowledge and practices. Developing states continue to object to the separation drawn in the documents between biodiversity and biotechnology.

The decisions adopted by the Plenary (WG.I/L.37/Rev.1 - Biodiversity and WG.I/L.38/Rev.1 - Biotechnology) request the Secretariat to make the documents on biodiversity and biotechnology available to the Intergovernmental Negotiating Committee for a Convention on Biological Diversity (noting that the documents had not been considered in detail) and to work closely with the INC/Biodiversity, keeping it informed of progress on the Agenda 21 programme areas. Both decisions also

agree that the relationship between biotechnology and biological diversity will be considered in more detail at its fourth session.

The Biodiversity decision affirmed the four programme areas for Agenda 21. They are provision of information on biodiversity; maximization and spreading of the benefits of biodiversity; improvement of the conservation of biological resources; enhancement of the capacity to manage biodiversity.

The Biotechnology decision affirmed the programme areas for Agenda 21. They are: increase of plant and animal productivity; promotion of improved human health; enhancement of environmental protection; enhancement of safety and development of international mechanisms for cooperation; enabling of mechanisms for the environmentally sound application of biotechnology.

Working Group 2

1. Oceans

By the end of PrepCom III, little of substance was accomplished with regard to the Oceans and Coastal issue areas. While some forward motion may have been made on the problem of land-based sources of marine pollution (by including reference in the final report of Working Group II to the results of the recent Halifax meeting of experts on that subject) real progress was held up by objections by Antarctic Treaty Consultative Parties (ATCP) over the inclusion of Malaysia's proposal on Antarctic in Document L.18.

Malaysia proposed that polar regions should be addressed by the General Assembly, rather than by the Antarctic Treaty Consultative Parties. It became apparent that Malaysia had alienated some of its potential allies (ie. Finland) by including the Arctic in its proposal. Germany took the lead on behalf of the ATCP in opposing the Malaysian initiative.

The Working Group meetings almost threatened to break down when the ATCP opposed only reference to L.18 at all in the Working

Group's decision on oceans, while other delegations felt that L.18 should be the basis for discussions at PrepCom IV. A compromise was finally reached by referring in the decision to the title of L.18, but not to the document number.

This issue and the concern over the issue of continuation of the whaling moratorium and the question of the regulation of small cetaceans by the IWC shifted most of the negotiating focus to the status of the controversial document and how it was to be handled during the intersessional period.

The draft decision (A/CONF.151/PC/WG.II/L.22/Add.1/Rev.1) which was adopted by the Plenary on 4 September calls for, inter alia, the following:

1. the intergovernmental meeting of experts on the degradation of the marine environment from land-based sources of pollution and activities in coastal areas to be convened by UNEP in coordination with the UNCED secretariat to consider the elements and policy considerations as included in the Annexes to that decision (eg. the approach to be taken for the development of ocean management strategies, of point source pollution, land-based sources of marine pollution etc.)
2. the submission at Prepcom IV of a compilation document to be comprised of the outcome of discussions (Chairman's Working Paper of 23 August 1991 and 'some delegations' proposals dated 27 August 1991") and other documents and proposals submitted to the Chairman during the Third session.
3. governments to submit any additional comments to the compilation document to the Secretariat before 15 October 1991;
4. the Secretary General to submit to PrepCom IV revised options for Agenda 21 taking into account United Nations General Assembly Resolution 44/228; the debate and decisions taken at Prepcom III on such matters as the format of Agenda 21 and the means of implementation as contained in PC/L.49; the results of the Meeting of Experts on the Degradation of the Marine Environment from Land-

Based Sources of Pollution and Activities in Coastal areas,
to be convened by UNEP.

2. Freshwater

An informal session was devoted to a detailed reading of the revised paper on freshwater resources. A proposal contained in the original Secretariat paper that widespread water tariffs be introduced to help in conservation efforts was rejected by developing countries who argued that it would redirect water resources towards those who can afford to pay. Instead, developing countries argued that revenue should be generated by a tax on transnational corporations who engage in polluting activities. The UNCED documents will be forwarded to next January's Dublin meeting on freshwater resources, which is expected to submit recommendations to the next PrepCom meeting.

The draft decision on freshwater (A/CONF.151/WGII/L.23/Rev.1) was adopted by the Plenary on September. It calls for, inter alia, the following:

- 1.the Secretary General to submit to PrepCom IV as well as the International Conference on Water and the Environment (ICWE) for further consideration the annex to this decision which
2. the Secretary General to submit to PrepCom IV for consideration the revised Options for Agenda 21;
3. the ICWE to place particular attention to implementation mechanisms, program targets and costings, options for improved coordination and cooperation on water management at all levels and to harmonize the working group themes of the ICWE with the programme areas of Agenda 21 (as contained in the annex).

3. Wastes

Informal consultations were held on the four areas included within the agenda item: transboundary movement of hazardous wastes, radioactive waste, management of toxic chemicals and

management of solid wastes and sewage. On the basis of these consultations, the Working Group adopted a decision with three addenda containing revised Agenda 21 options. The addenda are heavily bracketed, due to disputes regarding proposals to ban transfers of hazardous wastes and toxic chemicals. The call for such a ban was vigorously opposed by the U.S.

Since NGOs were denied access to the informal consultations on wastes, our sources for reporting were confined to the wastes draft decision.

The draft decision on wastes (WG.II/L.21/Rev.1) was adopted by the Plenary on 4 September. In essence it calls for the Secretary-General to submit to PrepCom IV, the annex to this decision. As well, the decision requests the Secretary-General to submit to PrepCom IV for its consideration revised options for Agenda 21, including measures for the prevention, minimization and management of hazardous wastes, indicating the origins of proposals when they reflect the results of expert meetings.

The decision further calls upon the results of the UNEP ad hoc meetings of government-designated experts to consider the draft elements of a possible international strategy and action programme, including technical guidelines for environmentally sound management of hazardous wastes as planned for the end of 1991. And finally, the decision calls for the results of the ad hoc meeting of government-designated experts to be convened by UNEP in association with the IPCS which will consider proposals for an intergovernmental mechanism for risk assessment and management of chemicals to be held in London by mid-December.

It is clear from this decision that no agreement could be reached on the contentious issues which were addressed during the wastes proceedings, such as the appropriateness of the PrepCom forum for the discussion of radioactive waste, or the need for an outright ban on the transboundary movement of hazardous wastes.

Working Group 3

1. Evaluation of Environmental Instruments

In informal consultations, the Working Group reached consensus on a list of agreements that would form the subject of the survey, as well as on the criteria for evaluating those agreements. The Plenary adopted a decision calling on the Secretariat to compile background information on the agreements in accordance with the evaluation criteria. Although the initial agenda for PrepCom IV did not include an item on the survey (leading many to question whether the survey would in fact be carried out), after considerable discussion the Working Group agreed to include an agenda item on this subject.

2. General Rights and Obligations

Because of the dispute concerning the priority to be given to the G-77 draft decision, further discussion of the Secretariat's Consolidated Draft proved impossible. Instead the Plenary adopted a decision to consider and to take appropriate action at PrepCom IV on the G-77 text (WGIII/L.6) and to take as the basis for discussion at PrepCom IV all of the documents submitted, including the Peruvian draft, the Canadian draft, the G-77 draft, WGIII/L.16, WG III/L. 17 and the compilation of proposals contained in L.8/ Rev. 1.

There was speculation that the various procedural disputes in Working Group III were caused by the fact that, because L.8 appeared only during the course of the session, some delegations lacked instructions and did not want to discuss its substance.

On the form and orientation of the Earth Charter, the Chairman expressed the view that the Charter should be short and concise; closely integrated with Agenda 21 and written in appealing and inspirational language that is easily understood by the general public. As well, it should build on existing principles such as those contained in the Stockholm Declaration. Although many delegations voiced agreement with these general ideas, the proposals contained in L.8 as well as the initial discussion by the Working Group of the first two principles suggest that the Earth Charter may result in a long document with involved and complicated provisions.

3. Legal and Institutional Matters

There was no further substantive discussion on institutional arrangements. The Plenary adopted a decision requesting the Secretariat to prepare a compilation of institutional proposals for consideration at Prep Com IV.

The Chairman's summary of Legal and Institutional and Related Matters (WG.III/L.10) noted that there was broad agreement on the following points which could serve as guidance for the future work of the Working Group at PrepCom IV:

- (a) some reform of UN institutions in the field of environment and development is needed;
- (b) Working Group III must take into account decisions with institutional implications originating from Working Groups I and II and the Plenary;
- (c) proliferation of institutions at the global level must be avoided;
- (d) need for mechanisms to promote coordination at the intergovernmental level and at the level of the Secretariat and the UN specialized agencies and programmes involved with environment and development;
- (e) existing international institutions at the global and regional levels in the field of environment and development (ie. UNEP and UNDP) should be adapted in order to support sustainable development. There was consensus on the need to strengthen UNEP;
- (f) among the goals of institutional reform at the global and regional levels should be the enhancement of the capacity of institutions at the national level, especially in developing countries, to ensure the full integration of environment and development;
- (g) institutions and organizations outside the UN system, including the non-governmental sector, have an important role in this process;
- (h) The Working Group at the PrepCom IV will have to consider the need for institutional arrangements, both at the intergovernmental and Secretariat levels for the implementation and continuous review of Agenda 21.

During the Plenary, Egypt objected to the inconsistent language between Working Group III Draft Decision II (General Rights and Obligations) and Draft Decision V (Institutions) regarding the

compilation of proposals made at the third session. Decision V requests the Secretary-General "to prepare an updated compilation of institutional proposals made by delegations and others during the third session," whereas Decision II (on general rights and obligations) only requests the Secretary-General to "incorporate proposals from delegations" in the updated synthesis. Both the Chair of the Working Group, Bedrich Moldan of Czechoslovakia, and the Rapporteur Joan Sloan, of Canada, explained that different language was consciously incorporated in these decisions to reflect that the Earth Charter document would only include government proposals, while some institutional proposals could originate from other sources. Chile strongly objected to the deletion of the compromise language "and others," from the institutions decision. Chile stated that the important proposals made by NGOs in regards to institutions should be included in the Secretariat report for PrepCom IV and, if not, they would propose specific language which would require the Secretariat to consider NGO contribution. The final decision in Plenary on institutions adopted language proposed by Egypt which requests the Secretary-General to include the "institutional proposals made during the third session" in the compiled report for PrepCom IV without making reference to who originated the proposals.

The Report of Working Group III (PC/94) adopted by the Plenary also includes Decision III on legal instruments for transboundary waters and Decision IV on environmental disputes: prevention and settlement.

The decision on legal instruments for transboundary waters acknowledges that further progress on this matter will occur in the International Law Commission of the United Nations, the United Nations Economic Commission for Europe, and the International Conference on Water and the Environment. It decides to consider this topic under agenda item 2 of the Working Group at PrepCom IV.

Decision IV on Environmental disputes: prevention and settlement, recalls the relevant language of General Assembly resolution 44/228 which mandated the conference to assess the capacity of the UN system in the prevention and the settlement of disputes in the environmental sphere and to recommend measures in this field, while respecting existing bilateral and multilateral agreements that provide for the settlement of such disputes. The

decision recalls Principle 21 of the Stockholm Declaration and takes note of the proposals contained in PC/L.29 and WGIII/L.1. It decides to devote one or two sessions under agenda item 2 at PrepCom IV to the subject and requests the Secretary-General in preparation for PrepCom IV to give special attention to the mandate of paragraph 15(w) of General Assembly resolution 44/228.

C



WORLD RESOURCES
INSTITUTE

Donna W. Wise
Director, Policy Affairs

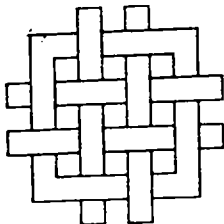
1709 New York Avenue, N.W., Washington, D.C. 20006, 202-662-3487

Stephan Schmidheiny

Principal Advisor for Business and Industry
to the Secretary-General,
United Nations Conference on Environment
and Development, Earth Summit '92

Chairman
Business Council for Sustainable Development

ADDRESS



WORLD RESOURCES INSTITUTE

1709 New York Avenue, N.W., Washington, D.C. 20006, Telephone: 202-638-6300
Facsimile: 202-638-0036 Telex: 64414 WRIWASH

Press Club Luncheon for Stephan Schmidheiny
September 17, 1991

The Business Council for Sustainable Development (BCSD) is a group of business leaders who represent a broad range of different enterprises, nations and cultures. Its existence arises from plans for the UN Conference on Environment and Development (UNCED) to be held in Rio de Janeiro next Summer.

Having been appointed Special Advisor for Business and Industry for UNCED by its Secretary-General, Mr. Maurice Strong, and not wanting to be a lone voice in the wilderness, I called together some 50 business leaders to form the BCSD. Our short-term task is to stimulate business to participate in UNCED. Our longer term ambition is to stimulate business to participate in sustainable development.

We in the BCSD have different backgrounds and experiences, different values, views and attitudes. Yet we share a common concern about the development of modern civilisation and its impacts upon the natural environment and the stock of resources available for future generations. We see nature and its carrying capacity threatened both in the more industrialised nations, with their high levels of consumption and pollution, and in the less industrialised nations, where inappropriate development leads to mass poverty which leads to the reckless use of resources.

The natural environment is a complex system which has been exposed to interference from another complex system: human civilisation. We have developed patterns of economic activity not compatible with patterns of ecological reality. If we persist in this folly, our attempts to progress will gradually weaken and then destroy the regenerative powers of nature upon which all hopes of progress are ultimately based. Natural laws cannot be changed. But human beings are full of ingenuity and enterprise, and we have the ability to adapt our civilisation so that it can develop in harmony with nature.

We therefore believe that there is an urgent need for changes towards more sustainable forms of progress. But we are not calling for a revolution; we note instead that revolutionary changes have already begun. Reactions to present environmental and developmental degradation are altering the ways in which governments are organised, as environmental concerns begin to pervade all sectors; the ways in which nations relate to one another, as international law becomes more binding; the ways in which "security" is defined, as environmental threats are perceived more clearly; and the ways in which both governments and ordinary people judge the conduct and the products of business and industry. The revolution is underway.

The business community must play a leading role in guiding these changes, which will involve alternations in technology, production patterns, trade and finance - all of which are areas of business concern and competence. It will be more profitable for both the human race and for business itself if the business community helps to shape change rather than simply suffers change.

The primary challenge these changes raise for business and industry is how to combine growth and conservation? Industry tends to agree fully with the Brundtland Commission's findings that growth will be required to meet the needs of the much larger "future generations" of next century, as well as to alleviate the poverty which plays a large part in current environmental destruction. We also agree with the commission's findings that there are no inherent limits to growth, but there are limits imposed by the nature of present technologies and by current forms of social organisation.

Sustainable development has far-reaching implications for the industrialist. We are challenged to drop our traditional defensive approach to environmental protection regulations, and to face up to a much more positive challenge. How can we devise ways of doing business that can allow growth to continue over time without destroying the natural resource base? In straightforward business terms, the challenge is to generate the maximum income from a given stock of assets without depleting the capital base.

The World Commission listed as a prerequisite for sustainable development "a technological system that can search continuously for new solutions". This search achieves best results where education and capital are both available. But new technologies are also required in poorer nations, because they will make the development process more effective and more efficient. We must find new ways and means for all parts of the world to cooperate in finding and applying the best applicable and most efficient technologies which are environmentally friendly.

Transnational enterprises can and do play a part in this process. Indeed they are already one of the most innovative developers and effective disseminators of technologies and of the training to use them. Yet more needs to be done, and our work will focus on this question. What is already clear is that technological cooperation is most likely to succeed if enterprises are relatively free to contract among themselves and if competition is real and markets are open. Developing countries in different regions have already been able to attract new investments and new technologies by offering open markets and reliable enabling conditions to the national and international business community.

One can rightly ask four years after the Brundtland Report was accepted by the United Nations how many governments in the world have really made major changes in policy designed to convert the unsustainable into the sustainable. Business faces the same embarrassing question. In the past, business tended to deal with environmental concerns by specialised staff departments. Problems were addressed as and when they showed up. Whether it was in plants, at a waste dump or in the media - coping with environmental problems was essentially seen as a repair job.

Recently, these problems began to move the hierarchy. They are today very much on the Chief Executive Officer's agenda in many companies. They have become a matter of high strategic relevance

not only to prevent potential damage but also to benefit from a major trend shaping future markets.

Yes, Chief Executive Officers can assume new responsibility and drive it home throughout the operating divisions of their corporation; they can go beyond regulation and seek creative ways to improve corporate environmental management; and they can encourage their peers to do the same. Business leaders have the formidable task of convincing their employees, their shareholders and their peers that there are better and more sustainable ways of managing private sector firms. But industry cannot achieve sustainable development on its own.

It cannot, for example, be expected to go against the laws of the market on moral or ethical grounds. The modern economic system is at its core a rational one. The market economy offers the most effective framework for reacting to the needs and demands of people which are expressed as consumer preferences. Its advantages include swift, flexible and effective responses. But its disadvantage is a short time horizon. The market does not intrinsically respect the needs of future generations.

The decline of socialism does not signify the success of capitalism. Socialist and communist regimes have not failed because of their ideology, but rather because their economic bankruptcy could no longer be hidden. Today we are aware that this economic failure was also a social and environmental one. The whole system was ultimately doomed because its overall pattern was not sustainable. Ideology was used as a veil to cover up the truth as long as possible. We are particularly affected by the grim accounts on the state of the environment in Eastern Europe and the Soviet Union.

Mikhail Bernstam of the Hoover Institution in Stanford has calculated that socialist economies need three times more energy than their Western counterparts to produce a unit of GNP. North Korea needs 70% more energy per head and three times the energy per unit of GNP than South Korea. Similar figures are to be found in comparisons between the former East and West Germanies. Socialist countries produce between three and six times more pollution than Western industrialised countries. The economic and ecological inefficiencies of the system are obvious.

What are the real lessons to be learned from the recent events in Eastern Europe and Soviet Union? The main conclusion must be that closed systems (in economics, society, or communications) tend to be inefficient. They obstruct the timely recognition of problems and the finding of optimum solutions to solve them. This obstruction increases environmental damage. Closed systems cannot compete with open systems because they cannot harness the creativity inherent in an open society to adapt to changing realities and even turn them into opportunities.

Open systems - including open government, open markets and the freedom to communicate - are all preconditions for economic success, for social equity, for an efficient use of natural resources and for effective environmental policies. Sustainable development can only be achieved through open, market-oriented and competitive structures. Long-term economic growth is impossible without technological progress. And technological progress cannot but eventually reduce resource use and environmental discharges. So though it may seem a paradox, long-term economic growth will of necessity be accompanied by environmental improvements.

Open markets are based on competition, and competition spurs economies and enterprises to adapt to new market conditions and to implement technical innovations. The perceived need to use resources more efficiently and minimise waste is becoming a crucial new condition - a new fact of life - for those operating in the market.

Sustainable development has many necessary pre-conditions; these include stable political frameworks for the foreseeable future, free market economies, good educational systems and open communications. While one may argue about how "sustainable" they are at present, the planet's most successful nations economically - Japan and Germany - show such characteristics. They also demonstrate leadership in increasing resource efficiency and in minimising pollution. In respect of manufacturing costs, the efficient use of resources also improves one's competitive position.

Open markets are prerequisites for sustainable development, but we must be frank and admit that at present the concept of the "open market" is an ideal rather than a reality. Present forms of capitalism do not include in price structures the costs of environmental damage. In theory the polluter pays; in practice, he usually does not. Corporations rarely provide enough information on the effects of their operations on the environment - information that might affect the value which investors and the public place on the corporation's stock, products and services. These are all flaws in the present market, flaws which make the market less open, less "transparent" than it must become.

Political systems in the developing countries are often closed, and thus dependent on strong ideologies. But neither socialism nor capitalism have met the needs of many of these countries. No obvious "optimum development model" exists for three-quarters of the world's population. But, again, we would insist that open markets and free market solutions are a precondition for sustainable development in the developing nations also. And given the global environmental effects of economic growth in the developing world, then the environmental future of the planet depends largely on which economic systems these countries chose.

A choice of a market-oriented economy means an opening towards global markets. But today, the industrialised countries are

erecting growing numbers of barriers against imports from the South. Openness is also required of the wealthy nations.

More open markets in developing countries will require their governments to establish the necessary legal frameworks (comprehensible, equitably administrated laws, clear property rights, appropriately valued currencies, etc). Education is required. So are clear environmental regulations and market mechanisms.

Sustainable development will both require and create new products, processing methods, materials and markets. These will in turn create new chances, additional opportunities and increased responsibilities for entrepreneurs. Entrepreneurs have a wide knowledge of markets, innovations, commerce and trade. Sustainable development is a challenge to them and a chance at the same time. With their experience, they can contribute a lot to making sustainable development possible and workable.

The industrial entrepreneur has an important part to play in the transition to a sustainable economy. In particular, there are four key roles for leaders of business:

- first, to establish a convincing model of sustainable industrial development, and then to make a formal commitment to implementing this on a global scale;

- second, to communicate actively with governments and political parties, with environmental organisations, employees, consumers, financial analysts and the public at large. This is necessary both to explain their company's environmental performance and also to lay the foundations for partnership between different interests in society to achieve the common task of sustainable development,

- third, to participate actively in the regulatory processes at all levels, including in international organisations, with the aim of finding practicable market-oriented solutions to environmental problems;

- fourth, to seek out new business opportunities for sustainable products and processes.

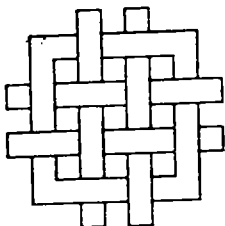
Business and industry will have to recognise that there is no alternative but to compete for the best and fastest implementation of sustainable development.

Stephan Schmidheiny

Principal Advisor for Business and Industry
to the Secretary-General,
United Nations Conference on Environment
and Development, Earth Summit '92

Chairman
Business Council for Sustainable Development

ADDRESS



WORLD RESOURCES INSTITUTE

1709 New York Avenue, N.W., Washington, D.C. 20006, Telephone: 202-638-6300
Facsimile: 202-638-0036 Telex: 64414 WRIWASH

Press Club Luncheon for Stephan Schmidheiny
September 17, 1991

The Business Council for Sustainable Development (BCSD) is a group of business leaders who represent a broad range of different enterprises, nations and cultures. Its existence arises from plans for the UN Conference on Environment and Development (UNCED) to be held in Rio de Janeiro next Summer.

Having been appointed Special Advisor for Business and Industry for UNCED by its Secretary-General, Mr. Maurice Strong, and not wanting to be a lone voice in the wilderness, I called together some 50 business leaders to form the BCSD. Our short-term task is to stimulate business to participate in UNCED. Our longer term ambition is to stimulate business to participate in sustainable development.

We in the BCSD have different backgrounds and experiences, different values, views and attitudes. Yet we share a common concern about the development of modern civilisation and its impacts upon the natural environment and the stock of resources available for future generations. We see nature and its carrying capacity threatened both in the more industrialised nations, with their high levels of consumption and pollution, and in the less industrialised nations, where inappropriate development leads to mass poverty which leads to the reckless use of resources.

The natural environment is a complex system which has been exposed to interference from another complex system: human civilisation. We have developed patterns of economic activity not compatible with patterns of ecological reality. If we persist in this folly, our attempts to progress will gradually weaken and then destroy the regenerative powers of nature upon which all hopes of progress are ultimately based. Natural laws cannot be changed. But human beings are full of ingenuity and enterprise, and we have the ability to adapt our civilisation so that it can develop in harmony with nature.

We therefore believe that there is an urgent need for changes towards more sustainable forms of progress. But we are not calling for a revolution; we note instead that revolutionary changes have already begun. Reactions to present environmental and developmental degradation are altering the ways in which governments are organised, as environmental concerns begin to pervade all sectors; the ways in which nations relate to one another, as international law becomes more binding; the ways in which "security" is defined, as environmental threats are perceived more clearly; and the ways in which both governments and ordinary people judge the conduct and the products of business and industry. The revolution is underway.

The business community must play a leading role in guiding these changes, which will involve alternations in technology, production patterns, trade and finance - all of which are areas of business concern and competence. It will be more profitable for both the human race and for business itself if the business community helps to shape change rather than simply suffers change.

The primary challenge these changes raise for business and industry is how to combine growth and conservation? Industry tends to agree fully with the Brundtland Commission's findings that growth will be required to meet the needs of the much larger "future generations" of next century, as well as to alleviate the poverty which plays a large part in current environmental destruction. We also agree with the commission's findings that there are no inherent limits to growth, but there are limits imposed by the nature of present technologies and by current forms of social organisation.

Sustainable development has far-reaching implications for the industrialist. We are challenged to drop our traditional defensive approach to environmental protection regulations, and to face up to a much more positive challenge. How can we devise ways of doing business that can allow growth to continue over time without destroying the natural resource base? In straightforward business terms, the challenge is to generate the maximum income from a given stock of assets without depleting the capital base.

The World Commission listed as a prerequisite for sustainable development "a technological system that can search continuously for new solutions". This search achieves best results where education and capital are both available. But new technologies are also required in poorer nations, because they will make the development process more effective and more efficient. We must find new ways and means for all parts of the world to cooperate in finding and applying the best applicable and most efficient technologies which are environmentally friendly.

Transnational enterprises can and do play a part in this process. Indeed they are already one of the most innovative developers and effective disseminators of technologies and of the training to use them. Yet more needs to be done, and our work will focus on this question. What is already clear is that technological cooperation is most likely to succeed if enterprises are relatively free to contract among themselves and if competition is real and markets are open. Developing countries in different regions have already been able to attract new investments and new technologies by offering open markets and reliable enabling conditions to the national and international business community.

One can rightly ask four years after the Brundtland Report was accepted by the United Nations how many governments in the world have really made major changes in policy designed to convert the unsustainable into the sustainable. Business faces the same embarrassing question. In the past, business tended to deal with environmental concerns by specialised staff departments. Problems were addressed as and when they showed up. Whether it was in plants, at a waste dump or in the media - coping with environmental problems was essentially seen as a repair job.

Recently, these problems began to move the hierarchy. They are today very much on the Chief Executive Officer's agenda in many companies. They have become a matter of high strategic relevance

not only to prevent potential damage but also to benefit from a major trend shaping future markets.

Yes, Chief Executive Officers can assume new responsibility and drive it home throughout the operating divisions of their corporation; they can go beyond regulation and seek creative ways to improve corporate environmental management; and they can encourage their peers to do the same. Business leaders have the formidable task of convincing their employees, their shareholders and their peers that there are better and more sustainable ways of managing private sector firms. But industry cannot achieve sustainable development on its own.

It cannot, for example, be expected to go against the laws of the market on moral or ethical grounds. The modern economic system is at its core a rational one. The market economy offers the most effective framework for reacting to the needs and demands of people which are expressed as consumer preferences. Its advantages include swift, flexible and effective responses. But its disadvantage is a short time horizon. The market does not intrinsically respect the needs of future generations.

The decline of socialism does not signify the success of capitalism. Socialist and communist regimes have not failed because of their ideology, but rather because their economic bankruptcy could no longer be hidden. Today we are aware that this economic failure was also a social and environmental one. The whole system was ultimately doomed because its overall pattern was not sustainable. Ideology was used as a veil to cover up the truth as long as possible. We are particularly affected by the grim accounts on the state of the environment in Eastern Europe and the Soviet Union.

Mikhail Bernstam of the Hoover Institution in Stanford has calculated that socialist economies need three times more energy than their Western counterparts to produce a unit of GNP. North Korea needs 70% more energy per head and three times the energy per unit of GNP than South Korea. Similar figures are to be found in comparisons between the former East and West Germanies. Socialist countries produce between three and six times more pollution than Western industrialised countries. The economic and ecological inefficiencies of the system are obvious.

What are the real lessons to be learned from the recent events in Eastern Europe and Soviet Union? The main conclusion must be that closed systems (in economics, society, or communications) tend to be inefficient. They obstruct the timely recognition of problems and the finding of optimum solutions to solve them. This obstruction increases environmental damage. Closed systems cannot compete with open systems because they cannot harness the creativity inherent in an open society to adapt to changing realities and even turn them into opportunities.

Open systems - including open government, open markets and the freedom to communicate - are all preconditions for economic success, for social equity, for an efficient use of natural resources and for effective environmental policies. Sustainable development can only be achieved through open, market-oriented and competitive structures. Long-term economic growth is impossible without technological progress. And technological progress cannot but eventually reduce resource use and environmental discharges. So though it may seem a paradox, long-term economic growth will of necessity be accompanied by environmental improvements.

Open markets are based on competition, and competition spurs economies and enterprises to adapt to new market conditions and to implement technical innovations. The perceived need to use resources more efficiently and minimise waste is becoming a crucial new condition - a new fact of life - for those operating in the market.

Sustainable development has many necessary pre-conditions; these include stable political frameworks for the foreseeable future, free market economies, good educational systems and open communications. While one may argue about how "sustainable" they are at present, the planet's most successful nations economically - Japan and Germany - show such characteristics. They also demonstrate leadership in increasing resource efficiency and in minimising pollution. In respect of manufacturing costs, the efficient use of resources also improves one's competitive position.

Open markets are prerequisites for sustainable development, but we must be frank and admit that at present the concept of the "open market" is an ideal rather than a reality. Present forms of capitalism do not include in price structures the costs of environmental damage. In theory the polluter pays; in practice, he usually does not. Corporations rarely provide enough information on the effects of their operations on the environment - information that might affect the value which investors and the public place on the corporation's stock, products and services. These are all flaws in the present market, flaws which make the market less open, less "transparent" than it must become.

Political systems in the developing countries are often closed, and thus dependent on strong ideologies. But neither socialism nor capitalism have met the needs of many of these countries. No obvious "optimum development model" exists for three-quarters of the world's population. But, again, we would insist that open markets and free market solutions are a precondition for sustainable development in the developing nations also. And given the global environmental effects of economic growth in the developing world, then the environmental future of the planet depends largely on which economic systems these countries chose.

A choice of a market-oriented economy means an opening towards global markets. But today, the industrialised countries are

erecting growing numbers of barriers against imports from the South. Openness is also required of the wealthy nations.

More open markets in developing countries will require their governments to establish the necessary legal frameworks (comprehensible, equitably administrated laws, clear property rights, appropriately valued currencies, etc). Education is required. So are clear environmental regulations and market mechanisms.

Sustainable development will both require and create new products, processing methods, materials and markets. These will in turn create new chances, additional opportunities and increased responsibilities for entrepreneurs. Entrepreneurs have a wide knowledge of markets, innovations, commerce and trade. Sustainable development is a challenge to them and a chance at the same time. With their experience, they can contribute a lot to making sustainable development possible and workable.

The industrial entrepreneur has an important part to play in the transition to a sustainable economy. In particular, there are four key roles for leaders of business:

- first, to establish a convincing model of sustainable industrial development, and then to make a formal commitment to implementing this on a global scale;

- second, to communicate actively with governments and political parties, with environmental organisations, employees, consumers, financial analysts and the public at large. This is necessary both to explain their company's environmental performance and also to lay the foundations for partnership between different interests in society to achieve the common task of sustainable development,

- third, to participate actively in the regulatory processes at all levels, including in international organisations, with the aim of finding practicable market-oriented solutions to environmental problems;

- fourth, to seek out new business opportunities for sustainable products and processes.

Business and industry will have to recognise that there is no alternative but to compete for the best and fastest implementation of sustainable development.

Dr. Stephan Schmidheiny

Dr. Stephan Schmidheiny was appointed Principal Advisor for Business and Industry by the Secretary-General of the United Nations Conference on Environment and Development in February 1991. In this capacity, Dr. Schmidheiny provides leadership for the UNCED Secretariat's efforts to facilitate the contribution of business and industry to the Earth Summit to be held in June 1992, and to its preparatory process.

Dr. Schmidheiny has an extensive range of interests in both manufacturing and trade and is the chief executive officer of three privately owned companies: ANOVA (trading and retailing) NUEVA (steel, water supply systems, and fibre cement) and UNOTEC. He is a member of the boards of ABB Asea Brown Boveri, Landis & Gyr, LEICA, Nestle, SMH and Union Bank of Switzerland. He is also chairman of the FUNDES Foundation, promoting small business enterprises in Latin America.

Dr. Stephan Schmidheiny

Dr. Stephan Schmidheiny was appointed Principal Advisor for Business and Industry by the Secretary-General of the United Nations Conference on Environment and Development in February 1991. In this capacity, Dr. Schmidheiny provides leadership for the UNCED Secretariat's efforts to facilitate the contribution of business and industry to the Earth Summit to be held in June 1992, and to its preparatory process.

Dr. Schmidheiny has an extensive range of interests in both manufacturing and trade and is the chief executive officer of three privately owned companies: ANOVA (trading and retailing) NUEVA (steel, water supply systems, and fibre cement) and UNOTEC. He is a member of the boards of ABB Asea Brown Boveri, Landis & Gyr, LEICA, Nestle, SMH and Union Bank of Switzerland. He is also chairman of the FUNDES Foundation, promoting small business enterprises in Latin America.

CHAIRMAN'S AFTERWORD

Introduction

Important points concerning the issues discussed in the Working Group's report were raised by members of the Senior Policy Makers group that met in Aspen from 25-28 July, immediately following the conclusion of the Working Group meetings. The following summary of these key points is offered on the responsibility of the Chairman, Crispin Tickell. It does not represent a consensus report from the Senior Policy Makers Group.

General

Speakers underlined the importance of creating fundamentally new attitudes, especially in individual and local decisions, if industrial and developing countries were to move on to a sustainable development path. Governments and international institutions should focus efforts on promoting such changed attitudes and behavior at the local level.

The central roles of economic growth as the engine of sustainable development and of the corporate private sector as the principal source of power for that engine were strongly emphasized. Proposals for institutional and other changes by governments should take account of this. Corporate attitudes towards sustainable development had changed substantially, as the work of the Business Council for Sustainable Development and the International Chamber of Commerce, among others, showed.

Several speakers noted that population issues which were central to the hope of achieving sustainable development were not extensively treated in the Working Group's report. The problem was not only one of population growth, to which the report referred, but also of distribution and density.

The need for improved national accounting to incorporate proper measurement of renewable and non-renewable use of natural resources was suggested as a complement to the report's emphasis on full social cost accounting. Progress was being made, notably in the international financial institutions, on methodologies to restate national accounts in this way and so to reflect more accurately progress towards sustainable development.

Institutions

Speakers strongly underlined the Working Group's emphasis on the need for governments to pursue more coherent and consistent policies in the different international organizations.

There was extensive discussion of the proposal for a Sustainable Development Commission. Most speakers accepted the need for a high-level, intergovernmental deliberative body that could focus the energies of the U.N. system on sustainable development. There was widespread support for further consideration of the type of Commission recommended by the Working Group and of its mandate. More specifically, the discussion emphasized that:

- Such a body must involve those ministers with real decision-making power to affect the transition to sustainable development.
- In order to have the necessary weight within the U.N. system, such a body should report directly to the U.N. General Assembly.

On inter-agency coordination, participants emphasized that the Secretary-General had at his disposal, for example through his power of appointment, considerable means to direct the U.N. system towards sustainable development.

Several speakers warned of the danger of creating too much centralization within the U.N. system. There was value in a diversity of approaches to sustainable development, reflecting the diversity of the situations of individual countries. The quest for coordination should not be used to escape from the task of ensuring more effective action under existing institutions.

The importance of developing the scientific basis of understanding of global environmental risk was emphasized. This went beyond the support for technological development and improved global assessment mechanisms recommended in the Working Group report.

The role of information as a tool of change was stressed. UNCED was in part an institutional experiment in which, notably through its Working Party system, information could be brought to the attention of decision makers in forms that would catalyze action. For this purpose, the role of independent review mechanisms was vital.

Technology

Speakers underlined the central role of the private sector in the diffusion of technology. Many corporations were moving ahead rapidly in promoting environmentally benign technologies in their operations and in assembling and making available information on them. The participation of the corporate sector in recent negotiations on environmental issues (e.g. on stratospheric ozone) had been an important innovation. For the future, the

most important factor, it was suggested, was for developing countries to create a stable climate for private investment.

Despite this:

- Market forces could not be expected to cater to the needs of the majority of the world's population that lived outside the market.
- In several important countries, the private sector had largely moved out of the development of at least one critical field: contraceptive technology.

Many participants underlined the importance of building capacity in developing countries for taking sound decisions linking economic growth and environmental protection. Soft technologies, such as improved agricultural extension services, could be crucial. Many of the barriers to technology diffusion were social and economic, not financial. One promising idea was to develop cooperation, on a commercial basis, among developing countries on new technologies, for example biotechnology, in which they might have a natural comparative advantage.

Several speakers focused on situations in which concessional financing of technology diffusion would be needed. In some cases, technology required for sustainable development would be more expensive than other less environmentally benign technologies that were readily available. Concessional financing of the more benign technology could be a cost-effective means of reducing global risk.

Several speakers emphasized that significant new action to diffuse technology for sustainable development could be initiated even before UNCED and should not be delayed until then.

Finance

Speakers discussions on finance focused on the relationship between the private and public sectors. Both had a role to play; and both should understand better the limits of their roles.

Many agreed that in the climate of the 1990s, private investment was the most likely source of substantial new funds for achieving the growth and adjustment needed for sustainable development in both developing and industrial countries. Substantial resources could be released if governments could muster the political will to promote freer trade through the Uruguay Round, reduce subsidies for agriculture, textiles and energy, among other

sectors, and also reduce military expenditures (where sellers and buyers of arms had to share the blame).

Additional resources could be found by expanding international mechanisms, for example through the International Finance Corporation, to channel private savings from developing countries into portfolio investment in those countries.

Some argued, however, that the Working Group had not adequately reflected the scale of the additional public resources needed for sustainable development. In discussing the role of public resources, speakers suggested that national governments and international financial institutions should focus on several key areas:

- Using aid to prime the pump for market-oriented sustainable growth.
- Finding ways to reduce the burden of debt that would release resources in developing countries to promote sustainable development.
- Ensuring that development projects they supported created indigenous local capacities to sustain development, rather than depend on outside experts. Capacity building (including NGOs) was the best kind of investment.
- Working with developing country governments to find new ways to reduce embezzlement and capital flight and promote more accountable management of economic development.

The role of the Global Environment Facility was extensively discussed.

Several speakers urged developing countries to propose specific changes to the governance of the fund rather than express general unhappiness with it. There was also support for a proposal to create special funds for sustainable development in the regional development banks.

Some speakers suggested that new financing mechanisms would probably be needed in the medium term to provide support for sustainable development in a way that did not depend on year by year decisions of governments. Many ideas were mentioned -- including changes for the use of the global commons, a non-renewable energy or a carbon tax, and an SDR-linked funding mechanism. UNCED could not be expected to embrace any of these ideas, but could play a useful role by suggesting which were the most promising.

Many speakers expressed concern about the growing level of economic migrants from poor countries. As long as net resource flows from developing to industrial countries continued, such migration was likely to increase. Environmental degradation was the first issue that might help generate enough international consensus to tackle the underlying causes of this problem.

Legal Issues

On legal issues, several speakers urged the need for a clear definition of the global commons. There should be a distinction between areas not under any national jurisdiction -- true commons -- and areas, such as forests, that were under national jurisdiction, but were of global importance. The latter were properly the subject of negotiation in which the shared interests of all countries was reflected in the provision of international financial and other assistance to help protect them. This principle had worked well under the agreement on the Natural and Cultural Heritage of Mankind, under which the international community had provided funds to maintain important sites.

On the Earth Charter, several speakers emphasized the need for a document that could be readily accepted and was not so comprehensive as to duplicate others, such as the Universal Declaration of Human Rights. Discussion of specific points for inclusion in the Earth Charter focused on:

- Intergenerational equity. This concept was inherent in the idea of sustainable development, but should not be used as a narrowly conservationist idea that discouraged economic growth and risk-taking needed to promote it.
- The need to match rights and obligations.
- The principle of subsidiarity, which some participants thought was not necessarily useful. It was wrong to elevate an abstract principle over the need to get the job done.

On the future development of international environmental law, speakers noted:

- The need for governments to live up to their obligations under existing agreements.
- The importance of flexibility in developing dispute resolution procedures. Arbitration, fact-finding, and other devices short of

judicial process were indispensable and could have the desirable result of preventing disputes before they became serious.

Aspen Institute Senior Policy Makers Meeting
on
International Environment Policy
Aspen, Colorado • July 25-28, 1991

List of Participants

Nobutoshi Akao	Ambassador for the Global Environment and Pacific-Asian Economic Cooperation, Ministry of Foreign Affairs, Tokyo
Emeka Anyaoku	Secretary-General of the Commonwealth
Timothy Atkeson	Assistant Administrator, Office of International Activities, U.S. Environmental Protection Agency
Marcos Castrioto de Azambuja	Secretary of Foreign Policy, Ministry of Foreign Relations (Brazil)
John Bell	Special Advisor on the Environment, Department of External Affairs, Canada
Curtis Bohlen	Assistant Secretary for Oceans, Environment and Science, U.S. Department of State
Harlan Cleveland	Hubert H. Humphrey Institute of Public Affairs, University of Minnesota
Christine K. Debrah	Member of the National Commission for Democracy, Ghana
William D. Eberle	Co-chairman, The United States and the World Economy Program, The Aspen Institute
Gus Edgren	Assistant Administrator and Director, Bureau for Programme Policy and Evaluation, United Nations Development Programme
Lars-Göran Engfeldt	Deputy Permanent Representative of Sweden to the United Nations
Marius Enthoven	Director-General for the Environment, The Hague
Fabio Feldmann	Federal Deputy, Camara dos Deputados, Brazil
Shinji Fukukawa	Executive Vice President, Kobe Steel, Inc.

Richard N. Gardner	Professor of Law, Columbia University
C. Boyden Gray	Counsel to the President of the United States.
K. Kesavapany	Director for International Organizations, Ministry of Foreign Affairs, Singapore
Ismat Kittani	Consultant to the Secretary-General, UNCED
Mikhail Kokeev	Executive Secretary of U.S.S.R. Government Commission on the Environment, Ministry of Foreign Affairs, Moscow
José Lutzenberger	Minister of the Environment, Brazil
William Mansfield	Deputy Director, United Nations Environment Programme (UNEP), Kenya
Nafis Sadik	Executive Director, United Nations Fund for Population Activities
Mahamed Sahnoun	Diplomatic Advisor to the President of Algeria
Katsuo Seiki	Ministry of International Trade and Industry, Tokyo
Ibrahim Shihata	Vice President and General Counsel, The World Bank
James G. Speth	President, World Resources Institute
Maurice Strong	Secretary-General, UNCED
Peter Thacher	World Resources Institute
Crispin Tickell	Warden, Green College, Oxford University
Robert M. White	President, National Academy of Engineering
Tim Wirth	United States Senator, Colorado
Qian Yi	Environmental Engineer, Qinhua University, China

OBSERVERS

Barbara Pyle	Vice-President of Environment Policy for TBS SuperStation
Benjamin C. Read	President of ECOFUND '92
David John Runnalls	Director of the Environment and Sustainable Development Programme, Institute for Research in Public Policy, Ottawa
Philip Shabecoff	Executive Publisher of <i>Greenwire</i>

Note: Members of the Working Group who are in Aspen from 25-28 July will also participate in the Senior Policy Makers' meeting.

REPORT
OF
THE ASPEN INSTITUTE
WORKING GROUP
ON
INTERNATIONAL
ENVIRONMENT AND
DEVELOPMENT POLICY

25 JULY, 1991

TABLE OF CONTENTS

INTRODUCTION

INSTITUTIONS

TECHNOLOGY

FINANCE

LEGAL ISSUES

ANNEX 1: LIST OF WORKING GROUP MEMBERS

INTRODUCTION

The Aspen Institute convened an international Working Group in Aspen, Colorado, from 18-25 July, 1991, to discuss institutional, technology, financial and legal issues that will fall within the scope of the 1992 United Nations Conference on Environment and Development. The members of the Working Group, which was chaired by Sir Crispin Tickell, are listed in Annex 1.

This report is based on the discussions of the Working Group. It does not represent a document that has been approved by individual members of the Group. It is, rather, a summary by the rapporteurs, issued on the authority of the Chairman and the Aspen Institute, of the principal elements of the Group's deliberations and of the recommendations and options that emerged from its work. The report is submitted to participants in the third meeting of the UNCED Preparatory Committee and to others interested in UNCED's work in the hope that it may serve a useful and practical purpose in focusing discussions and crystallizing decisions in the short time remaining before UNCED itself convenes in Rio de Janeiro in 1992.

Several general themes recurred throughout the Aspen Group's deliberations and deserve to be highlighted at the outset. These themes are summarized in the following four sections of this Introduction.

The Central Role of National, Subnational and Regional Governments and Non-Governmental Organizations. The primary responsibility for environmentally sound, or sustainable, development must rest with governments at all levels, acting through a broadly participatory process involving non-governmental organizations and groups (including the private corporate sector) and private citizens and, where appropriate, in conjunction with regional organizations. This applies to industrial and to developing countries, both of which in different ways have proved unable or unwilling to coordinate and integrate their policies related to environment and development with a view to achieving sustainable development. Strengthening the capacity of these national, subnational and regional organizations for promoting sustainable development and reinforcing the participatory nature of decision-making processes at all levels should be a primary goal of all those, including international organizations, concerned with sustainable development throughout the world. International institutions, in the Working Group's view, should provide the necessary staff support for this purpose.

Concern for the Future. Giving reality to the concept of sustainable development implies that human beings should have a different view of the relationship between the interests of the present and those of future

generations than is typically the case. This idea has important, and difficult, implications across a number of fields. These include the adoption of full social cost pricing as a means of ensuring that the externalities of human behavior are adequately accounted for, and new legal concepts of intergenerational equity. The Working Group believes that this heightened concern for the future, even though the ways in which it can be made operational may not be fully understood, should be a guiding light for UNCED's work and for the implementation of the Agenda 21 action plan and the specific Conventions that are likely to emerge from the Conference.

Concern for future generations should not be seen as diminishing concern for the welfare of the present generation. The Working Group underlined the importance of ensuring the right of each individual to freedom and adequate conditions of life. At the same time, all persons bear the responsibility to protect and improve the environment for present and future generations, as well as for the sustainable use of natural resources, taking account of their financial and technical capability to do so.

Consumption and Population. Unsustainable patterns of consumption and population growth are two of the primary causes of global environmental problems now and in the future. Achieving a path to sustainable development requires changes in the behavior patterns that give rise to these two phenomena. Such changes will require profound modifications in individual, social, economic and political behavior. But without progress in this direction even the best conceived action plans and institutional, technological, financial and legal arrangements that the international community might put in place would be for naught. The Aspen Working Group did not address itself to these issues in detail, but recognized their fundamental importance to the work of UNCED and to the prospects for sustainable development.

Urgency and Timing. The Aspen Working Group's discussions reflected a sense of urgency about the need for progress by governments and peoples towards more sustainable development. Many of the institutional, technological, financial and legal changes required to make such progress may, nevertheless, take several years to implement. The Group's recommendations and options ranged over measures that can be taken in the short term and more fundamental changes that will take longer to achieve. Where possible, this report distinguishes between these different time horizons for action. A cardinal principle for UNCED, however, is to ensure that actions taken in the short term are consistent with, and where possible facilitate, measures that will take longer to adopt and implement. It would be at best unfortunate if short term decisions were taken for reasons of expediency or convenience that would have a high likelihood of impeding desirable longer term changes or generating perverse consequences.

INSTITUTIONS

Defining the Problem

Protection of the environment and the processes of development are inextricably linked. But governments have yet to draw the necessary conclusions and adopt effective sustainable development strategies. As long as sectoral policies and programs are not integrated at the national level, governments are limited in their ability to promote coordination at the inter-governmental level. Such improved coordination would make more efficient use of existing resources.

Sustainable development will require new kinds of institutional capabilities, particularly for cross-sectoral decision-making, public participation, and continuing innovation. Action at the local level is the key. International institutions should therefore do more to help national and local organizations integrate environment and development in their planning, and provide incentives to promote sustainable growth through the private sector.

The wide range of multilateral activities and the growing influence of non-governmental entities worldwide has substantially altered the landscape of international institutions since the establishment of the United Nations and the Bretton Woods institutions following the Second World War. The nature of the challenges facing them today has also changed dramatically. The Group believe that new emphasis on sustainable development in the growing network of regional and global institutions -- governmental and non-governmental -- should be strongly encouraged.

The increasing number of UN and other international organizations has also led to overlapping responsibilities, and left a number of organizations of doubtful value. At the same time, as new issues have become more urgent, there are gaps in the existing system that must be filled. The Group considered means to consolidate existing secretariat and inter-governmental institutions, and considered new program areas.

The need to improve arrangements for independent review of performance by international institutions, and their progress toward agreed objectives and targets, also received attention. The Working Group emphasized the importance of obtaining scientific and technical advice and contributions from women, youth, indigenous peoples and other habitually under-represented groups.

In examining improvements in institutional arrangements, the Working Group distinguished between the secretariats of the United Nations system and the responsibilities of inter-governmental decision-making bodies. It

commended steps to strengthen support staff functions, both to maintain the momentum from UNCED and to review progress on Agenda 21, and to lay the groundwork for far-reaching changes in the future. It noted certain initiatives for reform of the UN system and other international institutions. It was important that UNCED should take good account of them.

Capacity Building and Empowerment

Global and regional organizations should enhance national capabilities. The empowerment of a broad range of local communities and citizens' groups to enable them to take part in formulating and implementing sustainable development was essential.

Coherent national policies were widely viewed as a prerequisite. For the developing countries, they provided the foundation for external support by identifying needs and priorities and a framework to ensure that such support promoted sustainable development. This would require adequate funding. The industrial countries also needed to adopt coherent policies for their own sustainable development.

The Working Group examined the ways in which international institutions, both global and regional, contributed to building national capabilities. This point is considered in more detail in the sections on technology and finance. It includes access to information, technical training, policy advice, mobilizing financial resources, and reviewing performance of UN members as well as the UN institutions themselves.

Making Better Use of What Exists

1. Specialized Agencies and Programs

While the Working Group acknowledged that many UN agencies and programs were concerned with sustainable development, including notably UNEP, UNDP, UNIDO, FAO, WHO and ILO, it focused particularly on UNEP and UNDP. In respect of UNEP, the Group recommended:

- strengthening UNEP's assessment functions through building linkages with other UN system agencies in the Earthwatch program, as well as through expanded working relations with private research institutes and non-governmental organizations;
- strengthening UNEP's role in the development of international environmental law and "soft law" instruments, and in performing secretariat functions arising from an increasing number of international legal agreements;

- strengthening UNEP's role with the general public and non-governmental entities, as well as inter-governmental institutions;
- strengthening its role in reviewing UN programs in order to catalyze activities to promote sustainable development;
- discontinuing UNEP's role in project implementation, while promoting closer collaboration at the regional level between UNEP and UNDP to review national progress toward sustainable development and to support training programs in environmental planning and management.

In respect of UNDP, the Working Group recommended that:

- UNDP should use its existing network to provide technical support for devising and implementing policies for sustainable development at the national and regional levels;
- UNDP field offices, UNEP regional offices, and the other regional and field offices of the UN system should combine their skills and resources

In considering the review of program performance and the attainment of national objectives and targets, there was support for periodically updating the country reports presented to UNCED. These could be examined by the strengthened inter-agency mechanisms and the Commission for Sustainable Development proposed below, as well as by the donors' consultative groups and roundtables for each country.

2. General Institutions

The Working Group considered the ways in which the UN General Assembly and ECOSOC might help to create a global political consensus on sustainable development. It recognized the need for rationalization of the subsidiary bodies of both, and in this context noted the program of reform of the economic and social sectors of the United Nations initiated in 1991, and the expectation that a new Secretary-General would make important changes in the UN Secretariat. As an example of gaps in the existing institutional structure that needed to be filled, the Group specifically noted energy.

3. Improved Coordination

Inter-Agency Coordination for Sustainable Development. The Working Group considered sustained staff follow-up to UNCED vital. It proposed

strengthening the role of the Administrative Committee on Coordination (ACC) in this regard both through regular meetings devoted exclusively to sustainable development and through the establishment of a task force on the subject. The membership of the task force should include representatives of the international financial and other relevant institutions outside the UN system. In this fashion, the ACC could facilitate policy coordination among UN agencies and programs and different sectoral areas, and monitor progress. This task force could be chaired by a senior representative of the Commission for Sustainable Development proposed below.

Pending establishment of the Commission, an interim arrangement to facilitate coordination within the U.N. system would be to extend the functions of the UNCED secretariat, drawing primarily on existing inter-agency staff.

The Group supported the establishment of ad hoc working parties in sectoral and cross-sectoral areas -- similar to those established by UNCED -- which in consultation with government representatives would review relevant UN system activities, develop inter-agency projects, and make recommendations on future program activities. The Group agreed that provision should be made for advice from under-represented groups, especially women.

An Integrated Global Watch Mechanism. The Group believed that integrating social, economic, environmental and political information for assessing risks was essential. It recognized also that such risks might have security implications. It recommended new means for bringing together under the Secretary-General relevant data and information and for drawing to his attention and that of member states problems affecting sustainable development.

Looking at Something New

New international legal agreements, particularly an agreement on climate change, should be designed to lay the foundation for a coordinated international system for the protection of the environment and to contribute to the consolidation and rationalization of the existing UN system.

The Group noted recent proposals for the creation of an Environmental Security Council and use of the Trusteeship Council to consider sustainable development issues, and agreed that arrangements along these lines could involve amendment of the UN Charter and might raise significant political difficulties.

To ensure that sustainable development were treated as a high priority throughout the international system and given sufficient political impetus from governments, the Group recommended the establishment of an

intergovernmental Commission for Sustainable Development, which would meet annually at ministerial level. The Commission, which would report to the General Assembly through ECOSOC and act as the coordinating body of the UN system (although it would not, of course, cut across the responsibilities of individual agencies, programs or treaty bodies). It would concentrate on identifying needs and priorities for sustainable development and monitor progress on Agenda 21 and in the bodies likely to be set up by Conventions on such specific issues as climate change, forests, and biodiversity. Its functions would be deliberative, and it would provide policy guidance for the UN system and other institutions involved in sustainable development. The Commission would be serviced by a small secretariat, drawing upon the staffs of the international system.

Parallel with the Commission, an advisory committee of independent experts, including representatives of industry and the scientific and NGO communities, would be established as a source of expert advice and review. This Committee could subsume the functions of the Advisory Committee on Science and Technology for Development. The relationship between the Commission, the committee, and the Global Environment Facility (GEF) should be examined. Account should also be taken of the recent proposal for the establishment of an International Development Council.

The Group noted the proposal for a non-governmental commission of experts, along the lines of the Brundtland Commission, to formulate recommendations for institutional arrangements for sustainable development capable of meeting the challenges of the next century. Such a commission could explore in greater depth the range and scope of needed reforms in light of decisions taken at UNCED, and make recommendations to the 48th UNGA.

TECHNOLOGY

Defining the Problem.

Technology is a crucial component of progress towards sustainable development. This issue has usually been discussed under the rubric of technology "transfer" or, more recently, "cooperation". Neither term, in the Working Group's view, adequately describes the processes needed to move both industrial and developing countries on to a sustainable development path. These processes can perhaps best be summarized as technology development, both in industrial and developing countries, and technology diffusion within and between countries at all levels of development.

The Working Group's deliberations focused on ways in which these processes could be promoted, and the role that UNCED could usefully play through Agenda 21.

The Working Group underlined the importance of the 'soft technologies' of training, management and access to, and use of, information. Soft technologies were essential to the exploitation of the 'hard technologies' of plant and equipment. Many of the ideas discussed by the Group were directed to ensuring the diffusion of soft technologies to ensure that the diffusion of hard technologies would not be rendered ineffective by the inability to assimilate and exploit them in sustainable fashion.

National Capacity Building

The Working Group recommended that UNCED should focus particularly on ways in which the capacity of developing countries to develop and assimilate hard and soft technologies appropriate to sustainable development could be enhanced. Both international institutions and the private sector should ensure that their technology initiatives support agreed national strategies.

Donor programs should incorporate provisions for sustained technical training of indigenous experts and the development of maintenance and managerial capabilities. Such programs must ensure that traditionally excluded groups have the opportunity to participate, and must be subject to external review and public oversight.

Technology assessment capabilities should be strengthened in both the government and the non-government sectors in all countries so as to facilitate sustainable development.

International financial institutions should give priority to cooperating with private corporations and the technical assistance agencies to create the long-term infrastructure required to sustain technology research, development and

innovation in developing countries. Through university partnerships between industrial and developing countries, engineering and technical education should incorporate environmental considerations into technology research, development, application, maintenance, and management. Means should also be found to promote technology cooperation between small and medium sized enterprises in the private sector in the industrial and developing countries.

Ways needed to be found to encourage the return to their home countries of expatriate experts, who represent a reservoir of technical talent that could facilitate the diffusion of technology.

Regional Institutions and Initiatives

UNCED should encourage regional environment, economic and development organizations to coordinate and integrate their programs and policies to promote capacity-building at the regional level. In the long term, such regional organizations should aim to establish a network of institutions to facilitate technology diffusion through training, research and development, access to and dissemination of information, and exchange of experience. In this respect, the efforts of UNDP to create a Sustainable Development Network deserve encouragement.

UNCED should support the Global Change System for Analysis and Training (START) initiative under the International Geosphere-Biosphere Program. If the social sciences were included with the natural sciences, the START initiative could become a valuable tool for promoting sustainable development through new regional institutions.

UNCED should also encourage better use of consultative groups to strengthen regional and national capabilities to develop technologies for sustainable development, along the lines of the Consultative Groups on International Agricultural Research (CGIAR).

The Newly Industrializing Economies (NIEs) can play a special role in facilitating technology diffusion between industrial and developing countries and among developing countries. Donor agencies and countries should develop and fund such tripartite arrangements as Third Country Training Programs to support human resources development in developing countries in close cooperation with the NIEs.

Availability of and Access to Information

Ensuring that developing countries have access to information about environmentally sound technology for development should be a high priority. UNCED should look at practical ways to encourage the synthesis of

information on the range and scope of available technologies in key sectors. It would be useful to develop a network for synthesizing information on public service system technologies relevant to improving the urban environment, such as sewage and transport systems, and observation and monitoring.

International and non-governmental organizations should sponsor analyses of successes and failures in technology and support appropriately qualified institutions in the developing countries so that they may contribute to these analyses.

UNCED should call on the corporate sector to:

- cooperate in designing clearinghouse mechanisms and networking arrangements to disseminate information on technologies for sustainable development.
- cooperate with development agencies to create demonstration projects for key sectors and countries to carry out innovative approaches to technology cooperation.

NGOs should continue to gather and publicize information on environmentally-sound technologies and processes.

Market Incentives, Regulations and Standards

The Group stressed that national governments should develop regulatory frameworks to provide incentives for the use of environmentally sound technology in all sectors of their economies, including those that may still not be fully incorporated into the market system. It recognized the critical importance of motivating the private sector to develop and deploy more environmentally benevolent technologies. To this end, governments should provide a stable climate for technology investments; reform their existing budgetary and fiscal policies, particularly in the energy, agriculture and forest sectors; ensure that the environmental impacts of the exploitation of fossil fuels, water and other resources are reflected in their prices; and eliminate subsidies encouraging pollution and the use of technologies that are environmentally unsustainable .

Further study is needed of those areas in which protection for intellectual property rights is an impediment to the transfer of environmentally sound technology. The Group underlined the need to ensure that those who had developed ways of helping to preserve biodiversity should receive appropriate benefits and protection.

UNCED should call on the corporate sector to:

- suggest specific market based incentives that would motivate them to find and implement cost-effective solutions to environmental problems.
- identify areas in which high environmental standards are a priority and launch a coordinated program to encourage their diffusion through supplier and contractor arrangements.
- endorse the consistent application of environmental standards and guidelines in corporate practice at home and abroad.

Industrial country governments should provide appropriate incentives for corporations to engage in the diffusion of environmentally sound technologies.

Research and Development

UNCED should support initiatives to encourage research and development of environmentally sound technologies. In certain critical areas identified by UNCED, donor consortia, the private sector, and other non-governmental entities should collaborate in financing cooperative research and development in developing countries and regions. The Japanese New Earth 21 initiative is an example of an initiative of this kind that envisages broad international cooperation.

UNCED should recommend that methodologies be developed to apply full social cost pricing to technology research and development and technology assessment.

General

UNCED should endorse a statement of principles on technology, which should include such ideas as that technology diffusion is a two-way street within and among industrial and developing countries; that technology development and diffusion should both help avoid risks to the global environment and meet immediate basic needs for water, energy, food, shelter, transport, and income generation; that particular support should be given to managing population problems; and that countries with relevant technology have a special responsibility to assist other countries gain access, on mutually acceptable terms, to technologies that support sustainable development.

In support of these objectives, UNCED should identify those sectors where technology cooperation would make a substantial and immediate difference, for example, in energy, agriculture, waste reduction, water quality, chemicals, and population stabilization.

UNCED should identify key sectoral areas where analyses by international organizations, private research institutes, NGOs, governments, and private industry could identify specific and surmountable barriers to the diffusion of environmentally sound technology. Once specific barriers were identified, the need for concessional financing should be assessed, and appropriate measures implemented, for example by drawing on such funding mechanisms as the Global Environment Facility.

The industrial countries should be encouraged to apply far more widely in their own economies technologies for sustainable development, not least in the transport sector, in energy efficiency, and in the use of renewable energy sources. In addition, industrial countries need to devote greater attention to the problem of industrial conversion, including, but not limited to, the conversion of defense industries.

FINANCE

Defining the Problem

Finance will be one of the most critical issues in the UNCED process, on which the success of its other work will depend. Without adequate financial arrangements, agreements on institutional, technology and legal issues would be unlikely to succeed.

The effective participation of developing countries in creating national, regional and global conditions for sustainable development require substantial and adequate funding from a combination of public and private sources.

Existing financial difficulties are related to macroeconomic factors, including national economic policies, debt problems, terms of trade, commodity trends, and financial and investment flows. The Group recognized that the context for financing for sustainable development during the 1990s would be constrained, but that there were opportunities for making better use of existing resources, and for mobilizing additional ones should the UNCED process lead to agreement on well-structured, imaginative and practical measures.

In this context, discussion in the Working Group focused on:-

- financial needs;
- new and existing sources of finance;
- management of financial resources.

Financial Needs

Substantial and adequate financial resources are needed:

- In respect of achieving national sustainable development (otherwise than under specific international legal obligations) in order to:
 - develop and implement cost-effective national policies and programs for achieving sustainable development;

- design and implement investment programs in priority sectors to restore and ensure sustainable development;
 - develop indigenous human capacity, through education and training;
 - develop national monitoring, fact-finding and forecasting techniques and abilities;
 - integrate full social and environmental costs into economic activities, by adapting national accounting procedures;
 - identify, develop and market domestic, environmentally sound technologies, through improved research and development;
 - assist in meeting the costs of environmentally sound technologies;
 - assist in meeting basic poverty needs.
- In respect of environmental degradation and catastrophe, joint efforts to mobilize resources are needed to meet the cost of measures to limit such environmental degradation and to restore sustainable productive capacity.
- In respect of new international legal obligations, in order to:
- ensure that all developing countries are able to participate effectively in the negotiation of international legislative efforts relating to sustainable development, including through the development of indigenous human resources and the provision of technical assistance;
 - meet the incremental costs in developing countries of meeting international legal obligations that have global benefits;
 - help meet transitional costs, including lost opportunity costs, associated with meeting international legal obligations relating to sustainable development.

New and Existing Sources of Finance

The Group concluded that a combination of additional public and private resources from various sources should be used and further developed, on the basis of joint responsibility. In this regard, the Group recognized that international development is a phased process in which the early stages can require technical assistance and grant aid to strengthen human, institutional and infrastructure capabilities, and to carry out pre-feasibility studies which prepare the ground for non-concessional investments, the bulk of which have come from private loans. In this sense overseas aid can be the catalyst for sustainable development.

Much of the funding required for sustainable development could be found by the adoption by governments, and multilateral and regional development banks and the IMF, of appropriate national and international economic policies, reducing military expenditures, redeployment of those market interventions which encourage unsustainable development, the successful conclusion of the Uruguay Round, measures to cope with the burdens of debt, and the mobilization of private resources. In that regard, the Group reached the following conclusions:

1. Public Investment and Funding

Improving on existing uses of ODA. Efforts should be undertaken to make better use of existing bilateral and multilateral development assistance, including better targeting of resources towards sustainable development.

Meeting, and increasing, existing ODA obligations. Countries should pay outstanding contributions to international institutions relating to sustainable development, especially the Multilateral Fund established under the Montreal Protocol, the IBRD/UNDP/UNEP Global Environment Facility, UNFPA, and the voluntary Trust Funds established to ensure the full and effective participation of developing countries in the negotiations of Climate Change and Biodiversity Conventions and UNCED;

Consideration should also be given to increasing assessed and voluntary contributions to international institutions concerned with sustainable development and to funds under their control. In particular, substantial additional finance should be made available to UNEP.

In the interests of improving burden-sharing among industrial countries, those which have not already done so should make the effort to raise their overseas development assistance to internationally agreed targets.

2. Debt Relief

Public and private debt relief could become a significant source of finance, by providing relief from onerous obligations and releasing local currency funding. Further efforts should therefore be made to encourage "debt-for-sustainable development", by using, as appropriate, public and private sector debt to finance sustainable development programs in developing countries.

3. Fiscal Incentives, Market Mechanisms, and Charges.

Use of appropriate economic instruments should be considered at local, national, regional and global levels. In this regard UNCED should emphasize the importance of integrating full social and environmental costs into economic activities. Fiscal incentives and disincentives can be used to promote sustainable development.

Consideration should be given to market mechanisms to increase the efficiency of pollution control, including the possible adoption of tradeable emission permits at local, national, regional and global levels.

Consideration should also be given to appropriate and differential charges and user-fees at local, national, regional and global levels, for use of the global commons, including emissions and discharges into the atmosphere and oceans.

4. Free Trade and Private Investment.

Recognizing that free trade is crucial to improving national economic and financial capacity, access to markets should be improved by removing barriers to trade adopted by governments and regional integration organizations, especially those disguised as means of environmental protection.

To encourage direct foreign investment in sustainable development, incentives to encourage transnational corporations and industrial enterprises to invest in, and transfer environmentally sustainable technology to, developing countries should be explored.

The possibility of creating new private investment funds should also be explored as a means of channelling savings into companies in the developing world whose technologies and products can contribute to sustainable development.

Management of Financial Resources

A large proportion of the investment required to achieve sustainable development must come from the private sector in both industrialized and

developing countries, and recognized that more efficient management of public financial resources was critical to their catalytic role.

1. The management of global financial resources requires the active participation of, and close collaboration between, institutions whose activities influence the funds available for sustainable development. These include international and regional development finance institutions, bilateral development assistance agencies, UNDP, UNEP, UNCTAD, GATT, specialist funding arrangements (Montreal Protocol), developing country agencies and institutions, private foundations and corporations. A proliferation of management and administrative mechanisms for funding should be avoided.

2. Public financial institutions, as well as such other agencies as the GATT, should direct their activities to support sustainable development. In addition to public investment and higher priority being given to capacity building, programs should be designed to increase private sector and small-scale, grass roots lending activities.

In this regard, and in the context of the current GATT negotiations, particular attention should be given to:-

- harmonizing technical standards relating to environmental protection and sustainable development, while allowing higher standards to be adopted where appropriate;
- rationalizing lending programs in particular sectors and regions, seeking also to fill any gaps which may exist;
- committing such institutions to follow a Code of Conduct on Sustainable Development.

3. Lessons learned from existing multilateral funds and facilities should be closely analyzed, particularly those relating to:-

- the Multilateral Fund established under the Montreal Protocol;
- the IBRD/UNEP/UNDP Global Environment Facility (GEF);
- the UNEP Voluntary Fund;

4. The GEF, recently established as a pilot project for a period of three years under the auspices of the World Bank, UNDP and UNEP, constitutes an initiative which should be carefully monitored, evaluated, and improved upon. Considering that the management of resources for the Montreal Protocol are now incorporated within the GEF, UNCED could consider using

the GEF to serve as an umbrella multilateral organization for channelling additional resources linked to specific conventions, including the preparation of national strategies.

In particular issues such as governance, structure and scope, priorities in allocating resources should be set to respond to the specific requirements of each particular convention and the interests of the involved parties.

General

The Group recommended that detailed costings and estimates to assess financial needs to achieve local, national, regional and global sustainable development be undertaken on a sectoral and geographical basis so as to provide a solid foundation for the design and financing of sustainable development programs.

Considering the critical importance of finance in the UNCED negotiations, it is important to move as rapidly as possible to enlist the active support and participation of key financial institutions. The UNCED Secretariat should consider convening one or more informal Working Groups of representatives of the financial institutions identified above to begin the process of mobilizing financial resources as the preparations for UNCED proceed.

LEGAL ISSUES

Introduction

The frontiers of international environmental law need to be moved forward. Sustainable development requires the adoption of substantive legal obligations capable of effective and equitable implementation at national, regional and global levels.

The international law-making process needs to be enhanced. The effectiveness and usefulness of general international legal instruments on environment and development depends on the widest possible participation of all states in the negotiation of these instruments. Measures are needed to ensure the full and effective participation of developing countries in the negotiation of regional and global legal instruments, including building indigenous capacity and providing technical assistance.

Sustainable development could also be advanced by the elaboration of non-binding instruments, and the development of rules of customary international law, as well as general principles of law.

The use of international institutions and their respective organs in the development and implementation of new global and regional legal instruments should be consolidated. Due regard should be given to maintaining and developing expertise and continuity in the secretariats and staffs of such institutions.

International legal instruments should be adopted and implemented at the most appropriate level. In this regard, consideration should be given to developing regional legal instruments and protocols which integrate environment and development, taking account of the particular characteristics and needs of different regions.

In international law-making processes, obligations of countries should be commensurate with their contribution to the deterioration of the global commons and to the degradation of the environment and depletion of natural resources, particularly in relation to the provision of financial and technological assistance.

In international economic integration and free trade processes, specifically those involving both industrial and developing countries, provisions should be made to:

- ensure that those processes are conducive to sustainable development do not repeat economic development models, patterns and practices which have proved to be environmentally damaging and unsustainable;
- ensure that those processes do not perpetuate or take advantage of insufficient domestic environmental legislation, or its implementation, or of poverty conditions in developing countries.

After a wide-ranging discussion on legal issues, the Working Group made the following recommendations to assist UNCED in framing fundamental principles on general rights and obligations in the field of environment and development for possible inclusion in an Earth Charter, and in developing international environmental law in the light of the need to integrate environment and development.

Earth Charter

The Working Group discussed the desirability of incorporating into an Earth Charter to be adopted by UNCED principles on general rights and obligations of states and regional integration organizations, taking due account of all the regional preparatory conferences.

In the Group's view, the following points, which are neither comprehensive nor presented in any order of priority, should be reflected in the Earth Charter to develop the Principles to be found in the 1972 Stockholm Declaration:

- respect for intergenerational equity and responsibility;
- the responsibility of states, including, where appropriate, differentiated responsibility;
- the precautionary principle;
- recognition that international law on the environment should be mostly preventive in nature;
- the need for prior risk assessment and risk minimization;
- the principle of subsidiarity, namely that decisions should be taken and implemented at the lowest of the national, regional or global levels, depending on which is the most appropriate;
- recognition that threats to the environment may constitute threats to the maintenance of international peace and security;

- full integration of social and environmental costs into accounting and costing processes;
- liability for environmental damage;
- introduction of sustainable development into international law-making and decision-making;
- the rights of individuals, groups and organizations to:
 - express their views freely;
 - obtain, publish and distribute information without legal or administrative impediment;
 - participate fully in legislative, administrative and judicial processes, including environmental impact assessment procedures;
- the obligation of states, international institutions and regional integration organizations to:
 - provide free, open and effective information;
 - exchange information;
- protection of the livelihood and culture of indigenous peoples from activities which might adversely affect their natural environment;
- the principle that all persons should have access to, and sustainable use of, the resources of the global commons;
- recognition of the contribution to sustainable development from enhancement of the role of women in the development of international environmental law.

Development of International Environmental Law.

The Working Group discussed possible areas for the development of international environmental law, in the light of the need to integrate environment and development and taking into account the special needs and concerns of developing countries.

The Working Group believed that the International Law Commission could make an important contribution to the further development of international environmental law.

The Working Group agreed that, in addition to adopting an Earth Charter declaring basic rights and obligations of States, as well as regional integration organizations, and of non-governmental entities in the field of environment and development, the substantive rules of international law of environment and development should be developed by:

- establishing appropriate rules relating to trade and environment, particularly by
 - ensuring that international trading arrangements, including the GATT, promote sustainable development;
 - ensuring that national standards or rules of environmental protection are not used for protectionist purposes;
 - convening the GATT Environment Committee to assist in defining how trade measures can properly be used for environmental purposes;
- rationalizing, and improving on, existing instruments establishing ecological reserves;
- identifying any gaps in legal regimes; developing where necessary new regional and global instruments where gaps exist in existing instruments; closing gaps; and in the light of the principles and points identified as requiring reflection in the Earth Charter, including for international environmental law:
 - forests;
 - oceans, regional seas and coastal zone management;
 - soil erosion and desertification;
 - atmospheric pollution;
 - conservation of marine resources, including driftnet fishing;
 - environmental protection clauses in law of warfare;
 - management of freshwater resources, including groundwater;
 - the cryosphere;
 - vulnerable ecosystems.
- harmonizing standards of, as well as approaches to, existing regional and global legal instruments, while allowing the adoption of higher standards where appropriate, and ensuring the compatibility of new instruments;

- where appropriate, harmonizing national regulatory standards on a regional basis, and within or between states;
- further developing rules of intergenerational equity and responsibility, as well as the rules of liability for environmental damage;

The Working Group agreed that the implementation of regional and global international law of environment and development should be strengthened by:

- encouraging the appropriate and necessary conditions for greater accession to, and ratification of, international legal instruments, including the identification and removal of impediments, and the development of appropriate techniques, such as the use of grace periods for developing countries;
- developing and enhancing monitoring and reporting techniques and requirements, particularly through building indigenous capacity in developing countries;
- improving flows of information to and between States, regional integration organizations and non-governmental entities by developing regional and global legal instruments to ensure
 - the right of effective access of all persons to environmental information;
 - appropriate participation in environmental impact assessments of activities and policies which might have an international impact;

and, to that end, identifying an appropriate international institution, such as UNEP or UNDP, which could develop and manage a computerized data-base system;

- ensuring the incorporation of international legal obligations into national legal systems;
- developing improved techniques for the prevention of conflicts, including fact-finding mechanisms;
- further developing mechanisms and techniques for reviewing the effectiveness and implementation of international legal instruments;

- minimizing the legal, economic and social costs of achieving environmental goals;
- improving the compulsory settlement of disputes relating to environment and development, by inter alia,
 - enhancing the role of the International Court of Justice, taking advantage of the facilities provided for by its Statute and Rules of Procedure;
 - considering the establishment of an international center for the settlement of environment disputes (ICSID), to arbitrate on disputes between states, or between states and non-governmental entities;
 - considering the establishment of international procedures to enable individuals and associations of individuals to seek redress against governments which breach their obligations under international environmental law;
 - developing the role of national and regional courts and tribunals in enforcing national, regional and international rights and obligations.

The Role of Non-Governmental Entities.

The role of non-governmental entities should be developed by, inter alia:

- ensuring their participation, as appropriate, in the international decision-making process;
- encouraging their role in implementing international obligations and standards at the national, regional and global level, as appropriate;
- enhancing national and local legal and other remedies available to non-governmental entities for the implementation of standards and obligations, without discrimination on the grounds of nationality, and on the basis of the right of equal access in the context of transboundary claims.

ANNEX 1

**Aspen Institute Working Group on
International Environment and Development
Policy**

Aspen, Colorado • July 18-25, 1991

Chairman: Sir Crispin Tickell

List of Participants

Chester Cooper	Resources for the Future
Angela Cropper	Consultant, Development Policy and Planning, Trinidad and Tobago
Christine Dawson	Policy Planning Staff, U.S. Department of State
Lars-Göran Engfeldt	Deputy Permanent Representative of Sweden to the United Nations
Fabio Feldmann	Federal Deputy, Camara dos Deputados, Brazil
Luigi Ferrari Bravo	Chief, Servizio del Contenzioso Diplomatico, Ministry of Foreign Affairs, Rome
Robert Fri	President, Resources for the Future
Shinji Fukukawa	Executive Vice President, Kobe Steel, Ltd.
Burhanudeen Gafoor	Permanent Mission of Singapore to the United Nations
Richard Gardner	Professor of Law, Columbia University
Genady Golubev	Professor, Faculty of Geography, Moscow State University
Scott Hajost	Environmental Defense Fund
David Hopper	Senior Vice President, Haldor Topsoe, Inc.
Ashok Khosla	President, Development Alternatives, India

Ismat Kittani	Consultant to the Secretary-General, UNCED
Warren Lindner	Executive Director, Center for Our Common Future, Geneva
James MacNeill	Senior Fellow, Institute for Research on Public Policy, Ottawa
Christopher Makins	Vice President, Policy Programs, Aspen Institute
John Martin	U.K. Permanent Mission to the United Nations
William Nitze	President, Alliance to Save Energy
R. K. Pachauri	Director, Tata Energy Research Institute, India
Jane Pratt	UNCED Coordinator, The World Bank
Atiq Rahman	Director, Bangladesh Centre for Advanced Studies
Francisco Sagasti	Senior Advisor, EXTDR, The World Bank
Mahamed Sahnoun	Diplomatic Advisor to the President of Algeria
Pavol Sepelak	Czechoslovak Permanent Mission to the United Nations, New York
Alberto Szekely	Mexico
Augustus Tanoh	Executive Director, Finance and Administration, Ghana National Petroleum Corporation
Peter Thacher	World Resources Institute
Crispin Tickell	Warden, Green College, Oxford
Edith Brown Weiss	Office of the General Counsel, Environmental Protection Agency
Hugh Wynne-Edwards	Chief Executive Officer, Terracy Inc.
Taizo Yakushiji	Professor, Keio University
Ruqiu Ye	Professor of Environmental Chemistry, National Environmental Protection Agency, China

Rapporteurs

Lee Kimball Senior Associate for Institutions, World Resources
Institute

Philippe Sands Director, Centre for International Environmental
Law

Program Assistant

Stephanie Nelson The Aspen Institute

An Ode to UNCED

Entrapped are we in Aspen
Under the custodianship of Sir Crispen
Who defended the Queen's English valiantly
And so had problems with concepts like Environmental Security

Sir, we are grateful for your distinction
In guiding the complex discussion
And for your role in defusing tension
on whether it should be Technology Transfer or Diffusion

Sir, the subject of Institutions
We debated with great emotions
The solution, I submit, is not coordination
But one of dismantling Secretariat vestiges and dominions

Sir, the question of financial resources
Was the subject of intense discourses
The issue, without its disguises
Is really one of additional US dollars

Sir, the principles of precaution and subsidiarity
Appeared to be an exchange in phraseology
And any references to regions of polarity
Are of course difficult if one is a small minority

Sir, the rapporteurs deserve special mention
For distilling sense out of all the confusion
For making all the countless revisions
And for doing all these with enormous patience

Sir, in the interest of inter-gender equity
And the need to maintain Bio-diversity
We should have more experts of the female quality
Or at least permit Jane to speak with greater frequency

Sir, I now seek your indulgence
In the event I had proven my ignorance
And had failed to contribute anything of significance
Because I am still learning my substance

*Kenzie
Here is a copy
of my comments on
the forest
principles.
They are rough
Ken*

MEMO

To: Charlotte Fox
From: Ken Snyder
Date: October 30, 1991
Re: Comments on UNCED Forest Principles paper

Sorry I never got this to you, I have been very swamped with school. I was hoping to transfer many of my comments which are on the margins of the principles onto paper, but the realities of mid-terms are upon me.

I have include an old copy of my independent project proposal. Could you have Fran look over the outline, I am trying to get more focused on the political issues. Obviously I would like to put together an analysis on that which would be most useful for Audubon and CAN at the climate negotiations.

Quickly I have jotted down some general concerns. I apologize for the way they are thrown together.

- 1) One criticism we had about the original US proposal, which remains in the principles, is a lack of concreteness and how these principles will eventually be translated into specific actions. Look at the letter we sent to Buff Bohlen which I have included which brings up this issue. A "developer" and an "environmentalist" could read this and come out with totally different interpretations of what the principles entail.
- 2) It might be helpful to compare the philosophies behind the principles with the those behind TFAP and recognize where it is a repeat of past failures.
- 3) On the positive side, I think the principles are making a respectable attempt to integrate cross-sectorial issues including: debt, the needs of the poor, trade issues, and indigenous people. One underlying causes of deforestation, the conversion of forests lands for agriculture, is largely ignored. Also ignored is some of the more sensitive issues such as inequitable land distribution in developing countries and corruption. Also on the positive side is clear language incorporating all types of forests not just tropical.
- 4) There is a lack of discussion on the potential adverse effects, ecological and social, of afforestation, reforestation and massive tree planting initiatives.
- 5) Looking at this bracketed text, it is easy to wonder whether it will amount to anything substantive and useful. Understanding that this will be the basis for further discussion on forests after UNCED, we need to try and find ways to make it as conservation-oriented as possible. Where ever there is repetitive paragraphs, we should flag the wording which works to this end. I tried to do this a little.
- 6) The absence of adequate mention to biodiversity and, in particular, the importance of native and primary forests is a serious flaw.

Katie
I have perused
the various delegations
proposals and integrating
forests and climate
Not included in the German
proposal for
a forest protocol
Ken

Off of addendum 13

AL. 237 / Misc. 1 / Add. 13

Working group

Agenda Item 2

- 9 -

Convention on Climate Change/Cost-effective Implementation of Commitments across National Borders / Proposal for a new Partnership in Development Funding related to the Financial Mechanism.

Climate change is a truly global problem requiring a global, long-term solution and global participation in a comprehensive approach addressing all sources and sinks through cost-effective measures across national borders.

The point of departure of the proposal is that the framework convention must contain elements that point towards a global long-term solution in introducing the criteria of cost-effective implementation measures. One such element should be the provision that specific country commitments on limitations of emissions may be implemented either individually, jointly or in co-operation with other countries. The proposal is based on a Climate Convention containing specific quantitative emission limitation commitments including national implementation strategies for OECD countries.

In order to ensure a cost-effective allocation of net emissions on a global basis, countries should have the option to implement part of the limitations they have committed themselves to either domestically or abroad, in co-operation with other countries. This can be done by allowing for exchange of emission commitments between countries with specific quantitative limitation commitments and/or in co-operation with countries without quantitative commitments. This cooperation could take place through a multilateral mechanism, covering bilateral and regional arrangements.

The mechanism would be part of the convention machinery and under the authority of the Parties. The mechanism would function as a clearing-house and appraise and select projects for reducing net emissions according to their cost-effectiveness, and co-ordinate funding for these projects in areas such as energy efficiency (industry/power sector), forestry and agriculture/soil management. Projects submitted by developing countries as an integral part of their development strategy should be given priority.

The net reduction in emissions resulting from any specific project should be credited the country or countries that contribute to the implementation of this project and deducted

Convention. Such crediting/ verification would take place in the review process to be instituted as part of the framework convention. The mechanism would have a large portfolio of potential projects, thereby facilitating a more efficient matching of projects and funds than a system of purely bilateral exchanges.

Even if some groups of countries would not have quantitative emission targets in the initial framework convention, the proposed system might be of great value. Countries with specific emission commitments would still have the option to finance emission reductions in other countries as an alternative to more expensive reductions in their own countries, thereby facilitating measures of high environmental, economic and developmental value.

The Norwegian proposal aims at adding a new source for financial and technology transfer/co-operation and represents a concrete example of moving to a "second generation" of environmental agreements.

Due to the mutual benefits resulting from the proposed arrangement a true partnership can be achieved giving rise to a flow of funds and technology that might otherwise not be forthcoming. This would be an important supplement to other financial mechanisms and could become a very substantial new source of development funding through the transfer of financial and technological resources. The proposed arrangement must be part of the Financial Mechanism to be established under the Climate Convention whose other function will i.a. cover the incremental costs of developing countries.

Netherlands Compilation (Annex 2, p. 19)

Main elements for a protocol on forests

90. Each country or group of countries should set in or before 1995 a target for the permanently absorbed amount of CO₂ in forests and trees. This target should be reached by the year 2050 using a step by step approach, taking into account:

- a reference year (e.g. 1990),
- the overall CO₂ target,
- other relevant measures concerning CO₂ and the forestry situation and perspectives.

91. Each country should fix the amount of CO₂ that is absorbed in forests in the reference year (1990). This should be accomplished within a certain time frame (e.g. by 1995).

92. The CO₂-target concerning the absorption in forests should be "translated" into country targets in relation to the surface area and quality of the forests. These tasks should be accomplished by the year 2000.

93. In the interim, (until 2000) countries should aim at:

- the conservation of existing forests,
- the provision of afforestation when such conservation is not possible,
- the improvement of forest management in relation to CO₂ absorption.

94. This will require:

- provisions (preferably through existing organizations and fora) on monitoring, verification and coordination,
- a monitoring system for the surface area and quality of forests,
- ✱ research on the absorption of CO₂ by various types of forests,
- financial resources for research and the facilitation of the implementation measures under (2) [69] and (3) [70] above.
- a financial mechanism to compensate for the incentives taken by countries which are particularly active (through grants or through tradeable CO₂ emission rights).

Netherlands Compilation (p. 6)

European Community

95. Forest destruction contributes to global warming through the emission of CO₂, methane and other gases. The rate of deforestation must be reduced and the potential of the world forests to act as a sink for greenhouse gases must be increased through vigorous programmes of forest protection and development. Such programmes should include the strengthening or development of measures for the protection of forests against atmospheric pollution, and fires as well as for reforestation and afforestation in suitable areas of Europe such as the arid Mediterranean areas, and in other suitable areas of the world.

17 September, 1991
Paper prepared by Finland

Referring to the document A/AC.237/WG.I/CRP.2 (14 Sept. -91)

IV.2. Sinks

In order to achieve the general objectives of the convention
The Parties shall:

1. Promote the protection and enhancement of sinks and reservoirs of greenhouse gasses through the adoption of appropriate and environmentally sound policies.
2. Manage their forests in a sustainable manner and practice appropriate agricultural techniques, with the aim of reducing the degradation of forests and other ecosystems, taking into account local socio-economic needs and land-use patterns as well as maintaining the ecological balance in the area concerned.
3. Maintain and enhance the amount of biomass in forest ecosystems and promote their health and ability to absorb CO₂ and other greenhouse gasses.
4. Manage their forest ecosystems, as extensively as possible in their best possible structure, by counteracting the causes of the threat posed to them i.e. the emissions of pollutants or environmentally damaging use.
5. To reduce the rate of deforestation, where appropriate, with the primary aim of stabilizing the forest area, and secondly increasing it further.) *Y. 1993 6/2/7*
6. Develop measures with regard to other sinks and reservoirs (such as oceans and seas) of CO₂ and other greenhouse gasses.
7. Promote additional scientific research and monitoring, and improve the exchange of information on: a) the role of ecosystems (oceans, forests etc.) as sinks and reservoirs of CO₂ and other greenhouse gasses, and b) the sustainable management of ecosystems.
8. To agree first on global targets and further on national targets
and on implementation measures for 1995

INTERGOVERNMENTAL NEGOTIATING COMMITTEE
FOR A FRAMEWORK CONVENTION ON CLIMATE CHANGE
Third session
Nairobi, 9-20 September 1991
Item 2(a) of the provisional agenda

COMPILATION OF PROPOSALS RELATED TO COMMITMENTS

Submitted by the Bureau of Working Group I

Corrigendum

Page 20, paragraph 47

Insert the following new paragraphs:

Malaysia

To complement the commitments for the stabilization of carbon dioxide, there should be also a commitment on the protection of global sinks for carbon dioxide. To this end, while recognizing the importance of conservation of tropical forests as carbon sinks, we must not deviate from the fact that temperate and boreal forests can also serve as efficient sinks. Indeed, a meaningful commitment on protection and enhancement of sinks would be to call for a minimum tree cover in all countries. Developed countries, particularly those which have undergone extensive deforestation, should play a key role in drawing up a national forestry plan aimed at substantially increasing their forests, which could contribute towards expanding global carbon sinks. On the issue of forests, I wish to take the opportunity to support the statement made earlier by Japan that UNCED will be the most appropriate forum to discuss comprehensively the issue of forestry taking into account its multi-faceted dimensions.

While forests have been singled out as sinks for carbon dioxide, we should not ignore the basic fact that the ocean which covers 2/3 of our planet forms a major sink for carbon dioxide. We wish to call for more scientific studies on the role of oceans as a major sink for carbon dioxide. In this regard, there should also be appropriate commitment in the protection of oceans. By having more scientific information on the role of forests and oceans as sinks for carbon dioxide, then only we will be able to address the protection, enhancement and increase of sinks in a comprehensive and balanced perspective.

PREPARATORY COMMITTEE FOR THE UNITED NATIONS
CONFERENCE ON ENVIRONMENT AND DEVELOPMENT
Third session
Geneva, 12 August-4 September 1991
Working Group I
Agenda item 3 (a)

LAND RESOURCES: DEFORESTATION

A non-legally binding authoritative statement of principles
for a global consensus on the management, conservation and
sustainable development of all types of forests

Draft on Contact Group Discussions submitted by the Vice-Chairman,
Mr. Charles A. Liburd (Guyana)

⊕ ≡ positive reaction to language
⊖ ≡ negative reaction

PREAMBLE

(a) The subject of [forests and] [forestry] is related to the entire gamut of environmental and development issues and opportunities including [poverty and] [the right to] economic development.

(b) Forestry issues and opportunities should be examined in a holistic and balanced manner within the overall context of environment and development, taking into consideration the multiple uses of forests, including traditional uses, and the likely economic and social stress when these uses are constrained or restricted, as well as the potential for development that sustainable forest management can offer.

(c) The UNCED process is the most appropriate forum for conclusive decisions pertaining to global consensus on forests [which should form the basis for [any subsequent preparations and adoption of a legal instrument on forests] [all other negotiations involving forests]].

(d) The guiding objective of these principles is to achieve the management, conservation and sustainable development of forests, and to provide for their multiple and complementary uses.

Underlined text denote proposals additional to CRP/14 received by the Secretariat up to 3rd September 1991

GE.91-72549

Again repetitive w/ 1a

TFAP

(a) [[Forests include [all types of ligneous vegetation including trees and shrubs, either in large or isolated stands] areas under permanent vegetative cover, ecosystems and may house human settlements]. States have the sovereign inalienable right to [determine the ownership pattern and] utilize, manage and develop their forests in accordance with their development needs and on the basis of national land-use policies consistent with sustainable development and legislation including the need to convert such areas for other uses within the overall socio-economic development plan based on rational land-use policies.]

(b) Forests should be sustainably managed to meet present and future social, economic, ecological, cultural and spiritual human needs for wood and wood products, water, food, fodder, medicine, fuel, shelter, recreation, habitats for wildlife, landscape diversity and other minor forest products. Forests should be protected against harmful effects of air pollution, fires, pests and diseases, [to the extent that is ecologically and economically feasible].

Sec 16

not always bad.

(c) [The provision by governments of the] timely and accurate flow of information on forests and forest ecosystems is essential for public understanding and informed decision making and should be ensured.

This should include a better understanding of timber trade and processing.

(d) Governments should ensure and promote the popular participation of interested parties including local communities, industries, labour, non-governmental organizations and individuals, forest dwellers and women in the development, implementation and planning of national forest policies [and more generally in the decision making process for the conservation and sustainable development of forests][as this] is essential [to ensure that these truly respond to local, national and international requirements.]

need concrete mechanisms recommended, otherwise participation might simply mean inviting the community to a briefing

3.

(a) National policies and strategies should provide a framework for increased efforts including the development and strengthening of programmes and institutions for conservation and sustainable development of forests and forest lands. (natural forests)

(b) All aspects of environmental protection and social and economic development as they relate to forests and forest lands should be integrated and comprehensive.

(c) [Adequate international and national regulations should be introduced in order to avoid foreign or national exploitation which lead to deterioration or destruction of forests.]

(d) Each state has (should) the responsibility to establish plans [including individual targets and time frames] for the management, conservation and sustainable development of all types of forests, according to national needs and circumstances to achieve country specific objectives and to focus international cooperation.

Good addition

4. The vital role of all types of forests in maintaining the ecological balance at local, national, regional and global levels, in particular their role in protecting fragile ecosystems, watersheds and freshwater resources, and as rich storehouses of biodiversity and sources of genetic material for biotechnology products, should be recognized and inform national and international action on sustainable development.

(+) Biodiversity

5.

(a) The wide range of social and economic functions of all types of forests including use by forest dwellers, local communities and indigenous people who sustain forest resources, should be respected and recognized and taken into account in national policies. [Appropriate conditions for local communities to perform economic activities and [achieve and maintain adequate levels of livelihood, social well-being and cultural identity]] should be promoted.

(+) Indigenous people

(b) National forest policy should recognize and respect the (rights) and interests of forest dwellers, local communities and indigenous people who rely on forests to maintain their livelihood, social organization and cultural identity, as well as their need to have an economic stake in forest use.

(c) The full participation of women in all aspects of management, conservation and sustainable development of forests should be actively promoted [especially in developing countries].

(+)

(d) Forest contribute to meeting basic economic needs including requirement of wood, food security, and alleviation of poverty. Afforestation and reforestation also provides a potential for employment generation.

(+) good addition

large afforestation efforts can be - ve

6.

(a) All types of forest play an important role in meeting energy requirements through the provision of a renewable source of bio-energy, particularly in developing countries and the demands for fuelwood for household and industrial needs should be met in ways that [avoid] [minimize] deforestation and degradation of forests [through sustainable forest management and reforestation]. To this end the potential contribution of plantations of both indigenous and introduced species for the provision of both fuel and industrial wood, should be recognized.

5-d
6-a and 6-b
are all
repetitive
and should
be combined

(b) The demands for fuelwood for household and industrial needs should be met in ways that avoid deforestation and degradation of forests.

- possibly better than (a).
because it gets to the point

(c) All forests provide a broad range of goods and services and [any] decisions taken on the use development and conservation of forest resources forest areas should be based on a full economic accounting, assessment and valuation of these goods and services as well as the environmental costs and benefits.

(+) Environmental Impact Assessment

(d) It is recognized that plantation forestry, while assisting regional employment and development, offers a sustainable and environmentally sound source of renewable energy and industrial raw material, watershed protection and an effective carbon sink. When plantations are used as an energy source they are not a net sink unless you count fossil fuels saved. The imp. of primary forests, including temperate old-growth as stores of carbon should be emphasized.

(a) Efforts should be made to promote a supportive international economic climate conducive to sustained and environmentally sound development of forests in all countries, [which include, inter alia, change in the unsustainable patterns of production and consumption particularly in industrialized countries, [the eradication of poverty and the promotion of food security in developing countries]].

(b) National and international policies and programmes aimed at forest conservation and sustainable development should take fully into account environmental benefits of forests and all aspects related to extraction via conversion, distribution, marketing, demand, consumption, recycling and final disposal of forest products. as well as cultural, social and environmental benefits of forests.

(c) Financial resources for economic adjustment should be provided for the other sectors of the economy of developing countries with substantive forest cover which set aside more than their fair share of undisturbed forests for the purpose of conservation.

(d) Any losses incurred by traditional users in reserving certain forests or modifying existing forest land use in meeting environmental need should be compensated.

8.

(a) Efforts should be undertaken towards the greening of the world [jointly and individually] by all countries [particularly in developed countries, which have in the past so destroyed their extensive forests and continue to do so by acid rains [and the increase in the production of green house gases], to increase their forest cover] through reforestation and afforestation [and conservation of existing forests]. as well as retaining existing forest cover where appropriate.

(b) Efforts to maintain and increase forest cover and forest productivity should be undertaken in ecologically, economically and socially sound ways through the rehabilitation, reforestation and re-establishment of trees and forests on unproductive, degraded and deforested lands, as well as through the management of existing forest resources.

(c) [The implementation of national policies and programmes aimed at forest conservation and sustainable development [in developing countries] [should be supported by international financial and technical cooperation] [requires provisions of financial and technical support].]

(d) [Appropriate international institutional arrangements, [building on] [taking into account] those organizations and mechanisms already in existence, [should facilitate] [the implementation of national policies and programmes] [of the global consensus, and supervise] provide mechanisms to [follow] [monitor] and participate in its

Switch wood from field to shelf to dump

Similar to Malaysia in proposal in climate negotiations

Similar to previous (1)

existing forests should be priority

implementation, to assess progress and to co-ordinate international action.]

(e) [Forest management and utilization of forests should be carried out in accordance with [internationally accepted] environmentally sound [national] guidelines which include effective policies for regeneration]

⊕ (f) [Plans for forest management should be integrated with management of adjacent areas ^{in particular agriculture} so as to maintain ecological integrity and sustainable productivity.]

⊕ (g) [National policies and legislation aimed at management, conservation and development of forests should include the protection of representative and unique examples of native forests ⊗ [cultural, historical, religious and other unique valued forests of national importance] .] ⊕ addition

(h) [Availability of biological resources including genetic material shall be with due regard to sovereign rights of the countries where the forest are located and sharing of technology and profits of bio-technology products, for example pharmaceutical, derived from these resources.] ~~Agrees w/ biodiversity treaty.~~ ^{Provides incentive for protection.}

Combine w/ Sec. 9. (i) [National policies should ensure that environmental impact assessments are carried out where policies or programmes pose major potential threats to important forest areas.]

Debit ⊕ 9. (a) [The external indebtedness, in particular in developing countries, [the phenomenon of net transfer of resources from developing to developed countries] the inaccurate economic valuation of forest products and the lack of effective market forces are among the major factors that reduce the capacity and ability of [developing] countries to manage, conserve and develop their forest resources and national and international policies should be devised to redress such problems in the broader context of a supportive international economic environment.]

(b) [A number of problems that negatively affect the efforts to attain the conservation and sustainable use of forest ecosystems stem from the factual lack of alternative options available to poor rural populations. Unless those options, in the form of adequate prices for the products of sustainable use and technical aid, [and the development of appropriate and environmental friendly industrial capability] are provided in an internationally cooperative manner, no efforts in restriction of forest use will succeed.]

better than 9b { (c) [A number of problems that negatively affect the efforts to attain the conservation and sustainable use of forest ecosystems stem from the factual lack of alternative options available to poor rural populations. Unless those options, in the form of [alternative sources of forest products are provided to the rural population in the manner of international support, adequate financial and technical help] no efforts in restriction of forest use will succeed.]
 How about landless and gov't policies which accelerate deforestation?

(combine w/ 8f. (d) [Policy formulation with respect to forests should take account of the pressures imposed on forest ecosystems from causes outside the forest sector both domestically and internationally.]

(e) The lack of alternative options available to local communities in particular the poor populations economically and socially dependent on forest and forest ecosystems should be addressed.

10.

(a) [Developing countries should be compensated for their opportunity cost foregone [including historical loss of primary forest cover,] and the comparatively higher cost entailed [in the short term] by] [international cooperation is required to assist developing countries in meeting the higher cost entailed in] [increasing forest cover as well as sustainable management and conservation of their forest resources [in order to maintain biological diversity and climatic stability].]

(b) [Priority should be given to those forestry activities which are economically and socially necessary to meet national needs. Special assistance may need to be provided where developing countries incur in costs in pursuing activities for the global rather than the national good].

(c) [The incremental costs of the special types of forest for conserving biodiversity and counter green-house emissions gas emissions should be covered by global funding. These funds should be new and additional.]

Integration w/ climate (f)

11.

[[New] [Adequate] and additional] financial resources should be provided to developing countries through [existing mechanisms both bilateral and multilateral] [a global fund] to enable them to sustainably manage [enhance] conserve and develop their forests' resources including afforestation, reforestation and combating deforestation, forest and land degradation.

12.

[The transfer of environmentally sound [appropriate] technology to developing countries], [Technology cooperation in environmentally sound technologies] [including on concessional and preferential terms], [Joint development of technology relevant to the conservation and sustainable utilization of biological diversity, including genetic material in gene banks, as well as those technologies that make use of forest resources including biological resources and genetic material for other purposes such as pharmaceuticals, etc] should be promoted to enable developing countries to enhance their endogenous capacity, and to better manage, conserve and develop their forest resources.

13.

(a) Scientific research including forest inventories and assessments, which takes into account the biological, physical, social, economic [and other relevant key variables] carried out by national institutions and the technological development as well as its application in the field of sustainable forest management, conservation and development should be strengthened through effective modalities including international cooperation. In this context attention should also be given to research and development of sustainably harvested non-wood products

(b) [National, and where appropriate, regional and international institutional capabilities in education, training, science, technology, economics, anthropology and social

Same as
9 b and 7 c

How does
this work?

regulative

7 c
better?

(f)

Global funds
should be
conservation
oriented not
dev for dev
exploitation of
forests - This
is TFAF all
over again

aspects of forests and forest management are essential to the conservation and sustainable development of forests and should be strengthened.]

(c) [International exchange of results [of achievements in the field] of forest and forest management research and development should be strengthened and broadened as appropriate, making full use of education and training institutions and the private sector.]

(d) [Appropriate indigenous capacity and local knowledge regarding the conservation and sustainable development of forests should, in collaboration with the people in local communities concerned, be recognized, respected, recorded, developed and compensated through institutional and financial support and introduced in implementation of programmes.]

14.

(a) [Trade on forest products must be consistent with international trade law and practices as embodied for example in the General Agreement of Tariffs and Trade (GATT) and its subsidiary agreements.]

(b) [Removal of tariff barriers.] the provision of better market access and better prices for higher value-added [sustainably managed] forest products and their local processing should be encouraged to enable producer countries to better conserve and manage their renewable forest resources.

(c) [Incorporation of environmental costs and benefits into] market forces and mechanisms, to achieve forest conservation and sustainable development, should be encouraged both domestically and internationally.

(d) Forest conservation and sustainable development policies should be integrated with economic, trade [and other relevant] policies.

(e) [[Subsidies,] [protectionism] [and lower export revenues] [and other governmental interventions] which encourage [unnecessary] deforestation and unsound forest practices should be [eliminated] [discouraged] , wherever practicable [and subsidies or incentives encouraging sound practices should be encouraged where applicable]].

15.

(a) [All forms of unilateral actions to restrict and/or ban the use of timber and other forest products should be removed as such actions are counter-productive in terms of long-term sustainable forest management].

(b) Orderly and free international trade in forest products ^{⊕ necessary addition} [from sustainably managed forest resources] should be facilitated.

While I agree that blanket bans may not be productive, we should always have the capacity to at least threaten to ban timber from unsustainable sources.

Indonesian
at (climate
negotiations)
pushed for
this —
Genet Porter
also looked at
this.

tradeable
permits

(local processing can
encourage deforestation when
mills require high volumes to
keep running)

Robert
Repetto
argument

⊕ ⊕

16.

(a) [Pollutants are harmful to the health of forest ecosystems at local, national, trans-boundary and global levels and should be strictly controlled.]

(b) [The adverse effect of pollution on forests and forest ecosystems should be addressed.]

17. Forests constitute a significant reservoir of carbon and their role in the global carbon cycle should be recognized and considered in the development of national forests policies and plans

in particular 10 and old-growth forests.

1st time I have seen them use this word!

(10)

/cutie —

Add to bkgrd. documents
I gave you on UNCED
topics to be covered at
GLOBE-mtg.

~~B~~ Donato-san will
submit report on
biotech issues —

Naef

—

Briefing Papers For UNCED

Paper No. 2

Biotechnology: Environmental, Health and Economic Implications for the Third World

This paper examines the potential biological and chemical hazards of biotechnology, and warns of the export of these hazards to the South. It also cautions against the testing and marketing of hazardous biotechnology products in the Third World, as part of "environmentally sound" technology transfer.

The UNCED process is separating biotechnology from biodiversity, but the two issues are intricably linked. Transnational corporations want free access to the South's biodiversity resources, to convert them to biotechnology products and re-sell them to the South at high prices under patent protection. Biotechnology can also potentially destabilise Southern economies by replacing agricultural commodities.

UNCED should therefore evolve mechanisms of public control over biotechnology to ensure safety and protect Third World community interests. UNCED must also negotiate biodiversity and biotechnology together. The Biodiversity Convention should thus be a biodiversity-cum-biotechnology convention, with special focus on control over hazards and the economic impact on the South.

August 1991

This paper was prepared by Dr. Vandana Shiva, Director of the Research Foundation for Science, Technology and Natural Resource Policy (India) and Ecology Advisor of the Third World Network (TWN).

This is part of a series of Background Papers prepared by the TWN to bring Third World people's perspectives into the UNCED process.

Biotechnology and the Environment

Background paper
prepared for
UNCED

by

Vandana Shiva
Third World Network
India

Contents

- (1) Introduction
- (2) Biotechnology and Biohazards
 - (a) The Scientists Call for Safety
 - (b) Public Outcry in the North
 - (i) The "Ice minus" Story
 - (ii) The BST Story
 - (c) Export of Hazards to the Third World
 - (d) Biohazards and Biosafety
 - (e) Technology Transfer and Technology Choice
- (3) Biotechnology and Chemical Hazards
- (4) Biotechnology and Biodiversity
- (5) Biotechnology Substitutes and Economic Displacement in the Third World.
- (6) Biotechnology, Privatisation and Concentration
- (7) Biotechnology, Patents and Intellectual Property Rights.

BIOTECHNOLOGY AND THE ENVIRONMENT

A background paper for UNCED
prepared by
Vandana Shiva

*"Our knowledge is a little island in a
great ocean of non-knowledge".*
Nobel Laureate Isaac Singer

I INTRODUCTION

The fact that one of the agenda items for UNCED is the "environmentally sound management of biotechnology" indicates that biotechnology is surrounded by social and ecological anxiety.

The first anxiety arises from the fact that the new biotechnologies tamper with the very fabric of life, and demand a fundamental restructuring of our minds, our ethics, our environmental, social and economic values and relationships. While biotechnology in its broadest sense is a very ancient group of technologies, it is the new biologies which generate new social, ecological, economic and political risks. The new biotechnologies consist of two major groups of technologies.

The first group, "genetic engineering" refers to the new techniques deriving from advances in molecular biology, biochemistry and genetics. The second group is based on new cellular procedures based on the older technology of tissue culture.

Genetic engineering is a very powerful technique which theoretically allows any gene to be moved from any organism into another. Recombinant DNA technology has the potential to transform the genes into a global resource that can be used to shape novel life forms. It is this technical power which gives it the potential to become more pervasive than any technology in the past.

The new biotechnology has already found applications in primary industries (agriculture, forestry and mining), in secondary industries (chemicals, drugs, food) and in tertiary industries (education, research, advisory services).

In addition to the wide ranging applications of biotechnology is the fact that the development of the new technologies is nearly entirely controlled by transnational enterprises, though university and small firms evolved the techniques. These corporations are diversifying into every field of speciality which uses living organisms as a means of production. Traditional industry sectors are becoming less distinct and corporate boundaries virtually unlimited (Fowler et. al., 1988). This integration, centralisation and control carries with it an inherent destabilisation at the social, economic and ecological levels.

II BIOTECHNOLOGY AND BIOHAZARDS

(a) The scientists' call for safety

Technological innovation and scientific change do not merely bring benefits. They also carry social, ecological and economic costs.

It was the scientists closest to genetic engineering who first expressed concerns relating to the emergence of the new technology. In 1973, a group of prominent scientists called for a moratorium of certain types of research due to unknown risks and hazards associated with the possible escape and proliferation of novel forms of life. In 1975 at the Asilomar Conference, part of the scientific community led by Paul Berg, a molecular biologist from Berkeley, attempted to agree on the need for regulation of biotechnological research (Kramsky, 1982).

Potential Biohazards of Recombinant DNA Molecules

Recent advances in techniques for the isolation and rejoining of segments of DNA now permit construction of biologically active recombinant DNA molecules in vitro. For example, DNA restriction endonucleases, which generate DNA fragments containing cohesive ends especially suitable for rejoining, have been used to create new types of biologically functional bacterial plasmids carrying antibiotic resistance markers and to link *Xenopus laevis* ribosomal DNA to DNA from a bacterial plasmid. This latter recombinant plasmid has been shown to replicate stably in *Escherichia coli* where it synthesizes RNA that is complementary to *X. laevis* ribosomal DNA. Similarly, segments of *Drosophila* chromosomal DNA have been incorporated into both plasmid and bacteriophage DNAs to yield hybrid molecules that can infect and replicate in *E. coli*.

Several groups of scientists are now planning to use this technology to create recombinant DNAs from a variety of other viral, animal, and bacterial sources. Although such experiments are likely to facilitate the solution of important theoretical and practical biological problems, they would also result in the creation of novel

types of infectious DNA elements whose biological properties cannot be completely predicated in advance. There is serious concern that some of these artificial recombinant DNA molecules could prove biologically hazardous. One potential hazard in current experiments derives from the need to use a bacterium like *E. coli* to clone the recombinant DNA molecules and to amplify their number. Strains of *E. coli* commonly reside in the human intestinal tract, and they are capable of exchanging genetic information with other types of bacteria, some of which are pathogenic to man. Thus, new DNA elements introduced into *E. coli* might possibly become widely disseminated among human, bacterial, plant, or animal populations with unpredictable effects.

Concern for these emerging capabilities was raised by scientists attending the 1973 Gordon Research Conference on Nucleic Acids, was requested that the National Academy of Sciences give consideration to these matters. The undersigned members of a committee, acting on behalf of and with the endorsement of the Assembly of Life Sciences of the National Research Council on this matter, propose the following recommendations. First, and most important, that until the potential hazards of such recombinant DNA molecules have been better evaluated or until adequate methods are developed for preventing their spread, scientists throughout the world join with the members of this committee in voluntarily deferring the following types of experiments.

O Type 1: Construction of new, autonomously replicating bacterial plasmids that might result in the introduction of genetic determinants for antibiotic resistance or bacterial toxin formation into bacterial strains that do not at present carry such determinants ; or construction of new bacterial plasmids containing combinations of resistance of clinically useful antibiotics unless plasmids containing such combinations of antibiotic resistance determinants already exist in nature.

O Type 2: Linkage of all or segments of the DNAs from oncogenic (cancer-inducing) or other animal viruses to autonomously replicating DNA elements such as bacterial plasmids or other viral DNAs. Such recombinant DNA molecules might be more easily disseminated to bacterial populations in humans and other species, and thus possibly increase the incidence of cancer or other diseases.

Second, plans to link fragments of animal DNAs to bacterial plasmid DNA or bacteriophage DNA should be carefully weighed in light of the fact that many types of animal cell DNAs contain sequences common to RNA tumour viruses. Since joining of any foreign DNA to a DNA replication system creates new recombinant DNA molecules whose biological properties cannot be predicted with certainty, such experiments should not be undertaken lightly. Third, the director of the National Institutes of Health is requested to give immediate consideration to establishing an advisory committee charged with (i) overseeing an experimental program to evaluate the potential biological and ecological hazards of the above types of recombinant DNA

molecules; (ii) developing procedures which will minimise the spread of such molecules within human and other populations; and (iii) devising guidelines to be followed by investigators working with potentially hazardous recombinant DNA molecules.

Fourth, an international meeting of involved scientists from all over the world should be convened early in the coming year to review scientific progress in this area and to further discuss appropriate ways to deal with the potential biohazards of recombinant DNA molecules. The above recommendations are made with the realisation (i) that our concern is based on judgements of potential rather than demonstrated risk since there are few available experimental data on the hazards of such DNA molecules and (ii) that adherence to our major recommendations will entail postponement or possibly abandonment of certain types of scientifically worthwhile experiments. Moreover, we are aware of many theoretical and practical difficulties involved in evaluating the human hazards of such recombinant DNA molecules. Nonetheless, our concern for the possible unfortunate consequences of indiscriminate application of these techniques motivates us to urge all scientists working in this area to join us in agreeing not to initiate experiments of types 1 and 2 above until attempts have been made to evaluate the hazards and some resolution of the outstanding questions has been achieved.

*Committee on Recombinant DNA
Molecules Assembly of Life Sciences
National Research Council
National Academy of Sciences
Washington, DC 20418*

Paul Berg, Chairman

David Baltimore

Herbert W Boyer

Stanley N Cohen

Ronald W Davis

David S. Hogness

Daniel Nathans

Richard Roblin

James D Watson

Sherman Weissman

Norton D Zinder

Later, as many scientists got involved in the commercial application of the new technologies – what Congressman Gore has called the “selling of the tree of knowledge to Wall Street” – the self-criticism and self-restraint of the scientific community faded away.

The sustaining of the social impact analysis of the new technologies then became the responsibility of individual scientists and activists. The most persistent theme of the criticism has been the fear of adverse ecological and epidemiological consequences that might stem from the accidental or deliberate release of self-propagating genetically engineered organisms into the biosphere. Prominent scientists like Lieke Cavalleri, George Wald and David Suzuki have argued that the very power of the new technology outstrips our capacity to use it in safety, that

neither nature's resilience nor our own social institutions are able to anticipate the unanticipated impacts of genetic engineering (Kloppenborg, 1988).

(b) Public outcry against testing and deliberate release in the North

(i) The "ice minus" story

Since frost damage is a major threat in the colder climate of the North, and runs up to \$14 billion annually worldwide, biotechnologists are trying to make plants more tolerant to frost. They have isolated a gene which triggers ice nucleation in plant cells, and have deleted it from a certain bacterium called *Pseudomonas syringae*. The idea is that when this ice-minus bacteria is sprayed on a crop, such as Californian strawberries, it displaces the naturally occurring ice-forming bacteria, and the plants do not freeze when they normally would.

In 1983, Steven Lindow of Berkeley, and Advanced Genetic Sciences, a firm which was funding his work, were permitted by the National Institute of Health (NIH) Recombinant DNA Advisory Committee to run a field test. However, on September 4, a group of citizens and environmental interest groups based in Washington, D.C. — including Jeremy Rifkin, and the Foundation on Economic Trends, the Environmental Task Force, Environmental Action and the Humane Society — filed a suit against the NIH for approving the project. Among other things the suit charged that the NIH had not conducted an adequate assessment of the potential environmental risks of Lindow's field test and had "been grossly negligent in its decision to authorise the deliberate release of the first genetically engineered life-forms".

Among the risks that the public interest suit against NIH pointed to was the dramatic possibility that the frost-preventing bacteria might be swept into the upper atmosphere, disrupting the natural formation of ice-crystals, ultimately affecting local weather pattern and possibly altering the global climate. Eminent scientists like Eugene Odum and Peter Raven pointed to the ecological hazards of deliberate release of microorganisms since they reproduce rapidly, and their inter-relations with higher plants such as trees and plants are not known.

The public outcry associated with the ice-minus field test is pushing Northern governments and corporations to take their trials overseas to countries with little or no regulation, and that means the Third World.

(ii) The BST story

Bovine growth hormone, BST (*Bovine Somatotropin*) is the first hormone of the new biotechnological generation. Natural BST is a protein hormone that cows produce in sufficient quantities. In young animals it regulates muscle formation and growth, whereas in adult cows it controls milk production.

Genetically engineered BST is produced not by cows but by genetically engineered bacteria. Administered regularly to cows daily it increases milk yields by 7-14%.

Among the undesirable and negative side effects of biotechnological BST are severe deterioration of the health of the cow and higher surplus in regions where milk surpluses are already driving dairy farmers out of business. One estimate shows that if BST were licensed in the UK, by 1994-95 there would be 10% more dairy farmers going out of production than if it were not licensed. It is also not known whether hormone fragments will have side effects on the human body. There is no test for checking whether the growth hormone in cow's milk is natural or genetically engineered. There is no test for finding out what the recombinant version can do to the hormonal balance of people consuming BST-treated milk (Ram's Horn, 1991). In addition, the reduced immunity of the cow to disease will imply increased use of drugs and decreased quality of milk.

Animal rights activists, farmers and consumers in the North have achieved a ban on BST, such as in Wisconsin and Vermont in the USA. Three Canadian provinces have banned the selling of BST milk, and a national "Pure Milk Campaign" has been launched to block the licensing of BST. The European Parliament supported a resolution calling for a worldwide ban on BST. BST has been banned in Denmark, Sweden and Norway.

In the USA a national coalition of farmers and consumers is organising a boycott of Monsanto, American Cyanamid, Lilly and Upjohn to prevent them from marketing BST.

(c) Export of hazards to the Third World

As bans and regulations delay tests and marketing in the North, biotechnology products will increasingly be tested in the South to bypass regulation and public control.

The public, the scientists, and the official agencies of countries where these technologies are being developed, are aware of these hazards. Genetic engineering companies therefore face regulatory constraints, public protests and court injunctions domestically, and have started to conduct their release experiments involving recombinant organisms in countries where obstacles appear to be fewer due to laxer legislation and lower public awareness. As Dr. Alan Goldhammer of the Industrial Biotechnology Association of the US had stated, "the pathway may be clearer in foreign nations to getting approval". The Indian government has welcomed the biotech bandwagon of foreign companies by diluting the regulations and eroding the democratic structures that have existed within the country. VAP (Vaccine ^{Application} ~~Assessment~~ Program) is clearly designed to by-pass safety regulations prevalent in the US because the memorandum of understanding states that all genetic engineering research "will be carried out in accordance with the laws and regulations of the country in which the research is conducted". Since India has no laws regulating genetic engineering, testing vaccines in India amounts to totally unregulated deliberate release.

The VAP was initiated in 1985 as part of the Reagan-Gandhi Science and Technology Initiative, and the agreement was signed in Delhi on July 9, 1987. The project document states that "The announcement of the VAP is an important recognition that vaccines are among the most cost-effective of health technologies, and their widespread use in both countries is key to

controlling the burden of vaccine - preventable diseases". The primary purpose of the project is to allow an extended range of trials of bio-engineered vaccines on animals and human subjects. The priority areas have been identified as cholera, typhoid fever, rotavirus, hepatitis, dysentery, rabies, pertussis, pneumonia and malaria, but these could change in succeeding years of the project as other areas of research opportunity are identified.

In 1986, the WISTAR institute based in Philadelphia hit the headlines for testing bio-engineered rabies vaccine on cattle in Argentina without the consent of the government of people of Argentina. When the Argentinian government became aware of the bovine rabies vaccine experiment in September 1986, it was immediately terminated. The Argentinian Ministry of Health alleged that farm hands who cared for the vaccinated cattle had been infected with the live vaccine.

WISTAR was driven out by the Argentinian government, but has been welcomed by the Indian government for participation in VAP. In fact, the project paper for VAP prepared by the US government applauds WISTAR for its achievements in the field of vaccine development, and specifically mentions the bovine rabies vaccine for field trials and other research.

The US government is evidently dictating the terms and conditions for these experiments, under VAP. The programme is financed by USAID (United States Agency for International Development) and the US Public Health Service. The total project cost is \$9.6m of which the US and Indian components are \$7.6m and \$2m respectively. Through the financial input the US government controls the agreement. Thus, all "documents, plans, specifications, contracts, schedules and other arrangements with any modifications therein", must be approved by the USAID. On the other hand, scientists and scientific agencies in India directly concerned with the subject have been excluded from discussions on the programme.

(i) Secrecy and the violation of Sovereignty

The controversial Indo-US Vaccine project was signed by-passing the high-powered biotechnology scientific advisory committee set up by the Government of India. Dr. Pushpa Bhargava, member of the committee and Director of the Centre for Cellular and Molecular Biology, said that the steps postulated in the Vaccine agreement "are bound to come in the way of setting up our own research and development", and threaten to compromise our national sovereignty. The Union Science Minister, Mr. K. R. Narayanan was not informed of the details of the agreement, nor was Dr. V. S. Arunachalam, the Science Advisor to the Defence Minister. The Director General of the Indian Council of Medical Research stated categorically that he will not allow any vaccine to be tried on Indians unless the same is also approved for use in the US. As a result of scientific and public protest, the implementation of the programme has become even more secretive and totally removed from the public gaze.

A programme that will expose the Indian public to unknown hazards of live viruses used as vaccines denies the human subjects of the vaccine experiments the ethical right to prior informed consent. Human beings everywhere have a fundamental human right to know when

they are being treated as guinea pigs, and they have a right to refuse to participate if they fear the exposure to unnecessary risks. With genetically engineered vaccines, the risks are indeed very high. Most researchers consider the use of attenuated lethal viruses as live vaccines too risky. Creating hybrid viruses has been viewed as one way to circumvent these risks. Recombinant DNA technology can be used to add the gene for an antigen of a lethal virus to the genome of a harmless virus, in an attempt to create a harmless living hybrid virus which, if used as a vaccine, provides immunity against the lethal virus. However, as Wheale and McNally report in Genetic Engineering: Catastrophe or Utopia?, recent research has shown that genetic manipulation of harmless viruses can turn them virulent. There is no "safe" bio-engineered vaccine.

While VAP is totally irresponsible with regard to protection of people's health and environmental safety in the light of these hazardous implications, it shows great concern for the protection of corporate profits. It has a special clause for an accord on intellectual property which attempts to undo the public interest content of the Indian patent protection system.

Argentina and India are not the only countries to which bio-hazards are being exported. At a weeklong National Conference on Plant and Animal Biotechnology, in February 1990, USAID officials were pressing African states to allow field trials of genetically altered organisms that might not be allowed in the regulatory systems in the North. Such was the concern that the Minister for Research, Science and Technology made a public pledge on the Conference's second day, stating that Kenya would not become a testing ground for dangerous new biotechnology products. Dr. Calestus Juma, Director of the African Centre for Technology Studies (ACTS) advised scientists that the USAID is encouraging Third World countries in Asia and Latin America to undertake similar testing roles for private American firms. (African Diversity, June 1990).

(d) Biohazards and Biosafety

Ignorance about the ecological and health impacts of new technologies has far outweighed the knowledge needed for their production. As Jeremy Ravetz has stated, ignorance rather than knowledge characterises our times, and maintaining an ignorance about our ignorance is a central taboo of the technocratic culture (Ravetz, 1988).

It took 200 years of production based on fossil fuel before scientists realised that the burning of fossil fuels has unanticipated side effects — the destabilisation of the climate, the pollution of the atmosphere, and the creation of the greenhouse effect.

DDT was celebrated as an ultimate tool for ensuring public health. A Nobel Prize was awarded for its discovery. Today, DDT and other toxic pesticides are known to carry very high ecological and health costs, and many have been banned in the industrialised countries.

Union Carbide set up its chemical plants in India proudly announcing, "We have a hand in India's future". That future included the killing of 3,000 innocent people in December 1984 when MIC gas leaked from Carbide's pesticide plant in Bhopal.

Hazardous substances and processes have been manufactured faster than the structures

of regulation and public control have evolved. We do not yet have full ecological criteria of testing for environmentally safe management of fossil fuel technologies of the mechanical engineering revolution. The tests for environmentally safe management of the chemical engineering revolution are still in their infancy, leading to the marketing of products, processes and wastes which are proving to be ecologically unmanageable. Tests for safety in the genetic engineering revolution are yet to be conceived, since how the genetically modified life-forms interact with other organisms is totally unknown and uncharted territory.

Further, unlike hazardous chemicals such as pesticides and ecologically harmful substances like CFCs, the products of genetic engineering cannot be removed from the market. As George Wald has said in "The case against Genetic Engineering": "The results will be essentially new organisms, self perpetuating and hence permanent. Once created they cannot be recalled."

(e) Technology transfer and technology choice

In biotechnology more than in any other area, lack of knowledge of hazards cannot be treated as safety. Restraint and caution is therefore considered the only wise strategy for unleashing powerful technologies with potentially serious risks in a context of near total ignorance.

For Third World countries, a special danger exists for being used as a testing ground and as guinea pigs. In addition, the uncertainties for the South are aggravated by the fact that the governments of the South want access to the new technologies of the North. In their haste to get access to the new biotechnologies, the Southern governments could unwittingly place themselves and their people and environment in this role of testing ground.

Therefore, to increase the benefits from the new technologies and to reduce their negative impacts, the Third World needs to rapidly evolve a framework of assessment of biotechnology on the basis of ecological, social and economic impact. Transfer of technology, an important issue for the South needs to be negotiated within such an assessment framework, so that socially desirable transfer of technology can take place while undesirable and hazardous transfer can be prevented.

In the area of the environmentally safe management of biotechnologies, it is important to have criteria of demarcation between technologies and products that are dangerous and unnecessary and those that are safe and desirable. This requires comparison and evaluation amongst different technology options, and the treatment of the new biotechnologies as merely one among many available alternatives to reach the same objective. In the final analysis, technology assessment and choice demands that technology be treated as what it is, a means, and not an end in itself.

III BIOTECHNOLOGY AND CHEMICAL HAZARDS

While the area of biohazards is largely uncertain territory, after forty years of chemical hazards, we know with certainty that human communities would rather live without them.

Will biotechnology lead to safer food, and food with fewer chemical residues from pesticides and other agrochemicals? Will the new biological approaches replace present agrochemicals?

As the Green Revolution miracle fades out as an ecological disaster, the biotechnology revolution is being heralded as an ecological miracle for agriculture. It is being offered as a chemical-free, hazard-free solution to the ecological problems created by chemically intensive farming. The past forty years of chemicalisation of agriculture have led to severe environmental threats to plant, animal and human life. In the popular mind "chemical" has come to be associated with "ecologically hazardous". The ecologically safe alternatives have been commonly labelled as "biological". Biotechnology has benefitted from its falling under the "biological" category which has connotations of being ecologically safe. The biotech industry has described its agricultural innovations as "ecology plus".

It is, however, more fruitful to contrast the ecological with the engineering paradigm, and to locate biotechnology in the latter. The engineering paradigm offers technological fixes to complex problems, and by ignoring the complexity, generates new ecological problems which are later defined away as "unanticipated side effects" and "negative externalities". Within the engineering ethos it is impossible to anticipate and predict the ecological breakdown that an engineering intervention can cause. Engineering solutions are blind to their own impacts. Biotech, as biological engineering, cannot provide the framework for assessment of its ecological impact on agriculture.

The first myth about biotechnology is that it is ecologically safe.

The second myth is that biotechnology will launch a period of chemical-free agriculture. However, most research and innovation in agricultural biotechnology are being undertaken by chemical multinationals such as Ciba Geigy, ICI, Monsanto and Hoechst.

TABLE 1: RESEARCH FOCUS: AGRICULTURAL BIOTECHNOLOGY AND THE PRIVATE SECTOR: COMPANY ACTIVITY BY REGION						
Type of Product	Number of Enterprises					
	USA	Canada	Europe	Latin America	Japan	Total
Seeds	137	14	38	3	11	203
Disease resistance	40	4	15	2	8	69
Herbicide resistance	26	3	8	0	1	38
Nitrogen-fixation	20	1	6	1	0	28
Pest resistance	18	2	4	0	0	24
Stress resistance	15	3	4	0	1	23
Protein improvement	18	1	1	0	1	21
Plant diagnostics	54	3	19	4	1	81
Plant food/feed	75	8	56	5	3	147
Other related products	10	2	12	25	1	50
Grand Total	276	27	125	37	16	481

**TABLE 2: THE GLOBAL PESTICIDES INDUSTRY:
THE TOP SEVEN ENTERPRISES IN 1986 (US \$ MILLION)**

Enterprise	State	Sales	Percentage of global sales	Herbicide tolerance
Bayer	FR Germany	2,344	13	Yes
Ciba-Geigy	Switzerland	2,070	12	Yes
ICI	UK	1,900	11	Yes
Rhone-Poulenc	France	1,500	9	Yes
Monsanto	USA	1,152	7	Yes
Hoechst	FR Germany	1,022	6	Yes
Du Pont	USA	1,000	6	Yes
Top Seven		10,988	63	

Source: Development Dialogue: The Laws of Life

**TABLE 3: THE GLOBAL GENETICS SUPPLY INDUSTRY:
THE TOP TEN ENTERPRISES IN 1987 (US \$ MILLION)**

Enterprise	State	Seed sales	Percentage of global sales	Herbicide tolerance
Pioneer	USA	891,0	6,55	Yes
Shell	UK/Netherlands	350,0	2,57	Yes
Sandoz	Switzerland	289,8	2,13	Yes
Dekalb/Pfizer	USA	201,4	1,48	Yes
Upjohn	USA	200,0	1,47	Unknown
Limagrain	France	171,5	1,26	No
ICI	UK	160,0	1,19	Yes
Ciba-Geigy	Switzerland	152,0	1,12	Yes
Lafarge	France	150,0	1,10	Unknown
Volvo	Sweden	140,0	1,03	Unknown
Top Ten		2,705,7	19,89%	6 of 10

Source: Pharm-ecology: The Corporate Approach to Organic Agriculture.

The immediate strategy for these companies is to increase the use of pesticides and herbicides by developing pesticide and herbicide tolerant varieties. (See Appendices). The dominant focus of research on genetic engineering is not on fertiliser-free and pest-free crops, but pesticide and herbicide resistant varieties. 27 corporations are working on virtually all major food crops to develop herbicide tolerance. For the seed-chemical multinationals this might make commercial sense, as Fowler et. al. point out, since it is cheaper to adopt the plant to the chemical than to adopt the chemical to the plant. The cost of developing a new crop variety rarely reaches US\$2 million whereas the cost of a new herbicide exceeds \$40 million. Herbicide and pesticide resistance will also increase the integration of seeds/chemicals and the control of TNCs in agriculture. A number of major agrichemical companies are developing plants with resistance to their brand of herbicides. Soyabeans have been made resistant to Ciba-Geigy's Atrazine herbicides, and this has increased annual sales of the herbicide by \$120 million. Research is also being done to develop crop plants resistant to other herbicides such

as Dupont's 'Gist' and 'Glean' and Monsanto's 'Round-Up', which are lethal to most herbaceous plants and thus cannot be applied directly to crops. The successful development and sale of crop plants resistant to brand name herbicides will result in further economic concentration of the agro-industry market, increasing the market power of transnational companies.

For the Third World farmer this strategy for employing more toxic chemicals on pesticide and herbicide resistant varieties is suicidal, in a lethal sense. Thousands of people die annually as a result of pesticide poisoning. In 1987, more than 60 farmers in India's prime cotton growing area of Prakasam district in Andhra Pradesh committed suicide by consuming pesticide because of debts incurred for pesticide purchase. The introduction of hybrid cotton created pest problems. Pesticide resistance resulted in epidemics of white-fly boll worm, for which the peasants used more toxic and expensive pesticides, incurring heavy debts and thus driven to suicide (Ramprasad, 1988). Even when pesticides and herbicides do not kill people, they kill people's sources of livelihoods. The most extreme example of this destruction is that of bathua, an important green leafy vegetable with very high nutritive value which grows as an associate of wheat. However, with intensive chemical fertiliser use bathua has become a major competitor of wheat and has been declared a 'weed' that is killed with herbicides and weedicides.

Herbicide resistance also excludes the possibility of rotational and mixed-cropping, which are essential for a sustainable and ecologically balanced form of agriculture, since the other crops would be destroyed by the herbicide. US estimates now show a loss of US\$4 billion per annum due to crop loss as a result of herbicide spraying. The destruction in the Third World will be far greater because of higher plant diversity, and the prevalence of diverse occupations based on plants and biomass. Thousands of rural women who make their living by weaving baskets and mats with wild reeds and grasses are losing their livelihoods because increased use of herbicides is killing the reeds and grasses. The introduction of herbicide-resistant crops will increase herbicide use and thus increase the damage to economically and ecologically useful plant species.

Strategies of genetic engineering for herbicide resistance which are destroying useful species of plants can also end up creating superweeds. There is an intimate relationship between weeds and crops, especially in the tropics where weedy and cultivated varieties have genetically interacted over centuries and hybridise freely to produce new varieties. Genes for herbicide tolerance, pest-resistance, stress-tolerance that genetic engineers are striving to introduce into crop plants may be transferred to neighbouring weeds as a result of naturally occurring gene transfer. (Wheale and McNally, 1988, p.172).

The Third World needs to ban the introduction of herbicide and pesticide resistant crops because of their health impact, ecological impact and economic impact, including labour displacement and the increase of capital intensity of agriculture.

IV BIOTECHNOLOGY AND BIODIVERSITY

There is a prevalent misconception that biotechnology development will automatically lead to

biodiversity conservation. The main problem with viewing biotechnology as a miracle solution to the biodiversity crisis is related to the fact that biotechnologies are, in essence, technologies for the breeding of uniformity in plants and animals. Biotech corporations do talk of contributing to genetic diversity. As John Duesing of Ciba-Geigy states, "Patent protection will serve to stimulate the development of competing and diverse genetic solutions with access to these diverse solutions ensured by free market forces at work in biotech ecology and seed industries". However, the 'diversity' of corporate strategies and the diversity of life-forms on this planet are not the same thing, and corporate competition can hardly be treated as a substitute for nature's evolution in the creation of genetic diversity.

Corporate strategies and products can lead to diversification of **commodities**; they cannot enrich nature's diversity. This confusion between commodity diversification and biodiversity conservation finds its parallel in raw-material diversification. Although breeders draw genetic materials from many places as raw material input, the seed commodity that is sold back to farmers is characterised by uniformity. Uniformity and monopolistic seed supplies go hand in hand. When this monopolising control is achieved through the molecular mind, destruction of diversity becomes more accelerated. As Jack Kloppenburg has warned, "Though the capacity to move genetic material between species is a means for introducing additional variation, it is also a means for engineering genetic uniformity across species."

The application of DNA transfer to crop improvement may result in a greater degree of genetic uniformity among cultivars. Calgene has isolated a bacterial gene which can be transferred to a tobacco plant and when successfully expressed confers resistance to the herbicide glyphosate (Monsanto's "Round-Up").

It might be said that Calgene^e has added variability to the tobacco genepool. But if that gene is a commercial success and is incorporated into most tobacco cultivars, the result may be increased genetic uniformity in that crop (Kloppenburg, 1988). And it was the broad distribution of a single genetic character that led to the corn blight epidemic of 1970.

Tissue culture will also generate uniformity in agriculture and forestry. Companies such as Shell, Weyerhaeuser and International Paper are looking to mass produce genetically identical seedlings. Normally, populations of organisms are diverse. Some have a capacity to resist a disease, say a fungus, while others do not. Diversity allows a species to survive. However, should cloned genetically uniform trees prove susceptible to a pathogen or pest, millions of acres of forest and years of production might be lost.

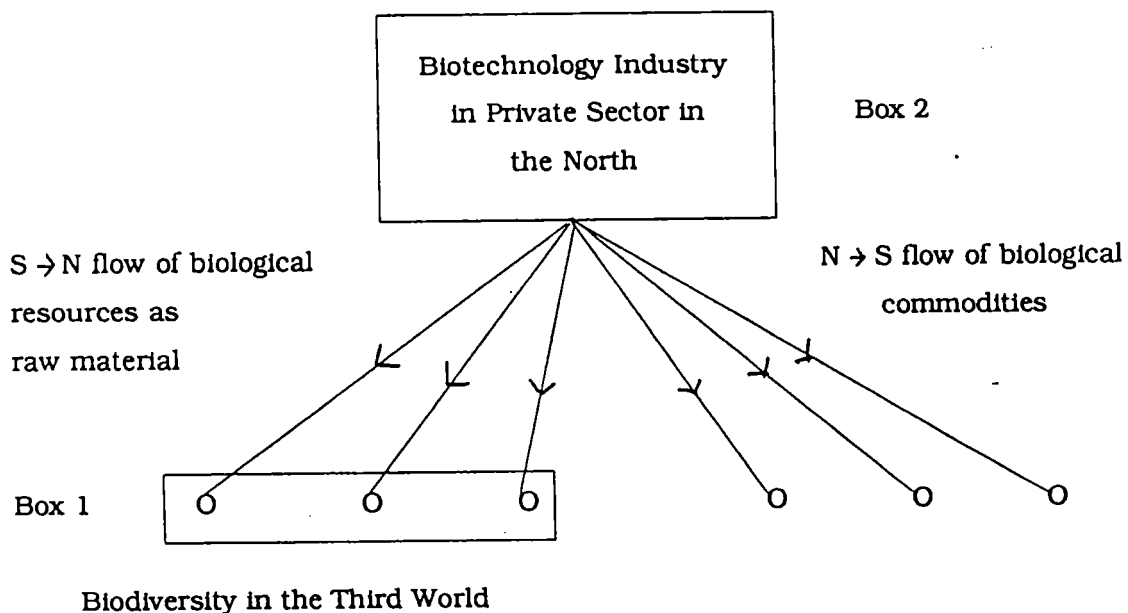
Biotechnology may well diminish genetic diversity and increase genetic vulnerability (Yoxen 1986, Kloppenburg 1988).

Most large scale plantations of commercial species are now being introduced in the Third World. Shell as been given 60,000 ha in Uruguay, with financing by the World Bank. Large areas of land in Thailand have also been taken over for tree planting by Shell. If future plantations financed through the Tropical Forestry Action Plan use clones of eucalyptus and tropical pines, the ecological and financial costs of collapse will be borne by Third World countries, in addition to existing costs of biodiversity destruction, and displacement of local communities. (Lohmann, 1991).

l
-
it
or
ht
to
ety
ide
ol of
with
igy's
llion.

Shifting the focus on Biodiversity and Biotechnology Linkages

1. Two thirds of the world's biodiversity lies in the Third World.
2. The most significant relationship between biodiversity and biotechnology is that the former acts as a raw material case for biotechnology based industry located in the North and in the private sector.
3. The focus on biodiversity discussions has so far been confined to Box 1. The focus should, in fact, be on Box 2 which allows the evolution of coherent and integrated framework to discuss issues such as control over biological resources, conservation of biodiversity, technology transfer, financial mechanisms, codes of conduct on impact of the new technologies on health and environmental safety, economic impacts on employments and commodity exports.



Focus on Box 1 in global negotiations threatens to erode the rights of local custodians of biodiversity and sovereignty of national governments in the Third World and shifts the control^{*} political, economic, ecological challenges raised by the new biotechnologies. Focus on Box 2 allows an integrated and comprehensive discussion of all aspects of biodiversity and biotechnology while preserving the sovereignty of local communities and national governments.

* of the South's biodiversity to the North while neglecting the

TABLE : AN ILLUSTRATIVE LIST OF PLANT TISSUE CULTURE RESEARCH ACTIVITIES

Plant cultured	Plant products to be cultured	Plant country of origin	Research Organisation per kg (\$US)	Value of produce (\$US) million	Market size
Lithospermum	Shikonin	Korea, China	Mitsui Petrochemical (Japan)	4500	
Pyrethrum	Pyrethrines	Tanzania, Ecuador, India	University of Minnesota	300	20 (US)
Papaver	Cadeine, opium	Turkey		850	50 (US)
Spota	Chicle	Central America	Lotte (Japan)		
Patharantus	Vincristine		Canadian National Research Council	5000	18-20 (US)
Jasminum	Jasmin	Many producers		5000	0.5 (World)
Digitalis	Digitoxine-digoxine		University of Tübingen Boehringer-Mannheim (Germany)	3000	20-55 (US)
Qinchona	Quinine	Indonesia	Plant Scienced Ltd. (United Kingdom)		
Cocoa	Cocoa butter	Brazil, Ghana	Cornell University		891(World)
Thaumatococcus	Thaumatine	Liberia, Ghana	Hershey, Nestle		
Rauwolfia	Reserpine	Malaysia	Tate and Lyle United Kingdom		80 (US)

Source: Kenney and Buttel, F., "Biotechnology: Prospects and Dilemmas for Third World Development", Development and Change, Vol. 16, No. 1, 1985.

V BIOTECHNOLOGY SUBSTITUTES AND ECONOMIC DISPLACEMENT IN THE THIRD WORLD

Probably the most serious impact of biotechnology will be the displacement of some agricultural export commodities from the Third World, with its related impacts on the national economy and employment. Plant tissue culture offers increased possibilities of substituting specialities with industrially produced inputs. Many high value plant-derived products used for pharmaceuticals, dyes, flavourings and fragrances are vulnerable to displacement as a result of current research (OCED, 1989).

The impact of successful production of substitutes will be felt most by countries which have, in an earlier international division of labour, been made dependent upon exports of the natural products concerned. This will particularly be destructive to economies in Africa which depend entirely on single crops for most of their export earnings. While historically Africa has grown crops needed for Europe, in the emerging world order based on new biotechnologies, Africa will become dispensable as the North finds biotech substitutes for African crops.

When factories close in the North, compensation is given to workers. When crops first introduced by global agribusiness are displaced by technologies developed by agribusiness, the small peasant and agricultural worker are left to fend for themselves, as are their countries. The South needs to develop an agenda for compensation which is based on a notion of historical justice and which can be tabled before the full deployment of the new biotechnologies which are being developed to reduce dependence on the Third World (Hobbelink, 1991, Fowler et. al., 1988).

VI BIOTECHNOLOGY, PRIVATISATION AND CONCENTRATION

Most of the adverse impacts of biotechnology are related to the fact that the new technologies are evolving under control of the transnational private sector.

Biotechnology was born in the laboratories of universities and other public research institutions. Some scientists then moved out to build their own biotech companies. Now it is the giant agrochemical, pharmaceutical and food processing transnationals that dominate the research and the markets.

Along with the privatisation trend is the trend towards concentration. As Henk Hobbelink has put it, "the few are becoming fewer, and the big grow bigger" (Hobbelink, 1991).

Where 30 manufacturers were involved in pesticide development in the mid 1970s in the US, there are only a dozen today.

For decades, the top 30 drug producers have remained the same. Today, ten corporations control 28% of the world market as a result of mergers.

TNCs are buying up most of the seed companies. Today, the top ten companies control over 20% of the global market, and have interests in chemicals, pesticides and pharmaceuticals. It is expected that by 2000 the top ten will control most of the seed market, including that controlled by farmers who save their own seed, and that controlled by the public agriculture research system which played a central role in the development and distribution of Green Revolution seed varieties.

The privatisation trends are clear in changes in India's seed policy. They are also being indicated in China, which has been a pioneer in developing hybrid rice, which is capable of boosting harvests by 25%. But the rice variety that allows its production — a so-called male-sterile line of rice that will not self-seed — is not being distributed in Asia. Two multinational companies — Cargill Seeds and Occidental Petroleum's Ring Around Products — are known to have exclusive license agreements with the Chinese government for seed development, production and marketing in specified countries.

An agreement between the Chinese government and the two US companies forbade the sharing of information and materials concerning hybrid rice with other governments or with IRRI. The Chinese government was therefore forced to withdraw its support for an IRRI hybrid rice training course (Robert Walgate, 1990).

The erosion of a public system of control and regulation is therefore inevitable with growing privatisation. The OCED survey of industry and government of main issues raised by biotechnology shows that markets are the main driving force for industry.

The divergence between the imperative for private profits and people's well being is expected to grow. Corporations will attempt to adjust society to their need for profits. They will increasingly use the state to restructure the relationships between people and between North and South to suit their needs. The issue of privatisation is increasingly becoming a threat to democracy and people's will, as the same scientists work on contract for TNCs, function on government regulatory bodies, and dominate scientific research. In this context it is up to citizens, free of TNC and government control, to keep public issues and priorities alive, and have a space for public control of the new biotechnologies.

VII BIOTECHNOLOGY, PATENTS, AND PRIVATE PROPERTY IN LIFE FORMS

The ultimate expression of privatisation of biotechnology is the desperate urge by TNCs, operating through the US Trade Representative, World Bank, GATT and WIPO, to have a uniform patent system that allows them to own all life on this planet as their private property.

Patents in the context of agriculture and food production involve ownership over life forms and life processes. Monopoly ownership of life creates an unprecedented crisis for agricultural and food security, by transforming biological resources from commons into commodities. It also generates a crisis of values and ends which guide social organisation, technological change, and development priorities.

Development debates throughout the South have revealed that development is not a neutral category. Development for some implies underdevelopment for many. This is as true for agricultural development as development in other spheres, as experience with the Green Revolution has shown. Patents in agriculture are being pushed by Northern governments and corporations as essential for agricultural development in the Third World. Dupont's Ralph Hardy has said: "The competitive position of US industry in biotechnology would be improved if there were international conventions that would provide greater uniformity with respect to patentability and property rights. There are some countries that do not recognise (property rights) and this will significantly retard the development and early commercialisation of products that would improve the health and food supply of these countries."

Yet it is not the countries who are supposed to benefit from worldwide intellectual property protection who are demanding patent protection. It is the multinational corporations.

Monsanto's Nicholas Ridding echoes Dupont's Hardy when he says: "The major challenge to genetic engineering scientists and companies as well as national governments is to support uniform worldwide property rights."

This is just another way of stating that global monopoly over agriculture and food systems should be handed over as a right to multinational corporations. With worldwide patent protec-

tion, agribusiness and the seed trade are trying to achieve truly global reach. While the rhetoric is agricultural development in the Third World, the enforcement of strong patent protection for monopoly ownership of life processes will undermine and underdevelop agriculture in the Third World in a number of ways.

Firstly, it will undermine our cultural and ethical fabric based on agriculture, in which the fundamental life processes are treated as sacred, not as commodities to be bought and sold on the market. The sacred cow will give way to patented livestock, and, according to the US patent law, the offspring of patented livestock would also be subject to royalty charges throughout the 17 or 22 years of patent protection. Fowler et. al. have called this the patent version of the old "original sin". It will affect not just animals but plants as well. Seeds, which have been treated as sacred, as gifts exchanged freely between farmers, will become patented commodities. Hans Leenders, Secretary General of the world seed houses and their breeders, has proposed to abolish the farmers' right to save seed. He says: "Even though it has been a tradition in most countries that a farmer can save seed from his own crop, it is under the changing circumstances not equitable that a farmer can use this seed and grow a commercial crop out of it without payment of a royalty.....the seed industry will have to fight hard for a better kind of protection".

The corporate demand to change a common heritage into a commodity and to treat profits generated through this transformation as a property right will lead to erosion not just at the ethical and cultural level, but also at the economic level for Third World farmers. The Third World farmer has a — three level relationship with the corporations demanding a monopoly of life forms and life processes. Firstly, the farmer is a supplier of germ plasm to TNCs. Secondly, the farmer is a competitor in terms of innovation and rights to genetic resources. Finally, the Third World farmer is a consumer of the technological and industrial products of TNCs. Patent protection displaces the farmer as a competitor, transforms him into a supplier of free raw material, and makes him totally dependent on industrial supplies for vital inputs like seed. Above all, the frantic cry for patent protection in agriculture is for protection from farmers, who are the original breeders and developers of biological resources in agriculture. It is argued that patent protection is essential for innovation - however, it is essential only for innovation that brings profits to corporate business. Farmers have carried out innovations over centuries and public institutions have carried out innovations over decades without any property rights or patent protection.

Further, unlike plant breeders rights (PBR), the new utility patents are very broad based, allowing monopoly rights over individual genes and even characteristics. PBR is not an ownership over germplasm in the seeds; it gives only a monopoly right for the selling and marketing of a specific variety. The monopoly rights of industrial patents go much further. They allow for multiple claims that can cover not only whole plants but plant parts and processes as well. So, according to attorney Anthony Diepenbrock: "You could file for protection of a few varieties of crops, their macroparts (flowers, fruits, seeds and so on) their micro parts (cells, genes, plasmids, and the like) and whatever novel processes you develop to work with these parts all

using one multiple claim."

Patent protection implies the exclusion of farmers' rights over resources having those genes and characteristics. This will undermine the very foundation of agriculture in India. For example, a recent patent has been granted to Sungene for a sunflower variety with very high oleic acid content. The claim allowed was for the characteristic itself (i.e. high oleic acid), and not just the genes producing the characteristic. Sungene has notified others involved in sunflower breeding that the development of any variety high in oleic acid will be considered an infringement.

In the 1985 judgement in *Ex parte Hibberd*, Molecular Genetics Scientist Kenneth Hibberd and his co-inventors were granted patents on tissue culture seed and whole plant of a corn line selected from tissue culture. The Hibberd application included over 260 separate claims, which give the Molecular Genetics scientists the right to exclude others from use of all 260 aspects. While apparently Hibberd provides a new legal context for corporate competition, the most profound impact will be felt in the competition between farmers and the seed industry. As Kloppenburg has indicated, with Hibberd a judicial framework is now in place that may allow the seed industry to realise one of its longest held and most cherished goals: to force all farmers into dependence on the companies every year. Industrial patents allow the right to use the product, not to make it. Since seed makes itself, a strong utility patent for seed implies that a farmer purchasing seed would have the right to use (to grow) the seed; but not the right to make seed (to save and replant). The farmer who saves and replants seed of a patented plant variety will be in violation of the law.

These processes of outlawing the original custodians of plant genetic resources will happen slowly. But patent protection is central to transnational agricultural interest, which makes quite clear that it is their monopoly on markets rather than the development of farmers of the South that is at issue.

Patents and intellectual property rights are the remaining hurdles to be crossed for large scale distribution of biotech seeds by transnational corporations. For instance, one of the clauses of the new seed policy in India directs all companies importing seeds to make a small quantity available to the gene bank of the government controlled National Bureau of Plant Genetic Resources (NBPGR). The corporate giants are, of course, unwilling to accept that clause and want its removal. As Jan Nefkens, General Manager of Cargill South-east Asia Limited, points out: "No company would be willing to part with what they took years and spent millions of dollars developing. It's a question of intellectual property rights."

Intellectual property rights in the agricultural sector will marginalise not just the farmers but also the national research and breeding system which has been built-up so carefully. Public systems are the second competitor which private industry needs to displace since they work on plant breeding on the basis of public interest, not the private profit motive. All kinds of pressures are already underway to reduce the role of public institutions in agricultural research and development. Process patents achieve this even without a policy decision. Patents on breeding techniques have long been anathema to public breeders, because their purpose is

to exclude others from access to the means to perform research. What is called into question is not ownership of the product, but the right to "do science". With broad based patent claims, large areas of research can become corporate monopoly, as in the case of US patent No. 4,326,358 issued in 1982 to Agrigenetics Research Associates. Patent 4,326,358 made fourteen separate claims, but in its essentials it gave Agrigenetics Research Associates rights to the process of using clonally propagated parental lines to develop new hybrid plant varieties.

While patents are supposed to stimulate innovation, they actually stifle it. One outcome of property rights over living systems has been secrecy in plant breeding and plant genetics research, and restrictions on the exchange of germ plants. Secrecy for patents and exclusivity together will "choke off" all scientific exchange in plant genetics. In addition, rather than simply stimulating innovation, the patent system applied to living matter redirects attention towards those products that provide for the broadest and easiest patent protection, not the largest public food.

As Jack Doyle observes: "Patents and intellectual property rights are more a statement of territory than a measure of innovation. But when those 'territories' are food and the substances behind the production of food, there is an order of protected power that is broad and far reaching."

India's patent laws have excluded the monopoly over biological processes which are essential to sustenance and survival. Food, plant and animal varieties, and biological processes for the production of plants and animals are excluded from patentability.

However, living organisms are central to production processes in biotechnology. The need for ownership rights to living organisms is essential for the next stage of capital accumulation by global corporations. At the core of the business are property rights and patents which guarantee profits, excluding others from rights and access to the means of survival.

Royalty payments from farmers are expected to reap \$7 billion for patent holders. Arguing that these potential profits are not being made because of an absence of a worldwide application of US patent law, the US is claiming that it is losing \$100 to \$300 billion. The Third World is already collapsing under debt and interest payments leading to a \$50 billion transfer of funds from the poor South to the rich North. Additional revenues generated for Northern corporations by proprietary rights on living resources is an impossible demand, though a typically outrageous one.

The accusation of "piracy" that the US is making against Third World countries is actually more applicable to the US itself. On a recent estimate based on a 7 country study, the US claimed that its corporations were losing US\$135 million a year in royalty payments for agricultural chemicals, and US\$1.7 billion in pharmaceuticals. Extrapolated to the entire Third World, this royalty loss is \$202 million for agricultural chemicals and \$2.5 billion for pharmaceuticals.

The Rural Advancement Fund International has shown that if Third World contributions are taken into account, the "pirate" roles are substantially reversed. The US owes the Third World \$302 million for royalty for farmers' seeds and \$5.1 billion for pharmaceuticals. In other

words, in these two biological industry sectors, the US owes \$ 2.7 billion to the South.

Who owes whom is a tricky issue, especially when it comes to profiteering from biological resources which have originated in the Third World and which continue to provide sustenance and survival to millions of farmers. These resources have also reproduced freely and have been commonly accessible to all to support livelihood and nutrition needs. Indian patent law has excluded private ownership of the biological foundations of agriculture to ensure that entitlements to food and nutrition are as broad-based as possible. Transnational corporations, with the help of GATT, the World Bank, and instruments like Super 301 of the US Trade Act, are demanding the inclusion of these living resources into frameworks of patents and private ownership. Such an inclusion will exclude our rights to survival as a country and as a people. Sovereignty in the matter of patent law is essential because it is a matter of survival, especially for the economically weaker sections of our society which have no purchasing power and can be protected only through public interest, not by the profit motive. The choice is clear. It is protection of life vs. the protection of profits.

APPENDICES

TABLE 1: TOP TEN PESTICIDES HOUSES (1988 sales, US\$ billion adapted for recent take-overs)		
	Pesticide Sales	% of Global Market
1. Ciba-Geigy (CH)	2.14	10.70
2. Bayer (FRG)	2.07	10.37
3. ICI (UK)	1.96	9.80
4. Rhone-Poulenc (F)	1.63	8.17
5. Du Pont (USA)	1.44	7.19
6. Dow Elanco (USA)*	1.42	7.11
7. Monsanto (USA)	1.38	6.89
8. Hoechst (FRG)	1.02	5.12
9. BASF (FRG)	1.00	5.00
10. Shell (NL/UK)	0.94	4.69
Total top ten	5.00	75.02
Global Sales	20.00	100.00
*The pesticides divisions of Dow Chemicals and Eli Lilly (Elanco) merged into Dow Elanco in 1989. Other major pesticide companies include (with 1988 pest. sales): Schering (\$US0.75 billion), American Cyanamid (USA, \$US0.69 billion), Sandoz (CH \$US0.60 billion) and Kumiai (J, \$US0.46 billion). Source: AGROW, 'Ciba-Geigy still number one in 1988', No. 92, 28 July 1989, p. 1. Cited in Henk Hobbelink, <i>Biotechnology and the Future of World Agriculture</i>, Zed Press 1991.		

TABLE 2: THE TOP TEN PHARMACEUTICALS CORPORATIONS

(1987 sales in US\$ billion, adapted for recent take-overs)

	Pharma. Sales	% of Global Market
Merck (US)	4.23	3.53
SmithKline-Beecham (US/UK)	4.00	3.33
Bristol M.Squibb (US)	3.90	3.25
Hoechst (FRG)	3.51	2.93
Glaxo (UK)	3.37	2.81
R. Poulenc-Rorer (F/US)	3.30	2.75
Ciba-Geigy (CH)	3.17	2.64
Bayer (FRG)	2.96	2.47
Am. Home Products (US)	2.93	2.44
Sandoz (CH)	2.75	2.29
Total top ten	34.12	28.43
Global Market	120.00	100.00

TABLE 3: TOP TEN SEED CORPORATIONS

(1988 sales, \$US million, adapted for recent take-overs)

	Seed Sales	% of Global
1. Pioneer Hi-Bred (US)	735	4.90
2. Sandoz (CH)*	507	3.38
3. Limagrain (F)	370	2.46
4. Upjohn (USA)	280	1.87
5. Aritrois (F)*	257	1.71
6. ICI (UK)	250	1.67
7. Cargill (USA)	230	1.53
8. Shell (NL/UK)	200	1.33
9. Dekalb-Pozer (USA)	174	1.16
10. Ciba-Geigy (CH)	150	1.00
Total top ten	3098	20.65
Global	15000	100.00

* Sandoz bought Hilleshog from Volvo (S), thus substantially increasing seed sales (up from an estimated \$US290 million in 1987). Aritois is a new joint venture in which Rhone Poulenc and Lafarge-Coppee are bringing their seeds interests together. The new group includes Clause, the French market leader in vegetable and ornamental seeds. One study puts seeds sales of Ciba-Geigy as high as \$245 million and Aritois sales as low as \$104 million. Shell sold off part of its seed interests to Limagrain, thus adding some \$100 million to the French company's revenues. Other recent take-overs: Limagrain bought Shissler Seed Co. (USA), ICI bought Contiseed from Continental Grain (USA), Cargill bought Canola Corp., Unilever bought PBI (UK) and Barenburg (NL). Other major seed companies include: KWS (FRG), Lubrizol (USA), Takii (J), Cebecco (NL), Elf Aquitaine (Sanofi - F).

Sources: *Seed Industry* (1988), *Seed Industry* (1989)



United Nations Environment Programme



Distr.
GENERAL

UNEP/Bio.Div/INC.4/2
23 July 1991

ORIGINAL: ENGLISH



Intergovernmental Negotiating
Committee for a Convention on
Biological Diversity

Fourth session
Nairobi, 23 September - 3 October 1991

SECOND REVISED DRAFT CONVENTION
ON BIOLOGICAL DIVERSITY

Explanatory Note

A revised draft convention on biological diversity was presented to the third session of the Intergovernmental Negotiating Committee for a Convention on Biological Diversity (INC) (Madrid, 24 June - 3 July 1991).

The second revised draft convention on biological diversity contains articles revised by the Working Groups I and II at the Madrid meeting. Specifically, Working Group I revised Articles 1, 3 and 4. Working Group II, revised Articles 14-19 and drafted two new articles, Article 15 bis - Exchange of Information - and Article 17 bis - Handling of Biotechnology and Distribution of Benefits. These articles were adopted by the meeting in Madrid as the basis for future negotiations.

The third session of the INC requested the regionally balanced group of lawyers (the Lawyers' Meeting) to continue their work and review and revise the articles not discussed at their previous meeting (Geneva, 11-13 April 1991) and not discussed in Madrid. The Lawyers' Meeting met in Geneva from 8-11 July 1991 and completed its task of reviewing and revising Articles 7-13 and 20-39 of the revised draft convention. Three new articles were added: Article 23 bis - Procedures for Global Lists; Article 32 - Right to Vote - and Article 41 - Authentic Texts. Where explanation for a revision was considered desirable the Lawyers' Meeting inserted a footnote.

In reviewing the remaining articles the Lawyers' Meeting felt the following terms require further elaboration on their definition or usage:

- Conservation;
- Endangered species;
- Threatened species;
- Species;
- Indigenous populations;
- Customary/traditional use;
- Global List of Biogeographic Areas of Particular Importance for the Conservation of Biological Diversity;
- Global List of Species Threatened with Extinction at the Global Level;
- Development of the components of biological diversity;
- Regional economic integration organization.

The Lawyers' Meeting noted that discussion of the usage or definition of the above terms did not necessarily mean that it would be desirable to include these terms in Article 2 in the final version of the convention. However, they were of the opinion that the working definitions for the above terms would be useful even for the purpose of negotiations.

Preamble

The Contracting Parties,

Recognizing that humanity shares the earth with other forms of life and accepting that these should exist independently of their benefits for humanity;

Affirming that the conservation of biological diversity is a common concern of all peoples;

Conscious of the ever growing environmental, ecological, genetic, scientific, aesthetic, recreational, cultural, educational, social and economic values of biological diversity and its components;

Recognizing the close and traditional dependence of many local communities and indigenous populations on biological resources, their continuing interest in their conservation, and the need to reward their knowledge and innovations associated with the conservation and wise use of biological diversity and its components;

Noting that biological diversity is being seriously reduced and that some species are threatened with extinction;

Accepting that the threats to these irreplaceable resources include degradation of the environment from habitat destruction and pollution, human population growth, unsustainable exploitation of some species, and the unlawful taking of flora and fauna;

Noting the deterioration in quality of life caused by unwise use of biological resources;

Stressing that in exercising their sovereign rights over their biological resources States have a responsibility to use and develop them in a sustainable manner and to conserve biological diversity;

Stressing the importance of and need to promote cooperation among States and international governmental and non-governmental organizations in a coordinated and comprehensive regional and global approach for the conservation of biological diversity and sustainable use and development of its components in areas both under and beyond national jurisdiction and control;

Aware that the conservation of natural habitats and the maintenance of viable populations of species in natural surroundings are vital components of the *in-situ* and *ex-situ* conservation of biological resources;

Recognizing to this end the need to set aside areas of natural habitat for the conservation of biological diversity and to pursue sustainable development outside these areas through planning and management which conserves biological diversity to the maximum extent possible;

Aware that the conservation of biological diversity also requires special measures independent of natural surroundings [which are also vital];

Aware of the benefits from the sharing and diffusion of knowledge about biological diversity, its uses and developments, technologies and practices favourable to its conservation;

Acknowledging that special provision is required to meet the needs of developing countries, including the provision of additional financial resources and access to relevant technologies, bearing in mind that the funds can be expected to make a substantial difference in the world's ability to address the loss of biodiversity;

Accepting that the developed countries and large industrial enterprises, including transnational corporations, have benefited from their significant role in the development and use of biological resources;

Considering that these countries and enterprises can help avoid additional costs and burdens for developing countries which forgo exploitation of their biological resources when acting in accordance with this Convention;

Stressing the need for States, international organizations and non-governmental organizations to promote the conservation of biological diversity and the wise use and development of its components;

Noting that action by States and international organizations directly and jointly to conserve biological diversity and to use and develop its components in a sustainable manner will strengthen cooperative and friendly relations among States, and contribute to peace and security for all peoples; and

Agreeing that existing international arrangements dealing with biological resources do not cover, in spite of the progress achieved, all aspects of biological diversity, the sources of threats to it and the wise use and development of biological resources,

Have agreed as follows:

Article 1. Objectives

[The objective of this convention is to conserve the maximum possible biological diversity for the benefit of present and future generations and for its intrinsic value, [and to provide for the fair and equitable sharing of the benefits of research in biotechnology arising out of conservation of the biological diversity. This is to be achieved] by ensuring that the use of biological resources is sustainable; [by providing adequate, new and additional funding to the developing countries] [by taking account of the need to share costs and benefits between developed and developing countries,] and by [securing] [providing] economic and legal conditions favourable for the transfer of technology [to them on preferential and non-commercial terms] necessary to accomplish this objective.]

Article 2. Use of Terms for the Purpose of this Convention.¹

Article 3. Fundamental Principles

The following fundamental principles shall guide the Contracting Parties in the achievement of the objectives of this Convention:

1. The conservation of biological diversity is a [matter of] common concern of all humankind and requires cooperation by all Contracting Parties.

¹ To be elaborated at a later stage.

2. The Contracting Parties have as States the sovereign right to exploit their own biological resources pursuant to their own environmental policies and the responsibility:

(a) For the conservation and sustainable use of their biological resources; and

(b) For ensuring that activities within their jurisdiction or control do not cause damage to the biological diversity of other States or of areas beyond the limits of national jurisdiction.

3. The fundamental requirement for the conservation of biological diversity is the *in-situ* conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings. *Ex-situ* measures, preferably in the country of origin, also have an important role to play.

4. Conservation of biological diversity, particularly of migratory species and their habitats, cross-border ecosystems and areas beyond the jurisdiction of each State Party, requires international cooperation in addition to the national effort that strengthens it.

5. While recognizing that remedying damage to biological diversity is important, it is vital to anticipate, prevent and attack the causes of reduction or loss of biological diversity at source.

6. Where there is a threat of [serious or irreversible damage to] [significant reduction or loss of] biological diversity, lack of full scientific certainty shall not be used as a reason for postponing [measures] [actions] to avoid or minimize such a threat.

7. The value of the contribution of biological resources and of maintenance of biological diversity and the uneven distribution of these resources among countries are to be recognized and reflected in economic and financial arrangements among them, with the countries benefiting most from biological diversity carrying the main responsibility for the cost of its conservation.

8. The benefits of research and development derived from biomaterial taken from developing countries are to be made available to those developing countries.

9. Technology related to conservation of biological diversity and the sustainable use and development of its components is to be transferred to developing countries on a preferential and noncommercial basis.

10. Technology related to conservation of biological diversity and the sustainable use and development of biological resources is to be developed jointly by the owners of the resources and those with financial, scientific and technical resources.

11. Those responsible for activities which threaten or could [damage] [cause significant loss of] biological diversity are responsible for the costs of avoiding that threat or damage and for remedial action directly or through financing where damage occurs.

12. Countries are to gain directly from all the contributions that biological resources within their jurisdiction or control make to environment protection, economic development and better health and quality of life in other countries.

13. Practices and innovations developed in the course of traditional life and by indigenous [peoples] [communities] [populations] which contribute to the wise and sustainable use of biological resources and conservation of biological diversity are to be recognized and rewarded.

14. The additional burden on developing countries arising out of protection of their biological diversity requires new and additional funding to be provided by the developed countries through a new multilateral fund to be established under this convention.

15. Access to genetic material and substances and products derived from them or to technology related or contributing to the conservation of biological diversity which are within the jurisdiction or control of a State is to be [open] [on the basis of mutual agreements].²

16. The application of biotechnology may involve risks and requires regulatory approaches involving safeguards for health and the environment.

17. Patent systems may have unwanted socioeconomic effects for developing countries and small farmers.

18. Biotechnology contributes to the conservation and sustainable use of biodiversity, which requires a wide genetic base.³

~~X~~ Article 4. General Obligations

1. [Each Contracting Party] [The Contracting Parties] shall take [in accordance with [the means at [their] [its] disposal [,] [and]] [its] [their] capabilities] [and [its] [their] national plans, programmes and priorities], [all] [possible] [appropriate] measures [in accordance with the provisions of this Convention] [to ensure] [consistent with] the conservation of [the maximum possible] biological diversity and the sustainable use [and the development] of its components within [the area under] [its] [their] national jurisdiction [or control].

[They shall ensure that activities within their jurisdiction [or control] do not cause damage to the biological diversity of other States or of areas beyond the limits of national jurisdiction.]

[They shall ensure that the [measures of] conservation of biological diversity and the sustainable use [and the development] of its components are [as far as possible appropriately integrated into national plans and policies.] [Treated as an integral part of national [development] plans and are taken duly into account in all relevant sectoral policies and legislation.]]

[The Contracting Parties shall cooperate on a global basis and, as appropriate, on a regional basis, directly or through appropriate international organizations with a view to ensuring the conservation of biological diversity in areas beyond national jurisdiction.]

² The Lawyers' Meeting recommended that the term "biological resources" be replaced by "genetic material". This would be consistent with Article 14.

³ As recommended by Lawyers' Meeting, if retained, paragraphs 20, 21 and 22 should be relocated in the Preamble since they are statements of facts.

2. [To these ends, Contracting Parties shall in accordance with the means at their disposal and their capabilities]:

(a) Cooperate in the development of agreed measures, procedures, technologies, practices and standards for the implementation of this Convention, [where appropriate with a view to the adoption of protocols and annexes];

(b) Foster favourable economic and legal conditions for the sustainable use and development of biological diversity and its components;

(c) Ensure measures are taken to conserve natural habitats and viable populations of species in natural surroundings;

(d) Provide, establish and implement procedures for assessing the impact on biological diversity of proposed policies, programmes and projects where such an impact may be significant;

(e) Provide individually, or in cooperation with other States and international organizations, [new and additional] financial resources and other forms of cooperation for programmes which support implementation of the provisions of this Convention, taking into considerations the special situations and needs of developing countries [.] and loss of opportunities for alternative uses of biological resources foregone because of measures taken pursuant to this Convention].

(f) In the case of imminent or grave danger or damage originating under its jurisdiction [or control] to biological diversity within the area under jurisdiction [or control] of other States or in areas beyond the limits of national jurisdiction [or control], notify immediately the potentially affected States of such danger or damage, and establish the necessary procedures for that purpose, as well as initiate [at source] action to prevent or minimize such danger or damage.

[Be responsible for the cost of avoiding or minimizing threats or damage to biological diversity beyond the limits of the areas under its national jurisdiction resulting from activities within its jurisdiction or control and, where such damage occurs for the costs of remedial action and, where it is not possible to return the biological diversity to the status quo ante, for compensation.]

[Establish procedures for international cooperation for the control, mitigation of damage or restoration of biological diversity, when the affected Party or the Party of the origin of damage is not able to address it individually.]

(g) Promote and support scientific research individually and jointly with other Contracting Parties and international organizations;

(h) Promote public awareness of the need to conserve biological diversity and the wise use and development of its components through education and the dissemination of general information;

(i) Support and cooperate in the development and implementation of international arrangements for emergency responses to activities or events whether caused naturally or otherwise which [presents a grave and imminent danger to] [threaten] biological diversity;

(j) Facilitate the exchange of information among themselves and with international organizations.

○ Article 5. Implementation Measures

1. Each Contracting Party shall develop a national action plan in fulfilment of its obligations under this Convention, which should include [so far as possible, and as appropriate for each State] the measures set out in Articles 5-12.⁴
2. In considering the adoption and method and rate of implementation of specific measures, the Contracting Parties may adjust their actions to take account of national plans and priorities.⁵
3. Each Contracting Party shall report [as requested by the Secretariat] [as agreed by the Conference of the Parties] [regularly] on [its action plan and progress with its implementation] [which measures it is adopting for the conservation of biological diversity and progress with their implementation].
4. The Contracting Parties shall monitor and report on the state of biological diversity, including specific references to endangered species within their jurisdiction and control.

○ Article 6. In-situ Conservation

The Contracting Parties shall:

- (a) Identify areas requiring conservation measures which include, *inter alia*, most representative or peculiar ecosystems, contain substantial biological diversity, large numbers of species or endemic, rare or endangered species and wild relatives of domesticated or cultivated species, and species identified pursuant to any international agreement, including this Convention, as requiring conservation measures or which a migratory species inhabits, stays in temporarily, crosses or overlies at any time on its normal migratory route, and establishment of corresponding protected areas;⁶
- (b) Develop guidelines where appropriate and necessary for the selection, establishment and management of systems of protected areas, including wildlife corridors and networks of protected areas;
- (c) Regulate the use of biological resources, including wild species, to ensure their conservation and sustainable use and development whether within or outside protected areas;
- (d) Provide financial and other assistance for new and existing programmes supporting the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings, with particular attention to technology and the needs of developing countries;
- (e) Establish special areas for economic development around or associated with protected areas, to facilitate compliance with the protection arrangements;

⁴ The presence of the bracketed language in article 5, paragraph 1, allowed the streamlining of the chapeau of articles 6-12.

⁵ In the view of Lawyers' Meeting, if the phrase "subject to national plans and priorities" is to be retained in Article 4.1 (a) and (b), it would no longer be necessary to retain this paragraph.

⁶ In the view of the lawyers' meeting consideration should be given to a shorter version of this paragraph which covers the same material but

(f) Adopt [appropriate] plans for the recovery, rehabilitation, management and sustainable use and development of ecosystems, natural habitats and species [as far as possible, and as appropriate for each Contracting Party];

(g) Regulate the development and release of genetically modified organisms and of the release and use of alien species;

(h) Eradicate or control of alien species which threaten ecosystems, habitats or species;

(i) Provide legal and economic conditions favouring land uses and management compatible with the conservation of biological diversity and the sustainable use and development of its components, including comprehensive land use plans and financial and other support to developing countries to foster these conditions;

(j) Establish systematic recording and use of the knowledge of indigenous [populations] [peoples] [communities] relevant to the conservation of biological diversity and the sustainable use and development of its components.

○ Article 7. Ex-situ Conservation

The Contracting Parties shall:

(a) Adopt individually or jointly with other States directly or through international organizations policies, strategies and programmes for the conservation of species ex-situ, with particular regard to species which are:⁷

- (i) Endangered;
- (ii) Of established medicinal, agricultural or other economic value;
- (iii) Of cultural significance;
- (iv) Relatives of domesticated species;
- (v) Local races and domesticated species which hybridize with wild species;
- (vi) Important sources of genetic material;
- (vii) Identified under international agreements, including this Convention, as requiring conservation measures; or

⁷ Article 7, paragraph (a) uses the term "States" unlike the use of the phrase "Contracting Parties" in original paragraph (b) of the same article and article 8 (b). The Lawyers' Meeting felt the different references were probably not intentional and therefore not meant to convey

(viii) Identified on any other relevant basis as requiring conservation measures;⁸

to complement in-situ measures;

(b) Establish individually or jointly with other States directly or through international organizations facilities for research ex-situ conservation, including museums, botanic gardens, zoos, seed and gene banks;

(c) Collect information in local and [indigenous] communities and among indigenous [populations] [peoples] of the uses and values of species;⁹

(d) Adoption of policies, strategies and programmes individually or jointly with other States directly or through international organizations for the recovery and rehabilitation of endangered species, and for the reintroduction of species into natural habitats, particularly where providing adequate ex-situ facilities to conserve the species is impracticable or not feasible;

(e) Regulation of the surveying and collection of biomaterial from natural habitats for ex-situ conservation purposes so as not to threaten ecosystems and in-situ populations of species;

(f) Financial and other assistance to facilitate the establishment and maintenance of ex-situ conservation facilities in developing countries.

Article 8. Sustainable Use of Components of Biological Diversity¹⁰

The Contracting Parties shall:

(a) Establish procedures, including use of national strategies and other suitable measures, for the integration of conservation of biological resources into domestic decision making both governmental, including national plans and sectoral policies, and private;

⁸ The Lawyer's Meeting notes that items (vii) and (viii) may overlap with item (i). Indeed, items (vii) and (viii) would be completely redundant if the expression "endangered species" were defined to mean all species recognized, under any international agreements or on any other relevant basis, to be in danger of extinction. The key to what requires conservation measures leads back to what is meant by "endangered". The Lawyers' Meeting comments:

(a) That it may be undesirable to impose obligations on the Contracting Parties in respect of species identified as requiring conservation measures under other agreements to which they are not parties; and

(b) That the phrase "other relevant basis" in item (viii) gives no indication of what is, and what is not, "relevant" and hence is unsatisfactory.

⁹ Article 6, paragraph (j) and this paragraph use different language and the Lawyers' Meeting was uncertain if this was meant to convey a different concept. Elaboration on the provisions' relationship to in-situ and ex-situ conservation respectively may be desirable.

¹⁰ According to the Lawyers' Meeting the text of this article may need to be cleaned up to use the phrases "components of biological diversity" and "biological resources" in a consistent manner. See, for

(b) Adopt individually or jointly with other States directly or through international organizations, of standards for the production, processing, use and disposal of biological resources, to avoid or minimize adverse impacts on biological diversity;

(c) Protect and encourage customary use by local [and indigenous] communities and indigenous [peoples] [populations] of areas and biological resources in accordance with traditional cultural practices that are recognized as compatible with sustainable use requirements;

(d) Provide financial and other assistance for local populations to develop and implement remedial action in degraded areas where biological diversity has been reduced. ¹¹

Article 9. Research and Training

The Contracting Parties shall:

(a) Establish and maintain programmes for education and training in the identification, conservation, management and sustainable use and development of biological diversity and its components;

(b) Provide support for education and training for the specific needs of developing countries in the identification, conservation, management, and sustainable use and development of biological diversity and its components;

(c) Promote and encourage research individually or jointly with other States directly or through international organizations which contributes to the:

- (i) Increased understanding concerning the role of biological diversity in the functioning of ecosystems;
- (ii) Improved knowledge about the maintenance and restoration of ecosystems;
- (iii) Development of technologies for the conservation of biological diversity, the development of biotechnology;
- (iv) Conservation of biological diversity as well as sustainable use and development of its components;
- (v) Application of knowledge about biological diversity and the functioning of ecosystems for sustainable agriculture and fisheries;
- (vi) Increased understanding of the impact of natural and human factors affecting the conservation of biological diversity, including *inter alia*, human population growth and distribution, poverty, the introduction of alien species, human changes to natural processes and economic activity including trade, and natural processes such as wildfire, soil erosion and extreme climate events; and ¹²
- (vii) Identification of products derived from biological resources which may have economic value.

¹¹ Eventually there will need to be an alignment of the expression "local populations" in this provision with the language of paragraph (c).

¹² The Lawyers' Meeting felt that a list may not be necessary because inclusion of the phrase "natural and human" would have broad coverage.

Article 10. Education and Public Awareness

The Contracting Parties shall:

(a) Promote and encourage understanding of the importance of and the measures required for the conservation of biological diversity and the sustainable use and development of its components through *inter alia*, awareness and education programmes for schools and other educational institutions, industry, local communities and the general public, with particular regard for those likely to be directly affected by conservation measures or who can contribute to their acceptance and effectiveness; and

(b) Co-operate in developing educational and public awareness programmes with other States and international organizations, particularly with respect to conservation requirements for shared ecosystems, migratory species and areas beyond the limits of national jurisdictions.

Article 11. Environmental Impact Assessment

The Contracting Parties shall:

(a) Introduce procedures that require consideration of the environmental consequences, whether within or beyond the limits of national jurisdiction, of proposed projects, programmes or policies;

(b) Require, where significant effects on the environment are likely, a comprehensive environmental impact assessment;

(c) Develop guidelines for the application of environmental impact assessment procedures, and for their integration into national planning processes;

(d) Develop bilateral, regional or multilateral arrangements, as appropriate, to promote, on the basis of reciprocity, notification, exchange of information and consultation about the potential environmental effects of activities under their jurisdiction or control which are likely significantly to affect other States or areas beyond the limits of national jurisdiction; and

(e) Monitor and evaluate environmental impacts as the projects, programmes or policies are implemented.

Article 12. Surveys and Inventories

The Contracting Parties shall:

(a) Survey, monitor and maintain inventories of biological diversity within their jurisdiction, with particular attention to ecosystems, habitats and species that are under threat; and

(b) Establish a network of data banks of inventories of biological diversity in co-operation with other Contracting Parties and international organizations;

Article 13. Global Lists

1. A Global List of Biogeographic Areas of Particular Importance for the Conservation of Biological Diversity and a Global List of Species Threatened¹³ with Extinction on a Global Level shall be established pursuant to the procedures set down in Article 23 bis.

¹³ The INC may wish to consider whether the terms "endangered" and "threatened" are used consistently throughout the text.

2. Inclusion of an area on the List of Biogeographic Areas of Particular Importance requires the consent of the State or States concerned.¹⁴
3. Contracting Parties, in fulfilling their obligations under this Convention shall [, so far as possible, and as appropriate for each Contracting Party,] give priority to areas and species on the Global Lists.¹⁵
4. Inclusion of areas or species on the Lists shall not prejudice the rights of States over areas in respect of which more than one State claims sovereignty or jurisdiction.

~~X~~ Article 14. [Regulated] Access to [Biological Diversity]
[Genetic Material]

1. Each Contracting Party [undertakes] [shall endeavour] to provide on mutually agreed terms and subject to the provisions of this article access to in-situ and ex-situ genetic material [genetic resources] from wild, domestic and migratory terrestrial and non-terrestrial species, within its national jurisdiction for purposes of research and development, training, surveying and monitoring and for other environmentally sound uses for the collective benefit of humankind including economic benefit.
2. In affirmation of the national sovereignty of states over their natural [and genetic] resources the authority to determine access to genetic material [genetic resources] rests with national governments in accordance with national legislation.
3. Each Contracting Party [undertakes] [shall endeavour] to create conditions to facilitate access to genetic material [genetic resources] for other Contracting Parties on mutually agreed terms and not to impose restrictions that run counter to the principles of this convention.
4. Access to genetic material [genetic resources] shall be based upon the prior [informed] consent of the Contracting Party providing such material.
5. The Contracting Party shall [endeavour as appropriate to] develop and carry out the scientific research referred to in paragraph 1 of this article in and with the full participation of the countries of origin of genetic material [genetic resources].
6. The Contracting Party shall [take appropriate measures] [undertake] to [promote fair] [equitable and preferential] access by the countries of origin of genetic material to the results of research, the products developed and the benefits and profits arising from the commercial exploitation of the relevant genetic material [genetic resources]. [Access shall be subject to mutual agreement between Contracting Parties concerned].¹⁶

Alternative 2 [to replace all of alternative 1]

1. Access to in-situ and ex-situ genetic material for purposes of scientific research, training, surveying and monitoring shall be in accordance with Protocols adopted by Contracting Parties or bilateral and multilateral agreements in co-operation with relevant research institutions.

¹⁴ The INC will also need to consider a mechanism for inclusion of species on the Global List, including the question of consent for inclusion, in particular, as is usually the case, where species are found in more than one State.

¹⁵ The INC may wish to consider whether the purpose of the Global Lists requires further elaboration.

¹⁶ In the context of Articles 14-16, decisions on intellectual

☒ ○ Article 15. [Regulated] Access to Technology

1. Contracting Parties, in furtherance of the principles of this convention, undertake to provide on mutually agreed terms and subject to the provisions of this article, access to technology [including biotechnology] relevant to conservation and sustainable utilization of biological diversity as well as technologies that make use of genetic material [for environmentally sound purposes] [including biotechnology] [or for other purposes such as production of pharmaceuticals on a preferential and non-commercial basis] [with due regard to patents and intellectual property rights derived from genetic material].
2. Contracting Parties undertake to create conditions to facilitate access to technology [including biotechnology] referred to in paragraph 1 on mutually agreed terms [and to eliminate] [to the extent possible in conformity with international law] and not impose restrictions [such as patents and intellectual property rights] that run counter to the principles of this convention.
3. Access to technology [including biotechnology] shall be provided taking into consideration the special needs of developing countries [and in accordance with the financial mechanism established by article 19.]
4. The Contracting Parties, [within their competences] shall endeavour through legislative, administrative and general policy measures [as appropriate] to stimulate the private sector [within their jurisdiction] to facilitate [not to restrict] access to and joint development of environmentally sound technologies [including biotechnologies] for conservation and sustainable utilization of biological diversity [and the use of genetic material] on a preferential basis to governmental institutions and [or] the private sector particularly in developing countries. Due regard shall be given to the interests of the private sector to receive fair and equitable returns on its investment in developing countries.

○ Article 15 bis. Exchange of Information

1. The Contracting Parties shall facilitate exchange of information and specialized knowledge pertinent for the conservation and sustainable use of biological diversity, in accordance with relevant national legislation, through bilateral and multilateral exchange of information, making suitable use of established institutions in accordance with Article ... of the present convention.
2. The exchange of such information shall be facilitated taking into account the special needs of developing countries.
3. Exchange of such information shall include exchange of [published results of] scientific research, training and surveying, specialized knowledge, traditional knowledge as such and in combination with technologies [including biotechnology].

☒ ○ Article 16. [Transfer of Technology]

1. The Contracting Parties [, in particular those which are developed countries,] undertake to [promote and facilitate the] the transfer of the [best available] technologies referred to in paragraph 1 of Article 15 in particular to developing countries Parties to this Convention on a [fair and favourable] [preferential and non-commercial] basis. The Contracting Parties [, in particular those which are developed countries,] further undertake to [make special efforts to promote and facilitate] transfer of technologies that make use of genetic material in particular to developing countries Parties to this Convention [which provide such material].
2. The Contracting Parties [within their competences] shall [endeavour to stimulate] [ensure that] [through legislative, administrative and general policy measures] the private sector [under their jurisdiction] [to

transfer] [transfers] on a [fair and favourable] [preferential and non-commercial] basis the [best available] technologies referred to in Article 15, paragraph 1 and in the same manner as provided for in Article 16, paragraph 1, in particular to developing countries Parties to this Convention.

3. [The transfer of technology referred to in this Article shall be in accordance with the financial mechanism established under Article 19].

✱ ○ Article 17. Technical and Scientific Cooperation

1. The Contracting Parties shall promote international technical and scientific cooperation in the field of conservation and sustainable use of biological diversity through the relevant international and national institutions.

2. The Contracting Parties, in particular those with a well developed technological basis, shall promote technical and scientific cooperation with other Contracting Parties, in particular developing countries Parties to this convention in their efforts to develop and implement national policies, in pursuance of the objectives of this convention. In promoting such cooperation, special attention should be given to development of national capabilities, inter alia, by means of human resources development and institution building. [In addition, the developed countries Parties to this convention shall, without prejudice to their contributions in accordance with Articles 18 and 19 of this convention, provide financial resources in support of such cooperation.]

3. The Contracting Parties shall consider the establishment of [shall establish] a clearing-house mechanism to promote and facilitate technical cooperation between the Contracting Parties [as well as strengthening, for these purposes, the existing institutions.

4. The Contracting Parties shall encourage and develop methods of cooperation in the development and use of technologies in pursuance of the objectives of this convention, in particular those referred to in Article 15. The Contracting Parties shall also promote cooperation in the training of experts, specialists and other qualified personnel in this field. Special attention shall be given to development of local and indigenous technologies [and decentralized cooperation.]

5. The Contracting Parties shall, subject to mutual agreement, promote the establishment of joint research programme [ventures] as referred to in Article 9 and joint ventures for development of technologies relevant to the objectives of this convention. Where feasible research programmes shall, subject to mutual agreement, be carried out in accordance with national legislation in the countries [of origin of genetic material].

○ Article 17 bis. Handling of Biotechnology and
Distribution of its Benefits

① The Contracting Parties shall respect the rights of the country of origin of [genetic material] [species] which are the subject of biotechnological research, [with the effect that they shall not require royalties on patents in transactions relating to the products that result from biotechnological research.]

2. The Contracting Parties shall [establish mechanisms to ensure] [take all reasonable steps to establish mechanisms to ensure that] [engage the participation of] the developing countries [participate] in biotechnological research activities, in particular in those relating to products obtained from species in areas within their jurisdiction.

3. The Contracting Parties shall [subject to mutual agreement] endeavour to ensure that the countries of origin of [genetic material] [species] [must] have priority in making use of and benefiting from the species that result from biotechnological research processes [which make use of] [those species] [the genetic material]].

* Article 18. Financial Needs and Means

1. The Contracting Parties, consistent with their capabilities [and their national plans, priorities and programmes] undertake to provide financial support for the conservation and sustainable use of their biological diversity in accordance with Articles [5-12] of the present convention.

[2. Fulfilment by developing countries, Parties to the convention, of the obligations established in Articles [5-12] of the present convention shall be subject to the effective provision of adequate, [new] and additional financial resources and technology transfer [by developed countries] in accordance with Articles [15, 16, 17] and paragraphs [2-6] of this Article.]

[paragraph 3 as an alternative to paragraph 2]

[3. The developed countries, Parties to this convention, undertake, in accordance with their capabilities, to provide adequate, new and additional financial resources for the conservation and sustainable use of biological diversity including financial resources to ensure access to and transfer of technology in accordance with Articles 15, 16 and 17 of this convention to enable developing countries Parties to this convention to fulfil the objectives of this convention in accordance with these countries' national priorities.]

4. The Contracting Parties, [in particular] [which are] developed countries, have an obligation to provide [genuine] [adequate, new] and additional resources on a grant or concessionary basis as appropriate to developing countries Parties to this convention to enable them to cover the agreed incremental costs [in accordance with national legislation and policies] to comply with the provisions contained in the present convention [and to benefit from the provisions of paragraph 6, Article 14]. These financial resources shall be provided according to criteria to be decided upon by the Contracting Parties [at the first meeting of the Conference of the Contracting Parties] [inter alia, on the basis of country studies.]

[5. The Contracting Parties shall, on a regular basis and in accordance with national legislation and policies, examine economic incentives which may operate in an efficient and equitable manner to induce changes contributing to the conservation and sustainable use of biological diversity.]¹⁷

* Article 19. Financial Mechanisms

1. The Contracting Parties, pursuant to the objectives of the present convention and taking into consideration the special needs of developing countries, shall [establish a financial mechanism to provide the resources which Contracting Parties that are developing countries require to meet the agreed incremental costs for complying with the provisions of this convention, access to and transfer of technology referred to in Articles 15 and 16 and the benefits of the provisions of paragraph 6 of Article 14] [establish a multilateral trust fund for the conservation and sustainable use of biological diversity] [consider the case for co-operative arrangements with existing bilateral and multilateral sources of funding and shall examine the need for a special fund.]

2. The detailed provisions of [the] financial mechanism shall be [decided by the Parties at their first meeting] [the subject of a special protocol to the present convention.]

¹⁷ Some delegations pointed out that this paragraph would fit better in a separate article on measures. Taking that point of view some delegations expressed that they therefore did not want to comment on the substance of the paragraph.

3. The Contracting Parties shall [strengthen] [also consider the possibility of strengthening] the existing [and consider the creation of new innovative] financial institutions and mechanisms to provide necessary financial resources [to Parties that are developing countries] [for bilateral and multilateral assistance with special emphasis on the needs of developing countries.]

4. The Contracting Parties when considering existing and creating innovative financial institutions and mechanisms shall take into account [that the developing countries require [sustained public sector investments] assistance by national governments, bilateral donors and international organizations in order to benefit from all relevant technologies including biotechnology, and mitigate negative impacts.] [the special needs of developing countries].

Article 20. International Co-operation

1. The Contracting Parties shall cooperate with each other and with the competent international organizations, with a view to coordinating their activities in the field of conservation and sustainable use of biological diversity and in assisting each other in fulfilling their obligations under the present Convention.

2. To this end the Contracting Parties shall cooperate, *inter alia*, in:

(a) Intensifying, international activities for the conservation and sustainable use of biological resources, in particular with regard to their evaluation and documentation and through exchange of genetic material and information;

(b) Supporting those countries which do not have the economic or technical capacity to conserve or use the potential of their biological diversity; and ¹⁶

(c) Supporting national and international organizations working in the field of biological diversity.

Article 21. Relationship with other International Conventions

1. The provisions of the present Convention shall not affect the rights and obligations of any Contracting Party deriving from any existing international agreement relating to the conservation and sustainable use of biological diversity. ¹⁹

2. Any existing international agreement relating to the conservation and sustainable use of biological diversity may be renegotiated as protocols to the present Convention. ²

¹⁶ The Lawyers' Meeting felt that paragraph (b) of Article 20 overlaps with Articles 17 and 18.

¹⁹ The language in paragraph 1 leaves open the question of the relationship of this Convention with future agreements. The Committee may want to make an express provision for this.

²⁰ The Lawyers' Meeting felt that this paragraph has the character of a recommendation and would invite the Committee to consider the necessity of retaining it.

3. The Contracting Parties shall invite the Parties to any international agreement relating to the conservation and sustainable use of biological diversity to agree on arrangements for facilitating joint actions, coordination, and exchange of information.²¹

Article 22. Institutional Measures on National Level

1. The Contracting Parties shall:

(a) Designate national bodies to implement the provisions of the present Convention and coordinate activities related to the conservation and sustainable use of biological diversity;

(b) Identify financial institutions which might assist in the establishment of specialized bodies dealing with the conservation and sustainable use of biological diversity;²²

(c) Taking into consideration the special needs of developing countries, cooperate with the aim of ensuring the capacity of developing countries to implement the provisions of the present Convention through national institutions and legislation.²³

2. The Contracting Parties may adopt stricter regulations than those provided by the present Convention.²⁴

Article 23. Conference of the Parties

1. A Conference of the Parties is hereby established. The first meeting of the Conference of the Parties shall be convened by the Executive Director of UNEP not later than one year after the entry into force of this Convention. Thereafter, ordinary meetings of the Conference of the Parties shall be held at regular intervals to be determined by the Conference at its first meeting.

2. Extraordinary meetings of the Conference of the Parties shall be held at such other times as may be deemed necessary by the Conference, or at the written request of any Party, provided that, within six months of the request being communicated to them by the Secretariat, it is supported by at least one third of the Parties.

3. The Conference of the Parties shall by consensus agree upon and adopt rules of procedure for itself and for any subsidiary body it may establish, as well as financial rules to determine in particular the financial participation of the Parties under this Convention and the funding of the Secretariat. At each ordinary meeting, it shall adopt a budget for the next financial period.²⁵

²¹ If retained, the Lawyers' Meeting felt this paragraph might more appropriately be located in Article 23 as a function of the Conference of the Parties.

²² While this paragraph is included in the Article on Institutional Measures on National Level it does not specify that it is referring to the creation of specialized bodies at this level or with this focus. This should be clarified.

²³ The Lawyers' Meeting calls the attention of the Committee to the close relationship of this provision to Article 17, paragraphs 1 and 2.

²⁴ The Lawyers' Meeting felt that this paragraph should be moved to Article 5 as its last paragraph.

²⁵ This sentence will need to be considered further in light of the provisions in Article 23.1 concerning the frequency of its ordinary

4. The Conference of the Parties shall receive through the Secretariat requests for international assistance formulated by the Contracting Parties to the present Convention. The purpose of such requests shall be to secure conservation and sustainable use of biological diversity.

5. The Conference of the Parties upon the recommendations made on the matter by the Scientific Committee shall decide on the action to be taken with regard to these requests, determine where appropriate the nature and extent of the assistance required, and authorize the Secretariat [and the Biological Diversity Fund] to conclude the necessary arrangements with the government concerned.²⁶

6. The Conference of the Parties shall at its second meeting consider and adopt:

(a) A mechanism to manage and coordinate the transfer of technology and technical co-operation pursuant to the provisions of Articles 16 and 17; and

(b) A clearing-house mechanism pursuant to the provisions of Article 17.²⁷

7. The Conference of the Parties shall keep under continuous review the implementation of the present Convention, and, in addition, shall:

(a) Establish the form and the intervals for transmitting the information to be submitted in accordance with Articles 5 and 26 and consider such information as well as reports submitted by any subsidiary body;

(b) Promote the harmonization of policies, strategies and measures for the conservation and sustainable use of biological diversity;

(c) Review scientific information on biological diversity provided by the Scientific Committee in accordance with Article 25;

(d) Consider and adopt, as required, in accordance with Articles 30 and 31, amendments to this Convention and its annexes;

(e) Consider amendments to any protocol, as well as to any annexes thereto, and, if so decided, recommend their adoption to the parties to the protocol concerned;

²⁶ The Lawyers' Meeting felt the provisions of paragraphs 4 and 5 should be located in Article 19.

²⁷ The Lawyers' Meeting felt that the content of paragraph 6 should be expressed either as a direct task of the Scientific Committee and therefore placed in Article 25 or as a direct task of the Conference of the Parties to remain as currently placed in this Article. If the INC considers it preferable to deal with this matter as a direct task of the Scientific Committee it could, as an alternative to paragraph 6, use the following or similar language in Article 25:

The Scientific Committee shall submit to the second meeting of the Conference of the Parties:

(a) Proposals for the creation of a mechanism to manage and coordinate the transfer of technology and technical cooperation pursuant to the provisions of Articles 16 and 17; and

(b) Proposals for the creation of a clearing-house mechanism pursuant to the provisions of Article 17.

- (f) Consider and adopt, as required, in accordance with Article 31, additional annexes to this Convention;
- (g) Consider and adopt, as required, protocols in accordance with Article 29;
- (h) Establish such subsidiary bodies as are deemed necessary for the implementation of this Convention;
- (i) Consider and undertake any additional action that may be required for the achievement of the purposes of this Convention in the light of experience gained in its operation.

6. The United Nations, its specialized agencies and IAEA, as well as any State not Party to this Convention, may be represented as observers at meetings of the Conference of the Parties. Any other body or agency, whether governmental or non-governmental, qualified in fields relating to conservation and sustainable use of biological diversity which has informed the Secretariat of its wish to be represented as an observer at a meeting of the Conference of the Parties, may be admitted unless at least one third of the Parties present object. The admission and participation of observers shall be subject to the rules of procedure adopted by the Conference of the Parties.

Article 23 bis. Procedures for Global Lists

The Conference of the Parties shall:

(a) Receive from the Contracting Parties inventories of biogeographic areas within the limits of their national jurisdiction of particular importance for the conservation of biological diversity and inventories of species found within the limits of their national jurisdiction which are threatened ²⁸ with extinction on a global level; ^{*}

(b) Select, taking into account the recommendations of the Scientific Committee, from the inventories forwarded pursuant to sub-paragraph (a), areas and species to be included in the Global Lists; ^{*}

(c) Publish the Global Lists;

(d) Establish, taking into account the recommendations of the Scientific Committee, guidelines to assist Contracting Parties to select areas and species for inclusion in the inventories to be forwarded to the Conference of the Parties pursuant to sub-paragraph (a):

(e) Establish, taking into account the recommendations of the Scientific Committee, criteria for selecting areas and species for inclusion in the Global Lists pursuant to sub-paragraph (b) [so that they may contain areas and species representative of the greatest feasible proportion of biological diversity, with particular regard to threatened areas and species];

(f) Establish and publish, taking into account the advice of the Scientific Committee, guidelines to assist the Contracting Parties to manage areas and species on the Global Lists;

²⁸ See footnote to Article 13.1.

^{*} The INC may wish to consider whether the Global Lists should include areas and species beyond the limits of national jurisdiction and/or within the limits of the national jurisdiction of non-Contracting States. The content of the obligations in relation to areas and species included in the Global Lists will of course be relevant to this question. See footnote to Art. 13.1.

(g) Establish and publish guidelines for the provision of financial and other assistance to Contracting Parties where it considers this desirable or necessary in connection with areas and species on the Global Lists; and ³¹

(h) Ensure that arrangements ³² made in relation to the Global Lists complement and strengthen the conservation activities of Contracting Parties and international organizations developed and implemented under other international agreements.

Article 24. Secretariat

1. The functions of the Secretariat shall be:

(a) To arrange for and service meetings of the Conference of the Parties provided for in Article 23;

(b) To assist the Conference of the Parties and the Scientific Committee in performing their functions with regard to establishment and functioning of the Global Lists pursuant to the provisions of Article 13 of the present Convention as well as assist in facilitating and promoting transfer of technology and knowledge and technical cooperation pursuant to the provisions of Articles 16 and 17 of the present Convention;

(c) To maintain the Global Lists referred in Article 13 of the present Convention;

(d) To prepare and transmit reports based upon information received in accordance with Article 5, as well as upon information derived from meetings of any subsidiary bodies established under Article 23;

(e) To perform the functions assigned to it by any Protocol;

(f) To prepare reports on its activities carried out in implementation of its functions under this Convention and present them to the Conference of the Parties;

(g) To ensure the necessary coordination with other relevant international bodies, and in particular to enter into such administrative and contractual arrangements as may be required for the effective discharge of its functions;

(h) To perform such other functions as may be determined by the Conference of the Parties.

2. The secretariat functions will be carried out on an interim basis by the Secretariat of United Nations Environment Programme until the completion of the first ordinary meeting of the Conference of the Parties held pursuant to Article 23. At its first ordinary meeting, the Conference of the Parties shall designate the secretariat from amongst those existing, competent international organizations which have signified their willingness to carry out the secretariat functions under this Convention. At this meeting, the Conference of the Parties shall also evaluate the implementation by the interim Secretariat of the functions assigned to it, in particular under paragraph 1, above, and decide upon the structure as appropriate for those functions.

³¹ This provision should be considered in the context of Articles 17 and 19.

³² It is unclear what "the arrangements" referred to are.

Article 25. Scientific Committee ³³

1. A Scientific Committee to provide advice on scientific and technological matters to the Conference of the Parties is hereby established.
2. Any Contracting Party may appoint a qualified expert as a member of the Scientific Committee. In addition, the Scientific Committee shall include as members qualified experts selected and appointed by the Conference of the Parties. The number of the experts appointed by the Conference of the Parties, the criteria for their selection and the terms of their appointments shall be determined by the Conference of the Parties.
3. The Scientific Committee shall meet as required by the Conference of the Parties.
4. Subject to the approval of the Conference of the Parties, the Scientific Committee shall establish its own rules of procedure.
5. The functions of the Scientific Committee shall be:
 - (a) To provide scientific and technological advice to the Conference of the Parties and, where approved by the Conference of the Parties, to any subsidiary body established under this Convention or any protocol to this Convention or to any Contracting Party;
 - (b) To recommend and coordinate research on conservation and sustainable use of biological diversity as well as to evaluate the results of such research and to report to the Conference of the Parties;
 - (c) To make recommendations to the Conference of the Parties as to the guidelines and criteria to be established pursuant to sub-paragraphs (d) and (e) of Article 23 bis and, on the basis of such criteria once established, the areas and species to be included pursuant to paragraph (b) of Article 23 bis in the Global Lists referred to in Article 13; and
 - (d) To perform such other functions as may be determined by the Conference of the Parties.

Article 26. Reports

The Contracting Parties shall submit to each ordinary meeting of the Conference of the Parties for its consideration reports on the actions which they have taken for the implementation of this Convention, together with details of the experiences they have acquired in this field.

Article 27. Operational Cost ³⁴

1. Expenses incurred in respect of the technical and scientific cooperation referred to in Article 17 shall be borne by the Biological Diversity Fund. The expenses incurred in operating the Biological Diversity Fund shall also be borne by that Fund.

³³ The Lawyers' Meeting felt consideration should be given to changing the title of Article 25 to Scientific and Technological Committee to make it consistent with the functions defined in paragraphs 1 and 5. The Committee may also wish to consider if a single committee can satisfactorily deal with both scientific and technological matters.

³⁴ The Lawyers' Meeting noted that the scope of this Article is not entirely clear. It considers that according to the way in which Article 19 is negotiated there may be a case for merging the content of this Article with the content of Article 19.

2. The Conference of the Parties may, by a two-thirds majority, institute a system of contributions to finance expenses incurred in respect of matters which do not relate to the operation of the Biological Diversity Fund. The scale of such contributions or modifications thereof shall also be adopted by a two-thirds majority.

Article 28. Settlement of Disputes

1. In the event of a dispute between Contracting Parties concerning the interpretation or application of this Convention, the parties concerned shall seek solution by negotiation.

2. If the parties concerned cannot reach agreement by negotiation, they may jointly seek the good offices of, or request mediation by, a third party.

3. When ratifying, accepting, approving or acceding to this Convention, or at any time thereafter, a State or regional economic integration organization may declare in writing to the Depositary that for a dispute not resolved in accordance with paragraph 1 or paragraph 2 above, it accepts one or both of the following means of dispute settlement as compulsory:

(a) Arbitration in accordance with the procedure laid down in Annex 1.

(b) Submission of the dispute to the International Court of Justice.

4. If the parties to the dispute have not, in accordance with paragraph 3 above, accepted the same or any procedure, the dispute shall be submitted to conciliation in accordance with paragraph 5 below unless the parties otherwise agree.

5. A conciliation commission shall be created upon the request of one of the parties to the dispute. The commission shall be composed of an equal number of members appointed by each party concerned and a chairman chosen jointly by the members appointed by each party. The commission shall render a final and recommendatory award, which the parties shall consider in good faith.

6. The provisions of this Article shall apply with respect to any protocol except as otherwise provided in the protocol concerned.

Article 29. Adoption of Protocols

1. The Contracting Parties shall co-operate in the formulation and adoption of protocols to this Convention.

2. Protocols shall be adopted at a meeting of the Conference of the Parties.

3. The text of any proposed protocol shall be communicated to the Contracting Parties by the Secretariat at least six months before such a meeting.

Article 30. Amendment of the Convention or Protocols

1. Any Contracting Party may propose amendments to this Convention or to any protocol.

2. Amendments to this Convention shall be adopted at a meeting of the Conference of the Parties. Amendments to any protocol shall be adopted at a meeting of the Parties to the protocol in question. The text of any proposed amendment to this Convention or to any protocol, except as may otherwise be provided in such protocol, shall be communicated to the Parties by the Secretariat at least six months before the meeting at which it is proposed for adoption. The Secretariat shall also communicate proposed amendments to the signatories to this Convention for information.

3. The Contracting Parties shall make every effort to reach agreement on any proposed amendment to this Convention or to any protocol by consensus. If all efforts at consensus have been exhausted, and no agreement reached, the amendment shall as a last resort be adopted by a two-third majority vote of the Contracting Parties to the instrument in question present and voting at the meeting, and shall be submitted by the Depositary to all Contracting Parties for ratification, acceptance or approval.

4. Ratification, acceptance or approval of amendments shall be notified to the Depositary in writing. Amendments adopted in accordance with paragraph 3 above shall enter into force among Parties having accepted them on the ninetieth day after the receipt by the Depositary of notification of their ratification, acceptance or approval by at least two-thirds of the Contracting Parties to this Convention or of the Parties to the protocol concerned, except as may otherwise be provided in such protocol. Thereafter the amendments shall enter into force for any other Party on the ninetieth day after that Party deposits its instrument of ratification, acceptance or approval of the amendments.

5. For the purposes of this article, "Parties present and voting" means Parties present and casting an affirmative or negative vote.

Article 31. Adoption and Amendment of Annexes

1. The annexes to this Convention or to any protocol shall form an integral part of this Convention or of such protocol, as the case may be, and, unless expressly provided otherwise, a reference to this Convention or its protocols constitutes at the same time a reference to any annexes thereto. Such annexes shall be restricted to scientific, technical and administrative matters.

2. Except as may be otherwise provided in any protocol with respect to its annexes, the following procedure shall apply to the proposal, adoption and entry into force of additional annexes to this Convention or of annexes to protocol:

(a) Annexes to this Convention or to any protocol shall be proposed and adopted according to the procedure laid down in Article 30, paragraph 2 and 3;

(b) Any Party that is unable to approve an additional annex to this Convention or an annex to any protocol to which it is Party shall so notify the Depositary, in writing, within six months from the date of the communication of the adoption by the Depositary. The Depositary shall without delay notify all Parties of any such notification received. A Party may at any time substitute an acceptance for a previous declaration of objection and the annexes shall thereupon enter into force for that Party;

(c) On the expiry of six months from the date of the circulation of the communication by the Depositary, the annex shall become effective for all Parties to this Convention or to any protocol concerned which have not submitted a notification in accordance with the provision of subparagraph (b) above.

3. The proposal, adoption and entry into force of amendments to annexes to this Convention or to any protocol shall be subject to the same procedure as for the proposal, adoption and entry into force of annexes to the Convention or annexes to a protocol.

4. If an additional annex or an amendment to an annex involves an amendment to this Convention or to any protocol, the additional annex or amended annex shall not enter into force until such time as the amendment to this Convention or to the protocol concerned enters into force.

Article 32. Right to Vote

1. Except as provided for in paragraph 2 below, each Contracting Party to this Convention or to any protocol shall have one vote.
2. Regional economic integration organizations, in matters within their competence, shall exercise their right to vote with a number of votes equal to the number of their member States which are Contracting Parties to the Convention or the relevant protocol. Such organizations shall not exercise their right to vote if their member States exercise theirs, and vice versa.

Article 33. Relationship Between the Convention and Its Protocols

1. A State or a regional economic integration organization may not become a Contracting Party to a protocol unless it is, or becomes at the same time, a Contracting Party to the Convention.
2. Decisions concerning any protocol shall be taken only by the Contracting Parties to the protocol concerned.

Article 34. Signature

This Convention shall be open for signature at by all States and any regional economic integration organization from until

Article 35. Ratification, Acceptance or Approval

1. This Convention and any protocol shall be subject to ratification, acceptance or approval by States and by regional economic integration organizations. Instruments of ratification, acceptance or approval shall be deposited with the Depositary.
2. Any organization referred to in paragraph 1 above which becomes a Contracting Party to this Convention or any protocol without any of its member States being a Contracting Party shall be bound by all the obligations under the Convention or the protocol, as the case may be. In the case of such organizations, one or more of whose member States is a Contracting Party to the Convention or relevant protocol, the organization and its member States shall decide on their respective responsibilities for the performance of their obligation under the Convention or protocol, as the case may be. In such cases, the organization and the member States shall not be entitled to exercise rights under the Convention or relevant protocol concurrently.
3. In their instruments of ratification, acceptance or approval, the organizations referred to in paragraph 1 above shall declare the extent of their competence with respect to the matters governed by the Convention or the relevant protocol. These organizations shall also inform the Depositary of any substantial modification in the extent of their competence.

Article 36. Accession

1. This Convention and any protocol shall be open for accession by States and by regional economic integration organizations from the date on which the Convention or the protocol concerned is closed for signature. The instruments of accession shall be deposited with the Depositary.
2. In their instruments of accession, the organizations referred to in paragraph 1 above shall declare the extent of their competence with respect to the matters governed by the Convention or the relevant protocol. These organizations shall also inform the Depositary of any substantial modification in the extent of their competence.
3. The provisions of Article 35 paragraph 2, shall apply to regional economic integration organizations which accedes to this Convention or any

Article 37. Entry Into Force

1. This Convention shall enter into force on the ninetieth day after the date of deposit of the instrument of ratification, acceptance, approval or accession.
2. Any protocol, except as otherwise provided in such protocol, shall enter into force on the ninetieth day after the date of deposit of the instrument of ratification, acceptance or approval of such protocol or accession thereto.
3. For each Contracting Party which ratifies, accepts or approves this Convention or accedes thereto after the deposit of the instrument of ratification, acceptance, approval or accession, it shall enter into force on the ninetieth day after the date of deposit by such Contracting Party of its instrument of ratification, acceptance, approval or accession.
4. Any protocol, except as otherwise provided in such protocol, shall enter into force for a Contracting Party that ratifies, accepts or approves that protocol or accedes thereto after its entry into force pursuant to paragraph 2 above, on the ninetieth day after the date on which that Contracting Party deposits its instrument of ratification, acceptance, approval or accession, or on the date on which the Convention enters into force for that Contracting Party, whichever shall be the later.
5. For the purposes of paragraph 1 and 2 above, any instrument deposited by a regional economic integration organization shall not be counted as additional to those deposited by member States of such organization.

Article 38. Reservations

No reservations may be made to this Convention.

Article 39. Withdrawals

1. At any time after years from the date on which the present Convention has entered into force for a Contracting Party, that Contracting Party may withdraw from the Convention by giving written notification to the depositary.
2. Except as may be provided in any protocol, at any time after years from the date on which such protocol has entered into force for a Contracting Party that Contracting Party may withdraw from the protocol by giving written notification to the Depositary.
3. Any such withdrawal shall take place upon expiry of one year after the date of its receipt by the Depositary, or on such later date as may be specified in the notification of the withdrawal.
4. Any Contracting Party which withdraws from this Convention shall be considered as also having withdrawn from any protocol to which it is party.

Article 40. Depositary

1. The Secretary-General of the United Nations shall assume the functions of Depositary of this Convention and any protocols.
2. The Depositary shall inform the Contracting Parties, in particular, of:
 - (a) The signature of this Convention and of any protocol, and the deposit of instruments of ratification, acceptance, approval or accession in accordance with Articles 35 and 36;
 - (b) The date on which the Convention and any protocol will come into force in accordance with Article 37.

(d) Amendments adopted with respect to the Convention and any protocol, their acceptance by the Contracting Parties and their date of entry into force in accordance with Article 30;

(e) All communications relating to the adoption and approval of annexes and to the amendment of annexes in accordance with Article 31;

(f) Notifications by regional economic integration organizations of the extent of their competence with respect to matters governed by this Convention and any protocols, and of any modifications thereof in accordance with Article 35 and 36;

(g) Declarations made in accordance with Article 28 paragraph 3.

Article 41. Authentic Texts

The original of this Convention, of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations.

IN WITNESS WHEREOF the undersigned, being duly authorized to that effect, have signed this Convention.

Done at on the day of

Annex I

ARBITRATION ³⁵

Article 1

Unless the agreement referred to in Article 28 of the Convention provides otherwise the arbitration procedure shall be conducted in accordance with articles 2 to 16 below.

Article 2

The claimant Party shall notify the Secretariat that the Parties are referring a dispute to arbitration pursuant to Article 28, paragraph 3, of the Convention. The notification shall state the subject-matter of arbitration and include, in particular the articles of the Convention or the Protocol, the interpretation or application of which are at issue. The Secretariat shall forward the information thus received to all Contracting Parties to the Convention or to the Protocol concerned.

Article 3 ³⁶

1. In disputes between two Parties, the arbitral tribunal shall consist of three members. Each of the Parties to the dispute shall appoint an arbitrator and the two arbitrators so appointed shall designate by common agreement the third arbitrator who shall be the chairman of the tribunal. The latter shall not be a national of one of the Parties to the dispute, nor have his usual place of residence in the territory of one of these Parties, nor be employed by any of them, nor have dealt with the case in any other capacity.

2. In disputes between more than two Parties, Parties in the same interest shall appoint one member of the tribunal jointly by agreement.

3. Any vacancy shall be filled in the manner prescribed for the initial appointment.

Article 4

1. If the chairman of the arbitral tribunal has not been designated within two months of the appointment of the second arbitrator, the Secretary-General of the United Nations shall, at the request of a Party, designate him within a further two months period.

2. If one of the Parties to the dispute does not appoint an arbitrator within two months of receipt of the request, the other Party may inform the Secretary-General of the United Nations who shall designate the other arbitrator within a further two months' period. ³⁷

³⁵ This arbitration procedure is based upon the procedure adopted by the first Conference of the Parties to the Vienna Convention for the Protection of the Ozone Layer (UNEP/OzL.Conv.1/5 Annex II). The Lawyers' Meeting requested that the differences between this procedure and that provided by Annex VI of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal be identified in the form of footnotes.

³⁶ Article 3, paragraphs 2 and 3 are not included in Annex VI of the Basel Convention.

³⁷ The procedure to follow if a Party does not appoint an arbitrator

Article 5

The arbitral tribunal shall render its decisions in accordance with international law, as well as the provisions of this Convention and any protocols concerned.

Article 6 ³⁸

Unless the parties to the dispute otherwise agree, the arbitral tribunal shall determine its own procedure, assuring that each Party has a full opportunity to be heard and to present its case.

Article 7

The Parties to the dispute shall facilitate the work of the arbitral tribunal and, in particular, using all means at their disposal, shall:

- (a) Provide it with all relevant documents, facilities and information; and
- (b) Enable it when necessary to call witnesses or experts and receive their evidence.

Article 7 bis ³⁹

The Parties and the arbitrators are under an obligation to protect the confidentiality of any information they receive in confidence during the proceedings of the arbitral tribunal.

Article 8

Unless the arbitral tribunal determines otherwise because of the particular circumstances of the case, the costs of the tribunal shall be borne by the Parties to the dispute in equal shares. The tribunal shall keep a record of all its costs, and shall furnish a final statement thereof to the Parties.

Article 9

Any Contracting Party that has an interest of a legal nature in the subject-matter of the dispute which may be affected by the decision in the case, may intervene in the proceedings with the consent of the tribunal.

Article 10

The tribunal may hear and determine counterclaims arising directly out of the subject-matter of the dispute.

Article 11

Decisions both on procedure and substance of the arbitral tribunal shall be taken by a majority vote of its members.

³⁸ The caveat that the tribunal's procedure assure "each Party has a full opportunity to be heard and present its case" is not present in the equivalent Basel Convention provision (Article 5, paragraph 2).

³⁹ Article 7 and 7 bis are more explicit than the article in Basel with similar coverage (Article 6, paragraphs 2 and 3).

Article 12

If one of the Parties to the dispute does not appear before the arbitral tribunal or fails to defend its case, the other Party may request the tribunal to continue the proceedings and to make its award. Absence of a Party or failure of a Party to defend its case shall not constitute a bar to the proceedings. Before rendering its final decision, the arbitral tribunal must satisfy itself that the claim is well founded in fact and law.

Article 13

The tribunal shall render its final decision within five months of the date on which it is fully constituted unless it finds it necessary to extend the time-limit for a period which should not exceed five months.

Article 14 ⁴⁰

The final decision of the arbitral tribunal shall be confined to the subject-matter of the dispute and shall state the reasons on which it is based. It shall contain the names of the members who have participated and the date of the final decision. Any member of the tribunal may attach a separate or dissenting opinion to the final decision.

Article 15 ⁴¹

The final decision shall be without appeal unless the Parties to the dispute have agreed in advance to an appellate procedure. It shall be complied with by the Parties to the dispute.

Article 16

Any controversy which may arise between the Parties to the dispute as regards the interpretation or manner of implementation of the final decision may be submitted by either Party for decision to the arbitral tribunal which rendered it.

⁴⁰ Article 14 is similar but more explicit than the Basel Convention's article 10, paragraph 2. For example, Article 14 explicitly states that the arbitral's decision is to be confined to the subject matter of the dispute. It also provides for dissenting opinions.

⁴¹ The Basel Convention does state that the tribunal's decision is final but does not go further to state "unless the Parties to the dispute have agreed in advance to an appellate procedure" as is the case with this Article.



United Nations Environment Programme



Distr.
GENERAL

UNEP/Bio.Div./INC.4/2/Corr.1
8 August 1991

ORIGINAL: ENGLISH



INTERGOVERNMENTAL NEGOTIATING COMMITTEE FOR A CONVENTION ON BIOLOGICAL DIVERSITY

Fourth session
Nairobi, 23 September - 2 October 1991

SECOND REVISED DRAFT CONVENTION ON BIOLOGICAL DIVERSITY

Corrigendum

1. Page 1, corner notation

The dates of the session indicated in the corner notation on the first page of document UNEP/Bio.Div./INC.4/2 should read as above.

2. Page 6, footnote 3

(a) Lines 1 and 2: for paragraphs 20, 21 and 22 read paragraphs 16, 17 and 18

(b) Line 3: for facts read fact

UNITED
NATIONS

811 FAX 信 8

GV 6688 44



General Assembly

Distr.
LIMITEDA/CONF.151/PC/WG.I/L.37
30 August 1991

ENGLISH ONLY

PREPARATORY COMMITTEE FOR THE UNITED NATIONS
CONFERENCE ON ENVIRONMENT AND DEVELOPMENT
Third session
Geneva, 12 August - 4 September 1991
Working Group I
Agenda item 4

CONSERVATION OF BIOLOGICAL DIVERSITY

Options for Agenda 21

Draft decision proposed by the ChairmanThe Preparatory Committee

Having considered the report of the Secretary-General of the Conference on the Conservation of Biological Diversity (A/CONF.151/PC/66) and on the Options for Agenda 21 (A/CONF.151/PC/42.Add.4), as well the oral report by the Chairman of the Intergovernmental Negotiating Committee for a Convention on Biological Diversity regarding progress on the negotiations and:—

1. Requests the Secretary-General of the Conference to make the documents prepared for the Third Session of the Preparatory Committee available to the Intergovernmental Negotiating Committee for a Convention on Biological Diversity;
2. Further requests the Secretary-General of the Conference to continue to work closely with the Intergovernmental Negotiating Committee and to keep it informed of progress on the elaboration of draft sections of Agenda 21, with particular reference to the relevant linkages between biodiversity and other relevant environment and development issues, including climate change, forestry, agriculture, and oceans, and especially with the relevant aspects of environmentally sound management of biotechnology; and
3. Requests the Secretary-General to take into consideration the decisions taken at this substantive session of the Preparatory Process in the elaboration of Agenda 21 on the Conservation of Biological Diversity, for consideration at the Fourth Substantive Session, with particular reference to the four programme areas specified in paragraph 6 of A/CONF.151/PC/WG.1/L.28:

Programme A -	Provide information on biodiversity
Programme B -	Maximize and spread the benefits of biodiversity
Programme C -	Improve the conservation of biological resources
Programme D -	Enhancing the capacity to manage biodiversity.
4. Requests the Secretary-General to integrate in the proposals under (3) above, provisions for the means of implementation in accordance with the general decision of the Preparatory Committee on Agenda 21.
5. Decides to revert to these issues for final consideration at its Fourth Substantive Session.

निर्दिष्ट A

U R U U O O v . - 1 5 / 5 U

別FAX信 9

30/8/1991

45

GV 6688

2. Further requests the Secretary-General of the United Nations Conference on Environment and Development, without preempting or duplicating the work of the Intergovernmental Negotiating Committee, to follow the work of that Committee, and to keep it informed of the interconnections between relevant aspects of biotechnology and other environment and development issues as they emerged from the UNCED process, in particular the elaboration in Agenda 21.

UNITED
NATIONS

811 FAX 10

GV 6688 46



General Assembly

Distr.
LIMITED

A/CONF.151/PC/WG.I/L.28
27 August 1991

Original: ENGLISH

PREPARATORY COMMITTEE FOR THE UNITED NATIONS
CONFERENCE ON ENVIRONMENT AND DEVELOPMENT
Third session
Geneva, 12 August - 4 September 1991
Working Group I
Agenda item 4

CONSERVATION OF BIOLOGICAL DIVERSITY

Options for Agenda 21

Chairman's Summary and Proposals for Action

Introductory remarks

1. At this stage of preparation of Agenda 21, and as with the various other issues of the Working Group under discussion, two main considerations appear to emerge as background to the further work of the Working Group on the proposals made for amending document A/CONF.151/PC/42/Add.4:

(a) It is not yet possible to define with precision the exact shape of Agenda 21. Major interlinkages have not been clarified; costing exercises have not yet been carried out; negotiations are proceeding elsewhere on a Convention on biological diversity; essential cross-sectoral issues such as financing and transfer of technology are still to be discussed in the plenary; and institutional aspects will be considered by Working Group III, among other things. In particular, the crucial integration of development and environment into a coherent action framework can not yet be finalised.

(b) It is nevertheless of crucial importance for negotiations of the various elements of Agenda 21 to be taken as far as possible at this third session of the Preparatory Committee. All agreements remain provisional and ad referendum at this stage: final agreement will be possible only when the shape and structure of Agenda 21 as a whole is known. But it is possible even at this stage to start preparing the building blocks. It is therefore essential for Governments to be able to negotiate firm texts to clarify areas of agreement and to identify areas requiring further negotiation.

646688 47

A/CONF.151/PC/WG.I/L.28
page 2

2. This paper is intended to set the stage for the negotiation and to provide a firm background for the negotiating texts. Part I is a summary of the main points that emerged from the debate on A/CONF.151/PC/42/Add.4. This text is not submitted for negotiation. It remains background material on the Chairman's own responsibility.

3. Part II contains suggestions for possible revisions to A/CONF.151/PC/42/Add.4, which when read alongside the original document, are intended to provide a preliminary draft text to be negotiated. Informal consultations in various forms would help to facilitate agreement as far as possible during the session of the Preparatory Committee.

PART I: BACKGROUND COMMENTS ON THE POSSIBLE REVISIONS TO THE PROPOSALS
CONTAINED IN A/CONF.151/PC/42/Add.4

4. The stimulating discussion on A/CONF.151/PC/42/Add.4 indicated general support for the overall structure of the document, which should be able to accommodate most - if not all - of the comments made in the debate. However, many comments were made on the content, and a number of amendments were proposed to specific programme areas. The proposed revisions in Part II of this document are provided in an attempt to accommodate these with the purpose of facilitating the negotiation of an agreed text. It is regretted that in the time available it has not been possible to reproduce the entire text of the document.

5. Several general points emerged on the overall content of the document:

(a) The obvious links with the negotiating process for a convention on biological diversity were underlined, with special emphasis on the care needed to avoid duplication or pre-empting the outcome of the negotiations. The Chairman of the Intergovernmental Negotiating Committee for a Convention on Biological Diversity drew attention to the close links already established between the secretariat of the INC for a Convention on Biological Diversity and the UNCED secretariat and indicated his view that the proposals in A/CONF.151/PC/42/Add.4 supported and were complementary to the negotiating process. Nevertheless, further development of the document will clearly need to take careful account of the negotiating process for a convention.

(b) At the same time, there was a strong call for immediate action, with several of the proposed target dates questioned as being too late.

(c) The need to develop Agenda 21 on the basis of existing and planned activities, including those undertaken by UNEP and other partners, was emphasized.

(d) It was understood that national sovereignty needs to be respected and that this should be fully reflected in the proposed activities. Biological resources of a country are under its sovereignty and in this respect are not to be considered as a common heritage of humankind.

GV 6688 48

A/CONF.151/PC/WG.I/L.28
page 3

(e) The importance of action at the national level was strongly emphasized. A "top-down" approach should be avoided and programmes should emphasize capacity-building at local and national levels. Indigenous peoples, women and children and farmers' rights were matters of special concern.

(f) As with other sectoral issues, much emphasis was laid on the need for the developed countries to assist with additional funding for genetically-rich developing countries, in particular to assist them to meet opportunity costs foregone.

(g) It was generally recognized that Agenda 21 on conservation of biodiversity should give greater emphasis to the relevant aspects of biotechnology and to related technology transfer.

(h) Although the Working Group is working on the theme of the Conservation of Biological Diversity, there was a call from many countries to enlarge the proposed activities to incorporate more emphasis on sustainable use and development.

(i) More attention needs to be given to the issue of marine biodiversity, with particular reference to coral reefs and their ecosystems.

6. A number of comments were also raised on specific programme areas:

(a) There was general support for Programme A - Provide information on biodiversity. It was stressed that as neither biodiversity nor its potential benefits are adequately understood, its conservation and sustainable use can only be achieved through better information, research and monitoring, based on national efforts with the support of the international community.

(b) It was considered that Programme B - Maximize and spread the benefits of biodiversity - would require more elaboration on sustainable use.

(c) On Programme C - Improve the conservation of biological resources - the primary importance of in situ conservation was underlined but at the same time it was stressed that it could not be confined to traditional protected areas: new forms of land management are required. Furthermore, the proportion of protected land should not be limited to a fixed percentage, since the nature of the land concerned needs to be considered.

(d) On Programme D - Enhancing the capacity to manage biodiversity - many delegations stressed the key significance of ensuring adequate institutional capacity - especially within developing countries - for raising awareness, and developing human resources, research and training, and information facilities.

PART II: SUGGESTED POSSIBLE REVISIONS TO A/CONF.151/PC/42/Add.4

Paragraph 3

Third sentence to read: "... financial, and other resources allocated towards a more concerted and ...".

A/CONF.151/PC/WG.I/L.28
page 4

GV6688 49

Paragraph 4

To read: "Finding new ways to allocate sufficient funds for addressing..."

Paragraph 6

Subparagraph (a) to read: "Climate change including drought, ... distribution of species and habitats, could contribute to genetic ... threatens the viability of certain protected areas, while possibly enriching or enhancing other habitats."

Subparagraph (b) to read: "... the world's terrestrial biodiversity, and diminution of their size and quality can affect a wide range of environmental services, as well as local climates."

Subparagraph (g) to read: "Population and social dynamics exert pressures on numerous natural ..." then "... resource base to provide for human needs; at the same time the traditional knowledge of indigenous populations is often the most effective way to conserve biodiversity and to use biological resources on a sustainable basis."

Paragraph 7

To read at the end of the chapeau, "... diversity. There is no time to lose in taking effective action to maintain and sustain the life support and productive capacities of the earth's biota for present and future generations. Nations, acting individually and, with appropriate support from international organizations, should without delay, therefore seek to: ...".

Subparagraph (b) to read: "Integrate biodiversity considerations fully into national and international policy-making and decision-making."

Subparagraph (d) to read: "Promote sustainable development through the sustainable use of biological resources."

Add a new subparagraph (e): "Endeavour to reduce the risk that human activities will cause long-term adverse effects upon natural ecosystem processes."

Paragraph 8

Third sentence to read: "... new varieties are needed to increase food production, control pests and ... diseases, and to cope with possible climate changes. Furthermore, a great store of ...".

Paragraph 9

Subparagraph D to read: "Build up the educational, training, and institutional framework and economic and financial mechanisms for the ...".

Paragraph 10

346688 50

First sentence to read: "Major gaps and weaknesses exist in the capacity of existing national and international mechanisms to ...".

Second sentence to read: "... are required to understand the status of existing species and ecosystems; as well as ... the distribution, variation patterns, economic uses, biology and ...".

Third sentence to read: "... may call upon research on indigenous uses of biological ... resources, the role of women, and the rights acquired through breeding practices by traditional farmers. This is especially ...".

Paragraph 11

Add new second and third sentences to read: "Research is needed to improve understanding of the environmental services and values provided by ecosystems and the role of those services and values in supporting sustainable economic activities and development. Research is also needed on the interaction of economic incentives and property rights arrangements with biodiversity, as well as on the linkages of biodiversity with poverty and the relevant aspects of biotechnology." The rest of the paragraph should read: "Research is also required to provide for food production and other economic activities which minimize pollution of surface and groundwater, degradation and erosion of top soil or reductions of ... especially on:".

Subparagraph (a) to read: "Biological implications of possible global climate change, notably the ...".

Subparagraph (c) to read: "The sustainable management of landscapes and ecosystems, taking account of all ... including social and environmental costs and benefits."

Paragraph 13

To read: "... upon existing or planned activities. Since the major part of this work will need to be undertaken in developing countries, adequate support should be provided to them for carrying out the necessary work and for participation in regional and global efforts."

Subparagraph (a) to read: "... global survey to establish baseline assessments of biodiversity and to define priority areas for its protection."

Subparagraph (c) to read: "Evaluate the role of biodiversity in the functioning of the world's major ...".

Paragraph 14

Replace: "... international non-governmental and ..." with "relevant".

After "... inter-governmental ..." add "and non-governmental."

A/CONF.151/PC/WG.I/L.28
page 6

GV6688 51

Then: "... establish baseline information on their biological resources (terrestrial, aquatic, coastal, and marine.)"

Subparagraph (a) to read: "Consolidate existing information on biodiversity and make it widely available throughout government and to the public."

Insert new subparagraph (b) to read: "Develop cost-effective methodologies for inventories of biological resources and for rapid assessments of biodiversity." The remaining subparagraphs should be renumbered accordingly.

Old subparagraph (b): "Warming" should be replaced by "Warning".

Old subparagraph (d): at the end of the sentence following "... Monitoring Centre ..." add "and provide assessments on a regular basis."

Old subparagraph (e): replace "... refine and increase ..." with "improve".

Add a new subparagraph (f) to read: "Building upon current country studies undertaken under UNEP's leadership, evaluate potential economic implications of protection and use of identified elements of biodiversity in each country."

Add a new subparagraph (g) to read: "... Enabling mechanisms: Ways and means will need to be identified to ensure funding and technology transfer consistent with UNGA resolution 44/228, with a view to fulfilling the objectives of the Conference, in particular those stipulated in Section I, paragraph 15, section (j) and (k)".

Paragraph 15

The beginning of the paragraph should read: "As a basis for information and as a tool for management at local and national levels, the international community in general could establish a global system for monitoring a quantitative and qualitative ...".

At the end of the first sentence, add "and building upon local knowledge".

Insert a new subparagraph (a), to read: "Establish, on the basis of available knowledge, a world classification of biogeographic provinces for the conservation of biodiversity." The remaining subparagraphs should be renumbered accordingly.

Old subparagraph (a): after "... remote-sensing techniques ...", delete "and", replace it with a comma, and insert after "... information systems ..." "... and cartographic methods".

Old subparagraph (b): replace "Establish" with "Develop" and replace "biodiversity" with "changes in ecosystems".

Old subparagraph (c): replace "Input" with "Collate" and replace "to a computerized system" with "obtained from traditional knowledge at grass-roots level, ...".

Paragraph 16

Insert after: "Major" - "and long-term".

Replace: "..., and on the response ... disturbance ..." with "the role of ecosystems in producing goods, environmental services, and other values supporting sustainable economic activities and development. This research should include such areas as: biology and reproductive capacity of key endemic plant species; new observation and inventory techniques; social behaviour and nutrition habits; ecological conditions necessary for biodiversity conservation and continued evolution; etc. ...".

Paragraph 17

Delete the last sentence, which reads "A wide range of policies and laws will therefore need to be reassessed and reformed."

Paragraph 18

In the first sentence, delete "... market failures ...", and replace with "... indirect effects of markets practices ..." and following "biodiversity" add, "..., because many biodiversity values fall outside normal market mechanisms and processes, and are not taken into account by market participants."

Delete the second sentence which reads "First, many biological resources ... markets" and the word "second, ...".

The following sentence would then begin with "Much".

At the end of the paragraph, add "yet these ethical, social, and cultural dimensions of biodiversity are of utmost importance to all nations".

Paragraph 19

After this paragraph insert a new paragraph numbered 19a, to read: "Recent advances in biotechnology have demonstrated the important use which could be made for agricultural, industrial, health, and welfare purposes of the genetic material contained in plants, animals, and micro-organisms. The conservation and use (including profits resulting from biotechnology products) of these genetic resources, which are particularly abundant in tropical countries, constitute a major challenge for international co-operation between developed and developing countries and also among developing countries".

Paragraph 22

To read: "National Governments (from both developed and developing countries), intergovernmental organizations, and international development and financial organizations ...".

Subparagraph (b) to read: "Review and reform national policies and trade practices which provide incentives for unsustainable use of biological resources."

A/CONF.151/PC/WG.I/L.28
page 8

GV6688 53

Subparagraph (c) to read: "Develop a methodological framework for ascribing economic values quantifying the contribution of biological resources and ecosystem functions to national economies".

Subparagraph (d) should read: "Develop a process of meaningful and constructive dialogue among all actors involved in the biodiversity policy reform agenda, including conservers and users, indigenous people, universities, all sectors of government ..."

Subparagraph (f): Add at the end of the sentence, following "funding", "from national and international sources".

Subparagraph (g): Replace "and" after the word "programmes" with "as well as" and add after "pharmaceutical products", in brackets "(including those provided by traditional medicine)".

Subparagraph (h): Place "code of conduct" in square brackets.

Replace "community" with "communities" and "individual" with "individuals".

Subparagraph (i): Delete "established". Insert after "to meet" the following: "short-, medium- and long-term".

Add new subparagraph (l) as follows: "Encourage transnational corporations to assist with spreading the benefits of biodiversity to developing countries".

Add a new paragraph (m) to read: "... Enabling mechanisms: Ways and means will need to be identified to ensure funding and technology transfer consistent with UNGA resolution 44/228, with a view to fulfilling the objectives of the Conference, in particular those stipulated in Section I, paragraph 15, section (j) and (k)".

Paragraph 23

Replace "agriculture substitution over agricultural systems" with "agriculture, spread of monoculture and substitution of agricultural systems, excessive use of pesticides;".

Paragraph 24

Add at the end, following "conservation", "and should therefore be closely linked to it. In situ conservation can be achieved through different forms of ecosystem management, according to the specific conservation objectives which are sought".

Paragraph 25

Following "activities" in the penultimate sentence, add "and thus protection of biological resources represents high opportunity costs".

The last sentence should read "The issue of property rights and other kinds of rights over plant and animal varieties has been raised in the GATT/TRIPS negotiations".

GV 6688 54

A/CONF:151/PC/WG.I/L.28
page 9

Paragraph 27

Subparagraph (a) to read: "Consolidate and strengthen systems of protected areas to cover an appropriate portion of each biogeographic province of the global land cover, including temperate, arid and semi-arid areas and tropical savannahs, as well as appropriate targets for other vulnerable ecosystems such as estuaries, coral reefs, coastal vegetation systems, including mangroves and marine sanctuaries by the year [2010]".

Subparagraph (b) to read: "Strengthen conservation of species and genetic resources and ensure that the extinction of important species is halted by the year [2000]".

Subparagraph (c): Insert after "regional approaches" the words "where appropriate".

Paragraph 29

Subparagraph (a) to read: "Increase the size of the global network of terrestrial protected areas so that all areas identified as important for biodiversity within each biogeographic province of the earth's land surface are protected by the year [2010]".

Subparagraph (b) to read: "Co-ordinate and expand major programmes to identify vulnerable coastal ecosystems (terrestrial and marine) and establish coastal protected areas, ...".

Subparagraph (c): Add at the end of the sentence following "enhancement measures" the following: "and appropriate development within buffer zones".

Subparagraph (e) to read: "Promote in situ conservation of indigenous crops, wild relatives of cultivated plants, and domesticated animals, on a systematic basis, with special emphasis on centres of origin of agricultural plants and animals".

Subparagraph (f): replace "to manage" with "to encourage the management of".

Add new subparagraph (j): "Strengthen and broaden existing international and regional instruments to conserve biodiversity".

Add a new paragraph (k) to read: "... Enabling mechanisms: Ways and means will need to be identified to ensure funding and technology transfer consistent with UNGA resolution 44/228, with a view to fulfilling the objectives of the Conference, in particular those stipulated in Section I, paragraph 15, section (j) and (k)".

Paragraph 30

Insert "of" after "genetic resources".

Delete the words "Activities could include;" and replace with "Subject to negotiations for a convention on biological diversity, activities could include;".

A/CONF.151/PC/WG.I/L.28
page 10

GV 6688 . 55

Subparagraph (a) to read: "Evaluate the implications of intellectual property rights on conservation and sustainable use of biodiversity at local, national, and global levels".

Subparagraph (g): delete "through". At the end of the sentence following "ex situ collections", add "and genebanks in developed and developing countries".

Subparagraph (h): replace "wildlife" with "wild plants and animals".

Subparagraph (i): add at the end of the sentence following "conservatories",
"and biodiversity centres maintained at national or regional levels".

Add new subparagraph (k) as follows: "Develop means to protect biological communities from the impact of invasive and exotic or released species of plants and animals".

Paragraph 31

Add at the end of the first sentence, after "local populations" the following "; in this context, protected core areas should, wherever possible, be inter-linked to form ecological networks. Wherever appropriate, protected areas should be used to enhance social and economic opportunities for local communities, who can be the best wardens of their biodiversity".

Subparagraph (b) to read: "Mobilize effective international support for all significant ecological regions for conserving biodiversity".

Subparagraph (d): add at the end of the sentence following "landscapes" the following "and provide economic and social benefits to their inhabitants".

Add a new subparagraph (e) under paragraph 31, as follows: "Identify priorities and promote measures for restoration of ecosystems".

Paragraph 32

In the first sentence, replace "is" after "personnel" with the word "are".

After the fifth sentence add the following new sentence: "Public awareness among local people, who are custodians of biological diversity, will enable them to exercise their rights and responsibilities in better protecting and utilizing sustainably their biological resources."

Paragraph 33

Subparagraph (a) to read: "To strengthen existing national institutional capacities (including academic institutions) to support the conservation and sustainable use of biological resources".

Subparagraph (b): add at the end of the sentence following "biodiversity"
", particularly through development of surrounding areas".

GV 6688 - 56

A/CONF.151/PC/WG.I/L.28
page 11

Add a new subparagraph (e) as follows: "To develop appropriate economic and financial mechanisms at national and international levels for the conservation of biodiversity".

Paragraph 34

Delete "and non-governmental organizations".

After "United Nations" add "and non-governmental organizations".

Add a new subparagraph (c bis) as follows: "Develop appropriate institutions and financial mechanisms for protecting biodiversity by indigenous people using traditional approaches".

Subparagraph (e): replace "in Biosphere Reserves" with "in protected areas including Biosphere Reserves and coastal ecosystems".

Subparagraph (f) to read: "Launch training programmes for developing countries to quantify, record, and monitor biodiversity efforts and to provide information on biodiversity".

Replace subparagraph (i) with the following: "Develop educational, training, and supporting institutional capacities, including gene banks and laboratories, for research into the relevant aspects of biotechnology".

Subparagraph (j): add at the end of the sentence following "reserve managers" the following "and other stakeholders in implementing biosphere reserve programmes, for exchange of experience and information".

Subparagraph (1): replace "to promote" with the following "and encourage their participation in promoting".

Add a new subparagraph (o) to read: "... Enabling mechanisms: Ways and means will need to be identified to ensure funding and technology transfer consistent with UNGA resolution 44/228, with a view to fulfilling the objectives of the Conference, in particular those stipulated in Section I, paragraph 15, section (j) and (k)."



General Assembly

Distr.
GENERAL

A/CONF.151/PC/42/Add.4
10 July 1991

Original: ENGLISH

PREPARATORY COMMITTEE FOR THE UNITED NATIONS
CONFERENCE ON ENVIRONMENT AND DEVELOPMENT
Third session
Geneva, 12 August - 4 September 1991
Working Group I
Item 4 of the provisional agenda

CONSERVATION OF BIOLOGICAL DIVERSITY

OPTIONS FOR AGENDA 21

Report of the Secretary-General of the Conference

I. INTRODUCTION

1. At the second session of the Preparatory Committee for the United Nations Conference on Environment and Development the Secretary-General of the Conference was requested to report to the third session of the Preparatory Committee on the operational requirements for the conservation and sustainable use of biological resources, including genetic resources, and on the relationships between biological diversity (biodiversity) and relevant aspects of biotechnology, climate change, and forests (decision 2/9, GA A/46/48 (Part I)). This work should take into account views of the Preparatory Committee on cross-sectoral issues, related in particular to environment and development, the elimination of poverty, and the transfer of financial resources and of technology, including biotechnology. Care is being taken to support the negotiations of a convention on biological diversity.

2. In preparing this report, the UNCED Secretariat has continued to work closely with the relevant agencies of the United Nations system and with other members of the informal ad hoc Working Party on Biodiversity, whose helpful and constructive support has made an indispensable contribution to this report. The report in particular reflects useful input from the Food and Agriculture Organization, the United Nations Environment Programme, the United Nations Educational, Scientific, and Cultural Organization, the International Board for Plant Genetic Resources, the Secretariat of the Intergovernmental Negotiating Committee on Climate Change, the International Union for Conservation of Nature and Natural Resources. Input was also received from Genetic Resources Action International (GRAIN), the Indigenous Peoples Commission, the International Union of Biological Sciences, the World Resources Institute, and the World Conservation Monitoring Centre. The work of other non-governmental organizations such as Conservation International and the World Wide Fund for Nature was also taken into consideration.

3. This paper suggests possible response options for Agenda 21. Addressing the most critical issues regarding the effective conservation of biodiversity will require a major shift in thinking at all levels of policy-making. This will need to be supported by a commitment to stepping up levels of human, financial, and other resources required to bring about a concerted and coordinated international effort. The options set out in this paper are intended to assist the Preparatory Committee in determining priorities. Much valuable work is already in hand at the global, regional, and national levels, and the options in this paper are designed to build upon and coordinate these, as well as to address the many gaps and weaknesses. In particular, they are intended to complement and reinforce the negotiating process for a convention on biodiversity, as well as to assist in its implementation.

4. Finding new ways of raising the large amounts of funds implicit in the options will need to be found, especially for capacity building in the developing countries. This paper addresses some of the issues raised by these needs. Others are dealt with in the cross-sectoral paper on financial resources.

The linkages between Biodiversity and other Environmental and Developmental Issues

5. Success or failure in achieving the objectives set out in paragraph 7 will have major repercussions on the development process. With the exception of mineral extraction, all primary producing sectors depend heavily on a continuing and plentiful supply of biological resources. The conservation of biodiversity, especially genetic diversity within species, is one key to the world's food security through improved crop production, horticultural and animal husbandry techniques, and aquaculture. Human health and welfare also benefit from the use of wild plants and animals for pharmaceutical products. In their turn, the activities of the primary producing sectors have a major influence on the stock of biological resources. With the major exceptions of biotechnology and tourism, both of which have major stakes in the conservation and sustainable utilization of those resources, the intermediary producing sectors rely less heavily on biodiversity. As the techniques for attaching economic values to those resources and for incorporating them into national

accounting processes evolve, their key role in the international economy seems likely to become increasingly evident. At the same time, the maintenance of ecosystem functions, in particular for soil and water conservation, is based on the careful management of their biological resources and plays a major role in maintaining environmental quality.

6. There are also major cross-linkages between biodiversity and the following issues:

- a. Climate change, with particular reference to possible changes in the distribution of species and habitats, contributes to genetic erosion, losses of biological resources vital to human welfare, and threatens the viability of certain protected areas.
- b. Forests, especially tropical forests, act as habitats for much of the world's terrestrial biodiversity, and the extent to which its depletion will affect local climates.
- c. Oceans and coastal areas, including the land-sea interface represent areas of high biodiversity, endemism, variability, and recruitment, contributing to the regulation of greenhouse gases, the supply of food, and the protection of coastal areas, including coral reefs, coastal vegetation systems, mangroves.
- d. Biotechnology, in which new and improved techniques for preserving and utilizing genetic resources will play a key role in food security, human health and welfare, industrial processes, and which is based on biodiversity.
- e. Land resources, in which diversity of soil organisms plays an important function in maintaining the fertility of the soil for agriculture as well as for natural ecosystems.
- f. Freshwater, in which the diversity of biological resources, may offer a significant potential for developing improved freshwater species for meeting many human needs.
- g. Population and social dynamics exert pressures on natural ecosystems, reducing habitats and contributing to the loss of biological and genetic resources, which in turn diminishes the resource base to provide for human needs.
- h. Environmental education, where the study of biodiversity is often an important starting point.

CONSERVATION OBJECTIVES FOR BIODIVERSITY

7. In pursuing the decision of the Preparatory Committee, the UNCED Secretariat has identified a number of options for action which could be used as a basis for a contribution to Agenda 21. The Options for Action focus upon four principal objectives which respond to the needs identified in the

Background and Issues Paper (A/Conf.151/PC/66). These are intended to complement and support the negotiations on a convention on biological diversity, as follows:

- a. Establish a global programme by the year [1995] to ascertain the extent of the earth's biological resources.
- b. Move biodiversity concerns into the mainstream of national and international policy-making by the year [1995].
- c. Stabilize the depletion of biological resources at natural levels in non-tropical regions by the year [2010] and in tropical regions by the year [2025].
- d. Promote the use of biological resources to enhance sustainable development.

II. OPTIONS FOR AGENDA 21

Proposed Programme Areas

8. The continuing erosion of the earth's biological resources could pose grave risks for the future well-being of humankind. Without an abundant diversity of living things to serve as reservoirs for genetic diversity, the rate of development of new crop varieties may slow down considerably. These new varieties are needed to increase food production, ward off pests and diseases, and to cope with climatic changes. Furthermore, a great store of genetic diversity is also required by the emerging food and pharmaceutical biotechnology for the improvement of agricultural products and yields and the development of new medicinal drugs. At the same time, the adequate protection of ecosystems and landscapes and their maintenance are essential for soil and water conservation and sustainable development.

9. The suggested programme area options set out below address the main problem areas in a concerted manner, building upon current activities and programmes at the global, regional, national, and local levels and addressing the many gaps in knowledge. They constitute an integrated strategy to save, study, and use biological resources to promote sustainable development. The proposed options could be implemented in a coordinated manner as a package, since they are mutually interdependent.

A. Provide information on biodiversity.

Develop more effective procedures for assessing, studying, and monitoring biological resources to assist planning and decision-making.

B. Maximize and spread the benefits of biodiversity.

Develop and apply policies for realizing the full potential benefits and sustainable use of biological resources, including genetic resources.

C. Improve conservation of biological resources.

Strengthen and augment on-going activities for conserving biological resources.

D. Enhance the capacity to manage biodiversity.

Build up the educational, training, and institutional framework for the conservation and sustainable utilization of biological resources.

A. PROVIDE INFORMATION ON BIODIVERSITY

Basis for Action

10. Major gaps and weaknesses exist in the capacity of existing mechanisms to assess, study, and monitor biological resources. More effective approaches are required on the status of existing species and ecosystems, as well as about the distribution, variation patterns, economic uses, biology and genetics of priority species, and on their inter-relationships. Some of these may call upon anthropological research on indigenous uses of biological resources and the role of women and traditional farmers. This is especially important to enable economic values to be ascribed and biodiversity to be fully integrated into economic and related policy-making at every level. It is also important that the processes of target-setting, monitoring, and reporting be open to public scrutiny and the results widely disseminated.

11. More scientific research is required to assess the status of biodiversity at the species level and to evaluate its role in the functioning of ecosystems. Research is also required to provide for food production which do not pollute surface and groundwater, degrade and erode top soil, or reduce species and ecosystem diversity. Major knowledge gaps exist especially on:

- a. Biological implications of global climate change, notably the relationship of ecosystem structures and functions to overall atmospheric and hydrological processes at the global and regional level;
- b. The effective protection and maintenance of varieties, species, populations, and communities, in representative ecosystems;
- c. The management of landscapes and ecosystems, taking account of all costs and benefits, including social and environmental costs.
- d. The role of diverse soil organisms in maintaining the productivity of agricultural systems.

12. The need for surveys, inventories and validation of key elements of biodiversity; conservation technologies related to the sustainable use of biodiversity; and the regular monitoring of the status of the world's biodiversity have been identified among the priority areas in need of costing and funding under a possible convention on biological diversity.

Objectives

13. The following targets, which will need to be synchronized for maximum speed and effectiveness, are envisaged. They should, wherever possible, build upon existing or planned activities.

- a. By the year [2000] undertake national surveys and a coordinated global survey to establish baseline assessments of biological resources.
- b. Develop a global monitoring system, building upon existing mechanisms, to be completed by the year [2010];
- c. Evaluate the role of biodiversity in the functioning of the world's ecosystems and landscapes by the year [2010].

Activities

14. National governments, with the cooperation of international non-governmental and inter-governmental organizations, and appropriate agencies of the United Nations, could undertake national surveys to establish baseline information on their biological resources. A coordinated survey of the world's biota could be coordinated by the United Nations system. The following are some of the more specific activities.

- a. Consolidate existing information on biodiversity.
- b. Harmonize existing and planned programmes and activities such as UNEP's "GEMS", UNESCO's Biosphere Reserve Network. FAO's Global Information and Early Warning System on Plant Genetic Resources, ICSU/IGBP's "START", among other relevant programmes, to coordinate the survey initially in a limited number of countries.
- c. Undertake statistical sampling of biological resources and assessment of genetic variation, and possible economic values, in countries by multi-disciplinary teams of specialists.
- d. Input information into a new computerized biodiversity information system, building upon existing facilities such as the World Conservation Monitoring Centre.
- e. Continue in parallel rigorous taxonomic work in museums, herbaria and other specialized institutions to refine and increase the precision of the survey estimates.

15. The international community in general could establish a global system for monitoring changes in biodiversity, with the collaboration of national governments and institutions, inter-governmental and non-governmental organizations, under the guidance of appropriate United Nations organizations. The following is a non-exhaustive list of specific activities that might be incorporated in such a system.

- a. Identify and harmonize appropriate methodologies and main data elements for monitoring the status and condition of different habitats, using remote-sensing techniques and geographic information systems as appropriate.
- b. Establish a network of ground stations for monitoring biodiversity, using where appropriate the potential offered by the international network of Biosphere Reserves; the network could also be used for the calibration and validation of remote sensing monitoring.
- c. Input information to a computerized system, with support from parataxonomist teams, to assess the effect of land use changes on biodiversity.

16. Major research efforts could be launched into elaborating on the importance of biodiversity, at different scales, for the functioning of ecosystems and on the response of different ecosystems and landscapes to human disturbance. Special consideration could be given to those areas where there is a direct dependence on natural resources and where women play an important role in ensuring food security, as well as involving indigenous peoples in conservation, use, and research efforts. This work could be coordinated by national governments, with the cooperation and collaboration of non-governmental organizations, research institutions, and appropriate programmes and organizations of the United Nations, building upon the IUBS/SCOPE/UNESCO programme "Ecosystem Function of Biodiversity".

B. MAXIMIZE AND SPREAD THE BENEFITS OF BIODIVERSITY

Basis for Action

17. The world's biodiversity has enormous potential for meeting many needs today and in the future. In the absence of a clear understanding and demonstration of the benefits of biodiversity however, insufficient financial and human resources have so far been invested in its conservation and sustainable use. By regarding biodiversity as a capital resource base, which will produce a sustainable yield of benefits, conservation of biological resources could become an opportunity for investment rather than an additional burden on national budgets. Most policies and laws affecting biological resources were not designed with conservation and sustainable use of biodiversity in mind; many national policies are designed explicitly to facilitate the depletion of some species and varieties utilized by farmers and the degradation of ecosystems. Other policies have significant indirect and unplanned side-effects. A wide range of policies and laws will therefore need to be reassessed and reformed.

18. A number of market failures present major obstacles to the effective conservation and use of biodiversity. First, many biological resources are consumed directly, and therefore do not enter markets. Second, much of the benefit provided by biodiversity is in the form of public goods, so many users of biodiversity can "free ride" on the conservation investment of others. Third, the maintenance of ecosystem functions such as soil and water

conservation and sustainable use are not taken into account. Last, some values of biodiversity - aesthetic and spiritual values in particular - are intangible, and therefore not reflected in the market place.

19. At present national income accounts do not consider biological resources as capital, but instead equate activities resulting in biological resource depletion with net income. This is then reflected in the design of sector-specific activities and projects. Methods need to be developed to quantify the direct and indirect values of species of forests, grasslands, wetlands, coastal and marine ecosystems, and the genetic diversity of agricultural plant and animal species. Such valuation is a prerequisite for the consideration of biodiversity as an important economic asset in the policy-making process.

20. The need to coordinate conservation management strategies and plans with sustainable development policies has been identified as one of the priority areas in need for costing and funding under a possible convention on biological diversity.

Objectives

21. Efforts need to be concentrated on the following targets. They should wherever possible build upon existing or planned activities:

- a. Build local, national and international policies which support biodiversity.
- b. Broaden the base for slowing the loss of biodiversity, through a greater role for local and indigenous communities, particularly women, children, and non-governmental organizations.
- c. Develop a supportive framework of international agreements, funding mechanisms, and institutional capacity.

Activities

22. National governments, inter-governmental organizations, and international development and financial organizations, could incorporate national commitments on biodiversity into development policies. Biodiversity considerations need to be taken into account in general policies relating to financial resources, technology transfer, debt, trade, environmental accounting, and the use of economic instruments which are dealt with in other documents. More specific activities of this programme are:

- a. Provide maximum support and reinforcement for the negotiation and implementation of relevant existing or proposed international instruments, with particular reference to a convention on the conservation and sustainable use of biodiversity.
- b. Review and reform national policies which provide incentives for unsustainable use of biological resources.

- c. Develop a framework of methodologies for quantifying the contribution of biological resources and ecosystem functions to national economies. (See Environmental Accounting document, A/Conf.151/PC/49).
- d. Develop a process for meaningful and constructive dialogue among all actors, including indigenous people, involved in the biodiversity policy reform agenda, including all sectors of governments, non-governmental organizations, business, local community groups, women and other social groups.
- e. Integrate biodiversity concerns, potential benefits and opportunity costs calculations into project design, implementation, and the evaluation processes of multilateral and bilateral development agencies, and other types of assistance, eq. structural adjustment.
- f. Develop national biodiversity strategies or action plans as part of wider economic planning, elaboration of legislation, and allocations of new and additional funding.
- g. Increase significantly the level of support for research into the use of biological resources, specifically genetic resources, especially for national crop and animal breeding programmes and pharmaceutical products.
- h. Agree on an international code of conduct for collectors of biological resources, including genetic material, recognizing rights of the State, indigenous peoples, community, and individual, including those of women, and the concept of farmers' rights, as identified in the International Undertaking on Plant Genetic Resources.
- i. Strengthen existing funding mechanisms and new mechanisms established as necessary to meet developing country needs related to the conservation and the sustainable use of biological resources.
- j. Continue and promote private and public debt-for-nature swaps, where appropriate.
- k. Encourage the use of trust funds and endowments by national governments, lending institutions, and non-governmental organizations.

C. IMPROVE THE CONSERVATION BIOLOGICAL RESOURCES

Basis for action

23. Threats to biodiversity are many and varied, ranging from the over-exploitation of biological resources; the destruction of habitats; the devaluation of traditional knowledge systems; the inadequate recognition of women's contributions; the neglect of primitive and rare varieties; the extermination of wildlife; pollution and climate change; to activities resulting from urbanization; mechanization of agriculture substitution over

agricultural systems; over-fishing; clear-cutting of forests; as well as global trade policies. Despite the efforts over the past 20 years, the loss of the world's biodiversity has continued.

24. The most effective way to conserve biodiversity is through in situ protection of ecosystems, where the diversity of species and their genetic variation may be preserved. Ex situ conservation of biological resources can only make use of that diversity. In situ conservation allows the necessary interaction among individuals of the same and different species, within ecosystems. This interaction forms the basis for natural selection that creates the diversity of biological resources. Ex situ conservation of genetic resources is complementary to in situ conservation.

25. Genetic resources have generally been made available, mostly without restriction or charge. Plant and animal genetic resources provide the basic raw materials to adapt crops to changing biological and other stresses, changing consumer preferences and to possible changes in the global environment. Crops will need to be adapted to sustainable forms of agriculture while maintaining increased productivity to feed an expanding global population. The basic elements of an institutional framework for the conservation of plant and animal genetic resource is in place at community, national, regional and global levels. However, a serious lack of funds and a need for improved institutional structures and implementation mechanisms exist at all levels. In some developing countries, this requires the reduction or abandonment of some activities. The issue of property rights and other kinds of rights over plant and animal genetic resources of developing countries is increasing in importance in the GATT/TRIPS negotiations.

26. The need for management strategies and plans for in situ conservation of biodiversity has been identified as one of the areas in need of costing and funding under a possible convention on biological diversity.

Objectives

27. The proposed programme incorporates the following targets, and wherever possible, could be built upon existing or planned activities:

- a. Consolidate and strengthen systems of protected areas to reach 10 per cent of the global land cover and appropriate targets for other vulnerable ecosystems such as coral reefs, coastal vegetation systems, and mangroves by the year [2010].
- b. Strengthen conservation of species and genetic resources.
- c. Take specific measures to promote regional approaches to conserve biodiversity.
- d. Promote a balance between demographic and social pressures and natural ecosystems.

Activities

28. The following activities could be implemented by national governments, with the collaboration from non-governmental and inter-governmental organizations, international financial and lending institutions, and with the guidance of relevant agencies and programmes of the United Nations system.

29. The protected area network could be consolidated, as follows:

- a. Increase the size of the global network of terrestrial protected areas to bring at least 10 percent of the earth's land surface within the protected area system by the year [2010].
- b. Launch a major programme to identify vulnerable and establish coastal protected areas, including coral reefs, mangroves, and coastal vegetation systems by the year [2010]. (See the Oceans document, A/Conf.151/PC/42/Add.6)
- c. Provide support to enable all protected area systems to become financially sound, including revenue enhancement measures.
- d. Take measures to enable local communities to earn benefits from protected areas.
- e. Promote in situ conservation of wild relatives of cultivated plants and domesticated animals on a systematic basis.
- f. Develop national and local policies, both regulatory and economic, in each country to manage private lands as protected areas.
- g. Develop national systems of protected areas to conserve biodiversity.
- h. Take action to support non-governmental organizations and private land owners, in particular women, farmers, and indigenous people, who manage key sites for biodiversity.
- i. Collect data to integrate population and societal trends relevant to protected area management.

30. Conservation of species and genetic resources importance could be strengthened with the cooperation of national governments, research institutions and academia, other non-governmental and inter-governmental organizations, lending and financial institutions, and the relevant organizations and programmes of the United Nations. Activities could include:

- a. Evaluate the implications of intellectual property rights at local, national, and global level prior to the adoption of decisions in the GATT/TRIPS negotiations.
- b. Strengthen the legal and institutional framework to fill the gaps, including the establishment of an inter-governmental body for the conservation and sustainable use of plant genetic resources, possibly building upon the FAO Commission on Plant Genetic Resources.

- c. Promote mechanisms to enable the participation of local communities, including farm communities, in the formulation and implementation of national plant and animal genetic resources programmes, to enhance the linkages between the formal and informal sectors.
- d. Strengthen existing facilities and develop improved technologies for reducing germ plasm deterioration during storage, improving regeneration capabilities and for reintroducing of threatened species into the wild.
- e. Launch a global plant genetic resources collection, evaluation, preservation, and enhancement programme for sustainable advances in crop production countries.
- f. Initiate a global network of genetic resource centres, with particular reference to tree species, shrubs and plants to adapt to potential changes in temperature, precipitation, and ultraviolet radiation.
- g. Take action to ensure conservation and access to globally-important germ plasm collections, including through support for existing networks of ex situ collections.
- h. Strengthen and expand the protection of wildlife in their natural habitat.
- i. Promote the conservation of threatened plants and animals and their re-introduction through aquaria, zoos, botanical gardens, and conservatories.
- j. Take steps to apply the relevant safe and ethical aspects of biotechnology for the conservation and sustainable use of genetic resources.

31. Since biodiversity cannot be maintained through protected areas alone, specific measures to link protected areas with surrounding landscapes and to enhance ecosystem functions need to be taken to conserve it in cooperation with local populations: Activities could include:

- a. Plan and implement cooperative regional management programmes in areas critical for their biodiversity value. (See the Forests and Oceans documents, A/Conf.151/PC/42/Add.3 and A/Conf.151/PC/42/Add.6 respectively).
- b. Provide significant international support to the most important ecological regions for conserving biodiversity.
- c. Develop regional approaches to plant and animal genetic resources conservation and utilization. The regional seas approach of UNEP could be used to strengthen programmes on conservation of coastal and marine ecosystems. (See the Oceans document, A/Conf.151/PC/42/Add.6).

- d. Strengthen and improve the Biosphere Reserves Network of UNESCO, to link conservation areas with surrounding ecosystems and landscapes.

D. ENHANCE THE CAPACITY TO MANAGE BIODIVERSITY

Basis for action

32. Devoted, knowledgeable, and adequately trained personnel is urgently needed to implement the present programme of conservation and use of biodiversity particularly in developing countries. Present training institutions and teaching approaches are insufficient, inadequate, and often irrelevant. Job opportunities in this field are also limited, and many positions are poorly paid and supported. Furthermore, ex situ conservation efforts are directed mostly at crops and domesticated animals, neglecting non-commercialized species. Adequately trained personnel and opportunities are scarce to document traditional knowledge and skills regarding the use and conservation of biodiversity and transmit it to future generations. The need for technical assistance and cooperation (for research, education, training, public awareness campaigns, surveys, and inventories) has been identified as one of the several areas in need of costing and funding under a possible convention on biodiversity. (See the Education document A/Conf.151/PC/55)

Objectives

33. This programme has four targets:

- a. To strengthen existing institutions for the conservation and sustainable use of biological resources.
- b. To promote basic and applied research and demonstrations so as to improve the management of protected areas and increase their effectiveness in conservation of biodiversity.
- c. To produce effective managers of protected areas, personnel for planning and running ex situ institutions, land resources managers and specialists responsible for policy formulation through training.
- d. To raise the level of awareness of the general public, local populations and decision-makers.

Activities

34. National governments and institutions and non-governmental organizations, with the collaboration of appropriate organizations and programmes of the United Nations could launch a limited number of large scale regional interdisciplinary projects in different parts of the world to demonstrate the sustainable use of biological resources and to promote environmentally sound forms of development. These programme area options could, wherever possible, build upon existing or planned activities. Some of the activities include the following:

- a. Develop public administrations for protected area management and encourage the creation of supportive non-governmental organizations at national level.
- b. Develop and strengthen international, including regional, cooperation on protected area systems.
- c. Collect and document traditional knowledge and skills in resource use in order to pass on to future generations.
- d. Launch post-graduate degree programmes to improve planning and management of national and regional plant genetic resources programmes and to identify research needs.
- e. Develop coordinated graduate and post-graduate research programmes on biodiversity and ecosystems function in Biosphere Reserves.
- f. Launch a training programme to support efforts to prepare a global inventory of species.
- g. Strengthen regional education and training institutions for protected area management and establish new centres in the regions where they do not exist.
- h. Launch specialized technical professional training programmes to develop expertise in various aspects of ex situ conservation such as germ plasm collection, documentation, evaluation, and conservation.
- i. Promote professional associations of protected area managers.
- j. Establish regional associations of biosphere reserve managers.
- k. Set up a programme of field training for specialists in taxonomy and conservation biology.
- l. Set up extension courses and services for local communities to promote the use of natural resources on a sustainable basis.
- m. Launch education programmes, including those based on the knowledge of indigenous peoples aimed at creating a wider awareness of the role of ex situ conservation among agricultural and other relevant scientists and managers.
- n. Use protected areas for demonstrations of their functions and training, also drawing upon the knowledge of indigenous peoples, to be used as part of outdoor education projects (See Education document A/Conf.151/PC/55).

Suite 800
1755 Massachusetts Ave., NW
Washington, DC 20036-2102 USA

Telephone: (202) 232-3900
Telemail: JOI.INC/Omnet
Telex: 7401433 BAKE UC
FAX: (202) 232-8203

For Katie McGinty -

Katie,
If you haven't seen this already,
it may be of interest - it's the latest
oceans-related report for UNCED.

Jim

PROTECTION OF OCEANS, ALL KINDS OF SEAS INCLUDING ENCLOSED AND SEMI-
ENCLOSED SEAS, COASTAL AREAS AND THE PROTECTION, RATIONAL USE AND
DEVELOPMENT OF THEIR LIVING RESOURCES

(Chapter 10, Section III, Part Three of Agenda 21)

A. Revised Options for Agenda 21

Report of the Secretary-General of the Conference

1. This document was prepared in response to paragraph 6 of decision A/Conf.151/PC/L.22/Add.1/Rev.1) on Protection of Oceans, All Kinds of Seas Including Enclosed and Semi-Enclosed Seas, Coastal Areas and the Protection, Rational Use and Development of their Living Resources. The Preparatory Committee, at its third session, requested the Secretary General of the Conference to submit at its fourth session, for its consideration, "revised options for Agenda 21 indicating the origin of proposals when they reflect the results of expert meetings, taking into account:

- (a) United Nations General Assembly Resolution 44/228
- (b) The debate and the relevant decisions taken at the third session included in the format of Agenda 21 and means of implementation as contained in A/Conf.151/PC/L.49.
- (c) The results of the Meeting of Experts on the Degradation of the Marine Environment from Land-Based Sources of Pollution and Activities in Coastal Areas, convened by UNEP.

2. In preparing this revision, the Secretariat has tried to retain the essential points of the debate and submissions during and after the third session of the Preparatory Committee, edited and reorganized as necessary to eliminate duplication and to make a concise and coherent document. Where there were unresolved issues, these have been indicated, with detail provided in the compilation document (A/Conf.151/PC/...). New material, particularly on means of implementation, has been added as requested by the Preparatory Committee. The explanatory notes at the end of the chapter explain the origins of the content of each paragraph with reference to previous documents.

3. As requested in paragraphs 2 and 3 of the same decision, a separate report on control of the degradation of the marine environment by land-based activities is submitted as prepared by the Executive Director of the United Nations Environment Programme in document A/Conf.151/PC/... The relevant results were not available in time for inclusion in their final form in this document.

INTRODUCTION

4. The marine environment -- including the oceans and adjacent coastal areas -- forms an integrated whole that is an essential component of the global life support system, and a positive asset presenting opportunities for sustainable development. The United Nations Convention on the Law of the Sea (UNCLOS) provides the international framework within which to pursue the protection and sustainable development of the marine environment and its resources. This requires new approaches to ocean and coastal area management and development, at the national, regional and international levels, approaches that are integrated in content and precautionary and anticipatory in ambit, as reflected in the programme areas below.

PROGRAMME AREAS

A. INTEGRATED MANAGEMENT AND SUSTAINABLE DEVELOPMENT OF COASTAL AREAS, EXCLUSIVE ECONOMIC ZONES AND [MARINE ECOSYSTEMS].

Basis for Action

5. The coastal area is important for human settlements and for development. The Exclusive Economic Zone (EEZ) is also an important area where the States manage the development and protection of natural resources for the benefit of their people. For small island States; these are the areas most available for social and development activities.

6. Despite efforts at national, regional and international levels, the current sector and discipline oriented approach to marine and coastal resources does not provide an effective framework for achieving sustainable development and coastal resources are being rapidly degraded.

7. Integrated coastal management should provide for the developing needs of coastal states based upon optimum ecologically sustainable resource use.

Objectives

8. By 1994, agree on guidelines for integrated coastal zone management and development, and by 2000 establish integrated planning management and development processes at national, regional and global levels, ensuring compatibility among sectoral activities for sustainable use of coastal zones and EEZs.

9. By 2000, adopt programmes for the establishment of protected areas and other measures to maintain species and their habitats and conserve biodiversity in coastal areas and EEZs.

10. By 1996, introduce new arrangements in regional bodies to ensure effective coordination in the fields of environmental protection, marine resource utilisation and development with due regard to the needs of the population.

Activities

Management-Related

11. An integrated approach to planning and management should be applied in all coastal areas, particularly in those fragile inter-related ecosystems such as are found in island States, low-lying countries, and enclosed and semi-enclosed seas, to identify and deal with potential interactions, allocate resources, anticipate and avoid conflict, minimize environmental degradation and face the challenge of potential climate change.

12. Each coastal State should establish a high-level planning body or a national coordinating mechanism for integrated coastal and EEZ management and development involving the governmental, academic and private sectors and the local populations, responsible for:

- (a) Appropriate policy and legal framework for regulating access and rates of use, promoting environmentally sound technology and sustainable

practices, excluding the harmful ones, making environmental impact assessment mandatory, and establishing liability and compensation provisions.

- (b) Implementation of master/integrated plans and programmes.
- (c) Environmental assessment programmes identifying causes of degradation and adoption of measures to prevent or correct such degradation.
- (d) Prior assessment of the adverse environmental impacts on the coastal environment and EEZ of major governmental policies, programmes and projects.
- (e) Improvement in coastal human settlements in developing countries, especially in housing and sewage treatment.
- (f) Contingency plans for man-induced and natural disasters, including likely effects of potential climate change and sea level rise.
- (g) Restoration of ecosystems, particularly altered critical habitats and/or living conditions of endangered species.
- (h) Sectoral programmes on sustainability in human settlements, tourism, fishing, ports and industries using or affecting the coastal area.
- (i) Management systems using economic instruments, including accounting systems for coastal resources, allocation schemes establishing explicit user's rights and fees, and shifting investments from overcapitalized activities to environmentally safe uses, habitat rehabilitation, infrastructure adaptation and alternative employment.
- (j) Public education and information programmes, together with non-governmental organizations.

13. Coastal States should preserve the biological diversity and productivity of marine species and habitats, and their ecological relationships, through measures to:

- (a) Survey the marine biodiversity in waters under their jurisdiction.
- (b) Prepare an inventory of endangered species and critical coastal and marine habitats and, where appropriate, protect them through national legislation.
- (c) Establish and enforce protected areas in coastal and EEZ ecosystems with rare or fragile ecosystems, high biodiversity and productivity

such as coral reefs, seagrass beds and mangrove forests, or importance as breeding, spawning, nursery and recruitment areas and migratory stopover points.

- (d) Support scientific research on and systematic observations of resources of these marine areas.
- (e) Implement national regulations to control the introduction of new species for aquaculture to avoid adverse effects.
- (f) Allow statutorily limited use of resources in protected areas if their use is sustainable and justified by tradition.

Data and Information

14. Coastal States should increase their capacity to collect and use information for prior assessments of adverse environmental impacts of major governmental and private policies, programmes and projects affecting the coastal and EEZ environment. Special assistance should be given to developing countries to:

- (a) Rationalize and expand the databases available in most countries for assessment and management of coastal areas and seas and their resources.
- (b) Create, assess and transfer technologies and geographic and other information systems, including databases, maps, statistics and resource inventories to developing countries for storage and processing of data and for resources mapping, analysis and characterization.
- (c) Assess present status and problems of coastal zones urgently, including eutrophication, coral bleaching, red tides, ciguatera, microbial contamination of beaches, nitrification and salination of groundwater; fish abundance; habitat degradation; local and upstream impacting activities; wetland destruction, etc.
- (d) Prepare inventories (atlases) of present and potential activities in the coastal areas to identify compatible or mutually exclusive activities.
- (e) Develop national capacities in risk analysis.

International and Regional Cooperation and Coordination

15. International and regional organizations should:

- (a) Help countries develop planning, management and enforcement capacities for monitoring, control and surveillance.
- (b) Coordinate the harmonization of standards, formats and symbols to facilitate the widespread adoption of multi-purpose information systems for coastal and sensitive sea areas.
- (c) Establish regional networks for the sharing of information and for multi-disciplinary research and management of coastal and EEZ systems.
- (d) Set up regional coordinating mechanisms on coastal and EEZ development bringing together relevant international agencies, regional programmes, and donors.
- (e) Prepare guidelines for integrated management of coastal zones, EEZ's and marine ecosystems at local, national and regional levels.

Means of Implementation

Financing and Cost Evaluation:

16. The total cost required by all countries to implement integrated management and sustainable development of coastal areas and EEZs is approximately 85 billion dollars. The cost for developing countries would be approximately 50 billion, with an average of 7 billion per year for 1993-2000. (See explanatory note)

17. A total of \$47 million per year 1993-2000 in catalytic fund is required for an international programme on integrated management and sustainable development of coastal areas, to support developing coastal country efforts through policy guidance, technical assistance, training, improvement of databases, upgrading of research and management capacity, implementation of pilot and demonstration projects, production of detailed operational guidelines, and strengthening of international and regional organizations.

Scientific and Technological Means:

18. Regional and international institutions should support States in the development of the required coastal monitoring, research mechanisms and institutions and information management systems, especially in developing

countries and island States, as described in the activities above.

19. States and international and regional organizations should develop and transfer environmentally safe technologies and methodologies for development of coastal areas (for human settlements, coastal agriculture, intensive aquaculture, desalinization, coastal industries, etc.) and should investigate opportunities offered by coastal marine technology (tidal and ocean energy, open-sea aquaculture, etc.).

Human Resource Development:

20. Coastal States with the assistance of relevant regional and international institutions and donors and with the participation of local and regional centres, should organize training on integrated coastal and EEZ management for scientists and managers, and extension programmes for resources users including community leaders, fishermen and women. Ocean and coastal area management and development concerns and local planning issues should be incorporated in educational curricula and public awareness campaigns. Local and indigenous communities should be supported to maintain and apply their traditional knowledge of the coastal environment and marine resources. Local resource users and village leaders should be trained in the direct use of remotely sensed images and GIS outputs for their own integrated management of their coastal and marine areas and resources.

Capacity Building:

21. States should:

- a) Create an interministerial mechanism for policy-making and long term planning on EEZ and coastal areas as part of national frameworks for collaboration, integration and communication between sectors in a country and possibly between countries in a region.
- b) Rationalize and/or coordinate sectoral programmes and restructure and simplify governmental institutions responsible for the development and protection of coastal areas, EEZ's and marine ecosystems.
- c) Establish advisory bodies for broad consultation on coastal issues with local administrations, the business community, the academic sector,

user groups and the general public.

- d) Progressively introduce or strengthen systems of land and sea tenure, regulating access, users's rights and rates of use.
- e) Include capacity building in agreements between development aid bodies and developing country institutions.

22. International and regional organizations should cooperate with coastal countries to:

- a) Identify existing capabilities, facilities and needs for human resources development, the scientific and technological infrastructure required and potentials for expansion in regional marine and coastal areas research, training, management and technologies.
- b) Establish and maintain regional centres capable of assisting countries in analyzing information and assessing the principal marine environmental problems, in reinforcing surveillance and in implementing environmental impact assessment and monitoring programmes with predictive capabilities.
- c) Prepare national and regional contingency and emergency plans.
- d) Support pilot demonstration projects in integrated coastal management.
- e) Create special programmes to assist island states to integrate environment and development in the planning process within their limited areas and resources.
- f) Establish programmes on coastal and marine environmental education and enhance public awareness of the role of the coastal and marine environment in society.

C. MARINE ENVIRONMENTAL PROTECTION

Basis for Action

23. Degradation of the marine environment can result from a wide range of activities on land, either from a lack of, or an excess of, economic and industrial growth. Human populations, land use, agriculture, forestry, fisheries, urban development, tourism and industry can affect the marine environment.

24. Of the land-based sources of marine pollution, 40% arrives via rivers and 30% via the atmosphere, while maritime and dumping activities contribute 10% each. Contaminants which pose the greatest threat to the marine environment are sewage, nutrients, synthetic organic compounds (particularly pesticides and herbicides), sediments, litter and plastics, metals, radionuclides, oil/hydrocarbons, and polycyclic aromatic hydrocarbons (PAH's).

25. An anticipatory rather than a reactive approach is necessary to protect the marine environment, requiring adoption of precautionary measures, environmental impact assessments, clean production techniques, waste audits and minimization, improved sewage treatment, quality criteria for classified substances, and a comprehensive approach to damaging impacts from air, land and water. Any management framework must include the improvement of coastal human settlements and the integrated management and development of coastal areas. These are covered elsewhere in Agenda 21.

26. Marine pollution is also caused by shipping and sea-based activities. Of the approximately 600,000 tons of oil entering the oceans each year, most is discharged as a result of normal shipping operations and less than a quarter is from major accidents. There is currently no global regulatory regime for the prevention and control of pollution from offshore oil activities and only five regions have considered the adoption of legal instruments in this regard. Many other chemicals carried by sea are intrinsically far more harmful. Altogether about half of the total dry cargo and liquid substances carried by sea consists of materials dangerous for the marine environment.

27. In addition to pollution, many development activities directly and indirectly degrade marine resources, such as industrial, residential, tourism and recreational development in natural habitats; conversion of mangroves; dredging; construction of dams and coastal infrastructure; and erosion from unsustainable agricultural and forestry.

Objectives

28. To protect the marine environment against the adverse effects of human land-based and sea-based activities so as to preserve development options, to conserve marine ecosystems and to safeguard human health while providing for rational use of living and non-living resources. In so doing, it is necessary to:

- (a) Ensure the proper integration of environment and development concerns.
- (b) Recognize the difficulties of developing countries in implementing such strategies.
- (c) Coordinate, integrate and develop appropriate local, national, regional and global mechanisms and policies.

29. Some specific objectives include:

- (a) By 1994, adopt a global strategy, programme of action and management framework to protect the marine environment against the adverse effects of land-based activities, with close links to regional conventions and action plans.
- (b) By 1995, strengthen and develop national and regional integrated action plans, such as the Regional Seas Programmes, and regional legally-binding agreements where they do not already exist, and improve cooperation and coordination among regional activities.
- (c) By 1997, complete inventories and hazard assessments of marine pollution sources and update national, regional and global assessments of the state of the marine environment.
- (d) By 1998, establish a global network of contingency plans and response centres for marine pollution accidents.
- (e) By 1997, establish port waste reception facilities in sensitive sea areas.
- (f) By 1995, develop an international regulatory framework for offshore activities.

Activities

Management-Related

B.1. Prevention, Reduction and Control of Degradation of the Marine Environment from Land-based Activities

30. States in cooperation with international and regional organizations should develop a concerted approach to land-based activities damaging the marine environment through the following incremental steps:

- (a) Agreed principles and programmes, building on the existing Montreal Guidelines, with the appropriate funding and technical support where applicable, at the national, regional and global levels, including possible establishment of appropriate standards.
- (b) A formal declaration, charter or set of principles to be adopted at UNCED following the recommendations of the Halifax and UNEP Intergovernmental Meetings of Experts.
- (c) A global convention to apply the principles and standards, including specific elements for a subsequent global strategy and action plan, with provisions for institutional machinery.
- (d) A costed and targeted programme of action to be finalized and adopted at an appropriate intergovernmental meeting after UNCED (see explanatory note).

31. Coastal states should establish regional and national action plans, including reduction programmes for inputs from land-based activities into the marine environment to achieve acceptable quality standards, together with target dates and financial mechanisms taking account of national and regional differences. Countries should adopt precautionary approaches to development and management, involving a reduction of effluents and emissions, through, inter alia, improved housekeeping practices, greater treatment and recycling, and the introduction of cleaner production technologies. Priorities for both developed and developing countries, are given below.

32. As concerns sewage, priority actions include:

- a) Building and maintaining sewage treatment facilities in accordance with national policies, capacities and international cooperation available.
- b) Controlling entry of non-domestic effluent containing contaminants (such as heavy metals) into sewers, allowing productive uses of sewage

and environmentally sound co-treatments of domestic and compatible industrial effluents.

- c) Subjecting municipal sewage discharged to rivers, estuaries and the sea to at least primary treatment, or to other solutions appropriate to specific sites.
 - d) Locating coastal outfalls so as to avoid exposing shell fisheries, water intakes and bathing areas to pathogens.
 - e) Cooperative development of minimum sewage effluent guidelines and water quality criteria.
 - f) Formulating or reviewing human settlement plans taking into account sewage concerns, including resettlement from heavily populated coastal and riverbank areas.
 - g) Establishing regulatory and monitoring programmes to control effluent discharge.
33. As concerns wastes, the main elements to be considered by countries are:
- a) Establishment of regulatory and monitoring programmes to control effluent discharge, using appropriate risk and environmental impact assessments.
 - b) Adoption of prior notification and consent procedures at national and regional levels for controlling the input of point source pollutants which may cross national boundaries.
 - c) Reduction or elimination of the use of chemicals such as some synthetic organic compounds which threaten to accumulate to dangerous levels in the marine environment.
 - d) Quantification of the fluxes of nitrogen and phosphorus to and through the coastal zone as a basis for control measures, taking into account different national capacities.
 - e) Assistance to developing countries and countries with economies in transition, through financial and technological support, to maximize best practicable control and reduction of substances and wastes that are persistent, bio-accumulative or toxic and to establish environmentally-sound land-based waste disposal systems to preclude sea-dumping.

34. As concerns pollution from non-point sources:

- a) Cooperation in the development of land-use techniques, particularly buffer zones, along estuaries and water courses to limit agricultural runoff;
- b) Promotion through international development organizations and industry of the use of environmentally sound pesticides and fertilizers meeting minimum environmental toxicity and bio-accumulation standards.
- c) Adoption of new initiatives at national and regional levels for controlling the input of non-point source pollutants, including sediments, which require broad changes in sewage and waste management, agricultural practices, mining, construction and transportation.
- d) Regional programmes for controls on air pollutants shown to have a significant impact on the marine environment.

B.2 Prevention, Reduction and Control of Degradation of the Marine Environment from Sea-based Activities

35. Coastal States and States involved in shipping and dumping, in cooperation with IMO and other international and regional organizations, should:

- a) Support wider ratification and implementation of the relevant conventions and protocols including the London Dumping Convention and finalization of its future strategy by 1994.
- b) Extend existing regimes to cover pollution caused by substances other than oil.
- c) Agree to stop the ocean dumping and incineration of all hazardous substances.
- d) Develop an international regulatory framework for safety, waste disposal and pollution from offshore oil installations.
- e) Develop liability and compensation regimes covering pollution damage from shipping and dumping activities, including a new regime for hazardous and noxious substances carried by ships.

36. As concerns shipping, coastal States should:

- a) Enforce discharge provisions of the marine pollution conventions and MARPOL regulations more rigorously, such as through port state control

and aerial surveillance.

- b) Implement more stringent pollution control measures in particularly sensitive sea areas.
- c) Adopt rules on ballast water dumping to prevent the spread of non-indigenous organisms.

37. In relation to ports, countries should:

- a) Establish port facilities for the collection and disposal of waste oil, chemical residues and garbage, especially in sensitive sea areas where ships are not permitted to make discharges. This should be facilitated by adequate funding.
- b) Urge the provision of facilities for collection and treatment of wastes in marinas and fishing harbours.
- c) Adopt regulations, in accordance with the London Dumping Convention and MARPOL provisions, for dredging of navigation channels and disposal of dredged material, including global criteria for ocean disposal of contaminated spoils.
- d) Develop guidelines for environmental impact assessments of port development.
- e) Expand and enforce more widely the codes of practice relating to transportation of hazardous and dangerous cargoes, and for detection of illicit movement of toxic chemicals and hazardous wastes.
- f) Strengthen coordination between the Secretariats of the Basel and London Dumping Conventions in order to use the provisions of the Basel Convention to prevent its parties from exporting, for disposal into the ocean, substances referred to in Annexes I and II of the London Dumping Convention.

38. States should develop oil and chemical spill contingency plans at local, national and regional levels and establish, at the national level, government/industry collaboration on provision of oil spill response materials and equipment stockpiles and on training of cleanup personnel, together with a funding mechanism.

39. States should establish a network of regional oil/chemical spill response centres with collaboration from IMO, regional programmes and organizations.

40. Appropriate UN agencies should prepare global guidelines concerning waste audits and clean production, and lists of substances and wastes prohibited from dumping at sea and should assist States to enter into regional agreements in this regard.

Data and Information

41. States should regularly report information on pollutants and efforts to control and prevent them to relevant regional and international organisations.

42. States should make systematic observations of marine pollution and cooperate through relevant regional and international organisations in integrated assessments, monitoring and control of damage to the marine environment by:

- a) Preparing or completing a global inventory of land-based and sea-based sources of marine pollution and databases on their effects.
- b) Assessing the ecological, social and economic significance and impact of these sources and determining national, regional and global problems and priorities in controlling the sources.
- c) Expanding marine pollution information in GIS mapping and information systems.
- d) Making data on marine pollution available to interested parties and storing them at World Data Centres and other international data sources.
- e) Supporting and expanding international programmes for systematic observations such as the mussel watch (sentinel organisms monitoring) programme and the Global Ocean Observing System, building on existing facilities.
- f) Relating monitoring activities to action plans and pollution control and abatement strategies.
- g) Establishing a clearinghouse on marine pollution control information.

International and Regional Cooperation and Coordination

43. An international land-based pollution agreement is needed, with effective provisions for financing and the development, use and transfer of environmentally sound technologies.

44. Countries and international organizations should develop comparable monitoring techniques, methodologies, and measurements for all aspects of marine pollution, building on existing cooperation between UNEP, IOC, IAEA, IMO, FAO and WHO.

Means of Implementation

Financing and Cost Evaluation:

LAND-BASED ACTIVITIES

45. Since many activities on land have impacts on the marine environment, the cost estimates to control the major sources of pollution and other impacts are very high. Estimates based on regional studies in semi-enclosed seas such as the Mediterranean and the Baltic (see explanatory note) give figures of \$5-20 per person per year over 20 years covering the total costs including the necessary investments. If we consider that the projected coastal urban population will be of 1 billion in year 2000, the needed global annual expenditures could be of the order of \$5-20 billion. We need however to consider that this per capita estimates are high due to the difficult conditions of enclosed seas. On the other hand, the benefits gained from protecting major economic activities in marine and coastal areas, clearly outweigh the costs in the regions concerned. Areas is estimated at \$25 to 100 billion, but spread over 20 years this is only \$5-20 per person per year for the 250 million coastal residents and tourists, suggesting needed global annual expenditures of the order of \$5-30 billion. Mechanisms such as user fees and charges for pollution violations are needed to raise the necessary sums from those most directly concerned and best able to bear the costs, and to channel the revenues into construction and operation of the necessary facilities. Many actions in Agenda 21 to control air and water pollution and to solve waste disposal problems will also reduce degradation of the marine environment, which is included in the cost mentioned above.

SEA-BASED ACTIVITIES

46. An estimated \$84 million per year is needed to build waste reception facilities in ports in developing countries. This will require special funding mechanisms such as loans or grants from international agencies, including the Global Environmental Facility or a system of "Reception Facility Funds", with the assistance of IMO. Income should be raised from shipping to cover at least the operation and maintenance of these facilities, if not to reimburse the capital investment. (Explanatory note)

47. Provision of oil spill response materials and equipment, apart from the larger countries that have already invested hundreds of millions of dollars in stockpiles, is estimated at \$50 million per year from 1993 to 2000. To this should be added \$38 million per year for technical cooperation and capacity building.

Scientific and Technological Means:

48. National and regional action programmes will require technological cooperation, technology transfer, and financial resources, including:

- a) Assistance to industries in identifying and adopting clean production or pollution control technologies.
- b) Development and application of low-cost and low-maintenance sewage treatment technologies for developing countries.
- c) Equipment of laboratories to observe systematically human impacts on the marine environment.
- d) Identification of appropriate oil spill control materials, including low-cost locally-available materials and techniques, suitable for pollution emergencies in developing countries.

Human Resources Development:

49. States in cooperation as appropriate with regional and international organizations should:

- a) Provide training for marine scientists, marine laboratory technicians and hydrographic surveyors at the national or regional level as appropriate.

- b) Introduce marine environmental protection topics into the curriculum of marine academies.
- c) Establish training courses for oil and chemical spill response personnel, in cooperation with the oil and chemical industries.
- d) Conduct workshops on environmental aspects of port operations and development.
- e) Strengthen and provide secure financing for new and existing specialized international centres of professional education, such as the World Maritime University, Malmö, the International Maritime Law Institute, Malta and the International Maritime Academy, Trieste.

Capacity Building:

50. National planning and coordinating bodies should be given the capacity and authority to review all land-based activities and sources of pollution for their impacts on the marine environment and to propose appropriate control measures.

51. All countries or regions should strengthen and develop some research facilities for systematic observation of marine pollution and development of control recommendations, managed and staffed by local experts.

52. International and regional organizations should support the establishment and maintenance of regional centres capable of assisting countries in analyzing information and assessing the principal environmental problems, and in implementing environmental impact assessment and monitoring programmes with predictive capabilities.

53. Special arrangements will be needed to provide adequate financial and technical resources to assist developing countries to prevent and solve problems associated with activities that threaten the marine environment.

54. An international funding mechanism should be created for the application of appropriate sewage treatment technologies and building sewage treatment facilities, including grants or concessional loans from international agencies

and appropriate regional funds, replenished at least in part on a revolving basis by user fees.

UNRESOLVED ISSUES

55. [Note from the Secretariat]

The following issues were unresolved during PrepCom III and will require continuing consultations during PrepCom IV to prepare an acceptable text for inclusion. In the absence of a decision whether to consider all living marine resources together or separately under high seas and under national jurisdictions, the secretariat has treated them separately, assuming that it would be easier to combine them than to separate them. For the other unresolved issues, the texts as they were left at the end of PrepCom III can be found in the compilation document.

C and D. LIVING MARINE RESOURCES or

C. SUSTAINABLE USE AND CONSERVATION OF HIGH SEAS LIVING RESOURCES

and

D. SUSTAINABLE USE OF LIVING MARINE RESOURCES UNDER NATIONAL JURISDICTION

56. Unresolved issue on high seas living resources.

State obligation for flag vessels. Corresponds to paragraphs 87, Annex I and II of the Compilation Document. An additional option is presented in Appendix 1 in the Compilation Document.

57. Unresolved issue on high seas living resources.

Violations of regulations. Corresponds to paragraph 88, Annex I and II of the Compilation Document. An additional option is presented in Appendix 1 in the Compilation Document.

58. Unresolved issue on high seas living resources.

Straddling stocks and highly migratory species. Corresponds to paragraphs 69, 92, and 93, Annex I and II of the Compilation Document. An additional option is presented in Appendix 1 in the Compilation Document.

59. Unresolved issue.

Marine mammals. Corresponds to paragraph 81, Annex I of the Compilation Document. An additional option is presented in Appendix 1 in the Compilation Document.

60. Unresolved issue.

Polar regions. Corresponds to paragraph 82, Annex I and II of the compilation document.

D. SUSTAINABLE USE AND CONSERVATION OF HIGH SEAS LIVING RESOURCES

Basis for Action

61. High seas fisheries represent five per-cent of the world total landings. Despite efforts to manage fisheries sustainably on the high seas, management performance has not always been good and several resources are overutilized. There are inadequacies in biological knowledge, fishery statistics and international enforcement of management measures.

62. High seas fisheries should be developed and managed through ecosystem, multi-species approaches, incorporating environmental factors and ecologically sound practices consistent with the best available scientific information. Their performance should be monitored and regulations enforced, in order to preserve their biological diversity and productivity, maintain their ecological relationships and promote their optimum utilization. Populations should be kept at or restored to the level at which its recruitment ensures the greatest net annual increment and should be harvested in areas and at the stage of the life cycle that ensure maximum socio-economic efficiency. Endangered species and stocks should be restored and protected.

Objectives

63. By the year 2000, reinforce, further develop and implement a comprehensive set of regional and international management mechanisms and strategies to promote sustainable use and conservation of high seas living resources.

64. To achieve full implementation of General Assembly Resolution 44/225 on large-scale pelagic driftnet fishing.

Activities

Management-Related

65. Regional fisheries management bodies should be established to fill the gaps in the existing coverage of the world's oceans.

66. High seas fishing States and coastal States, in conjunction with relevant international organizations and existing regional and international mechanisms, should reinforce their cooperation to conserve and make full sustainable use of the living marine resources of the high seas and to improve the status of those which are depleted, by:

- a) Defining appropriate fisheries management units, for instance based on large marine ecosystems concepts.
- b) Cooperating with and acceding to competent international or regional organisations or other international arrangements.
- c) Where arrangements do not exist, cooperating to establish appropriate international or regional agreements among States whose nationals or vessels fish in the same area or for the same resource.
- d) Establishing appropriate exploitation regimes for stocks whose life cycles encompass both the high seas and EEZ's in conformity with the relevant provisions of UNCLOS.
- e) Assessing fishing methods, prohibiting non-sustainable ones, and promoting fishing practices and selective gear which minimize adverse impacts on target and non-target species, other users and marine ecosystems.

67. States should effectively monitor and control fishing activities of their nationals' vessels and crews to ensure the conservation of the resources, compliance with applicable conservation and management rules, complete and accurate reporting of catches and effort, and minimisation of incidental catch.

68. States should develop multilateral guidelines dealing with the linkages between trade and the protection and sustainable use of living marine resources.

Data and Information

69. States with the cooperation of international and regional organisations should;

- a) Make available data and information adequate for fisheries assessment, including verifiable catch and effort statistics.
- b) Develop and share analytical and predictive tools such as stock assessment and bioeconomic models to assist in risk management and decision-making in data-limited situations involving uncertainty and irreversibility.
- c) Acquire all the data, current and historic, necessary for effective management of fisheries resources including data on catch and effort, by-catch and the impact of fishing on other users and the marine environment.

70. States, international and regional organizations should therefore establish or expand appropriate monitoring and assessment programmes for high seas living resources, including the standardized collection and joint analysis of scientific data and the deployment of scientific observers, concerning resource conditions, the effects of uses and management regimes, and the impacts of regional and global changes including climate change.

International and Regional Cooperation and Coordination

71. Relevant international organizations should develop guidelines for better implementation of the provisions of the Law of the Sea Convention (UNCLOS) on high seas fisheries.

72. Countries within the framework of regional fisheries bodies and with the assistance of FAO and other international agencies should assess high seas resource potentials, inventory all stocks (target and non-target), establish optimal fishing regimes and acceptable levels of exploitation, propose

rehabilitation measures when necessary, and develop reliable international monitoring, control, surveillance and enforcement systems.

73. Collaboration should be strengthened between regional and international fishery bodies and with other organizations dealing with utilisation, conservation and management of the oceans and seas.

74. Cooperative and coordinated programmes are needed to provide the knowledge necessary to manage high seas resources, including on the following:

- a) Species life cycles and migration, identifying critical areas and life stages. (98)
- b) Effects of utilization and of changes, including climate changes, on the resources.
- c) Linkages between EEZs and high seas resources.
- d) The concept of large marine ecosystems and its potential for practical application in existing ocean management regimes.

75. International technical cooperation mechanisms in relation to marine commodities should be strengthened to identify and eventually eliminate inappropriate trade barriers and to assist in preventing the evasion of international management regimes.

Means of Implementation

Financing and Cost Evaluation:

76. The costs of developing sustainable uses of high seas resources should be borne by the countries venturing into the area. The principal costs of research and management systems in the high seas should also be supported by the States and the various users. However, the catalytic funding required to improve the database and scientific knowledge, the effectiveness of fisheries management bodies, and the participation of all coastal countries, especially developing ones, in this effort is estimated at \$10 million per year.

Scientific and Technological Means:

77. There is a critical need to develop international databases on resources

and fisheries, including GIS and atlases. The high seas environment should be covered by the planned Global Ocean Observing System, but this data will need to be correlated with the resource and fisheries data. Coastal States with interests in the high seas should participate in regional or ocean-wide cooperative research programmes. Computerized and close to real-time fleet monitoring systems should be developed from existing systems. Simulation models dealing with multispecies resources and management under uncertainty should be developed further.

78. Full use should be made of existing global and regional programmes to assess and study living marine resources, their conditions, distributions and development potential, and the effects of changes and management. These programmes include substantial capacity building and human resources development components.

Human Resources Development:

79. Human resources development should be targetted at both development and management of high seas resources, training entrepreneurs in high seas fishing, upgrading managers in high seas and environmental issues, developing a core of scientists to assess high seas resources, and preparing observers to be placed on fishing vessels.

Capacity Building:

80. States, regional and international organizations should develop or upgrade systems and institutional structures for monitoring, control and surveillance as well as the research capacity for strategic assessment.

81. Countries and regional fisheries management organizations, with the assistance of relevant United Nations Agencies, should strengthen research programmes dealing with high seas straddling or highly migratory resources, particularly when such species are exploited also within the EEZ's.

E. SUSTAINABLE USE OF LIVING MARINE RESOURCES UNDER NATIONAL JURISDICTION

Basis for Action

82. World oceans yield about 80-90 million tons per year of fisheries products, 95% of which comes from EEZs. They provide food and livelihoods to millions of coastal people including indigenous people. However, many countries face mounting problems related to their rights and obligations under UNCLOS, including local overfishing, poor management performance, unauthorized incursions by foreign vessels, ecosystem degradation, increased stock fluctuations, overcapitalization, excessive fleet sizes, inefficient or unselective gear, unreliable data bases and inadequate information about their resource base, and increasing competition between artisanal and industrial fishing and between fishing and other types of activities. Access to the surplus of the allowable catch is often denied to other states whose nationals have habitually fished in the zone, in contradiction to the principles of UNCLOS.

83. Problems extend beyond fisheries. Coral reefs and other coastal habitats such as mangroves and estuaries are among the most highly diverse, integrated and productive of the earth's ecosystems. They often serve important ecological functions, provide coastal protection, and are critical resources for food, energy, tourism and economic development. In various parts of the world such coastal systems are under stress or threatened.

84. Marine resources and fisheries should be developed and managed through ecosystem, multi-species and integrated coastal management approaches, incorporating environmental factors and conservation requirements. Their performance should be monitored and regulations enforced, in order to preserve their biological diversity and productivity, maintain their ecological relationships and promote their optimum utilization. Populations should be kept at or restored to the level ensuring the greatest net annual increment and should be harvested in areas and at the stage of the life cycle that ensure maximum socio-economic efficiency. Endangered species and stocks should be restored and protected.

85. The sustainable use and conservation of marine living resources is of social, economic and nutritional importance and contributes to national food security. The use of marine species for human food should be increased by promoting direct consumption, avoiding wastage and improving techniques of harvest, handling and transportation.

Objectives

86. By 1995, establish national mechanisms for integrated assessment, development and management of living marine resources.

87. By 1998, complete national living resource and critical habitat inventories of coastal areas and EEZs.

88. By 2000, prepare national strategies for mariculture and coastal aquaculture development in all developing countries.

89. By 1996, develop active programmes to stimulate local level fisheries management.

90. By 1996, ensure that coastal States obtain full economic benefits from the sustainable use of the marine resources of the EEZs and to secure access to surplus of allowable catch in EEZ's in accordance with UNCLOS.

91. Integrate protection and sustainable management of coral reefs and other critical ecosystems into living resources and coastal zone management strategies.

Activities

Management-Related

92. National marine resources policy, legal and regulatory frameworks should be completed, with the assistance of relevant international and regional organizations, to improve enforcement capacity, investment and financing (including joint venture agreements), regulate access, enhance small-scale fisheries, improve seafood quality and rationalize trade.

93. Specifically, coastal States, with assistance as appropriate from international and regional organizations, should:

- a) Establish systems to regulate access through licensing, user's rights, limited entry, space allocation, closure zones and economic instruments, while allocating marine resources equitably among small-scale, large-scale and sport fisheries and non-fishery users.
- b) Assess fishing methods, prohibit non-sustainable ones, and promote fishing practices and selective gear which minimize adverse impacts on target and non-target species, other users and marine ecosystems.
- c) Adopt domestic and international collaborative mechanisms on issues related to migratory fish and long range fleet monitoring and control.
- d) Enhance the productivity and utilization of their marine living resources for food and income from food products, pharmaceutical products, and tourism, recreational, cultural and aesthetic uses.
- e) Establish programmes to improve handling and processing, reducing post-harvest losses and discards and improving seafood quality.
- f) Develop mariculture and coastal aquaculture potentials based on national analyses for potential mariculture, coastal aquaculture (areas, species and methodologies) and other improvements, in the framework of integrated national planning.
- g) Develop deep-sea fishing where coastal resources are overfished and where scientific assessment shows resources are potentially available.
- h) Promote non-consumptive uses of vulnerable or endangered living resources consistent with their conservation, such as eco-tourism, in replacement of consumptive uses.

94. At the local level, coastal States should:

- a) Integrate small-scale fisheries development in coastal zone planning, and encourage representation of fishermen and communities in planning management bodies.
- b) Increase rights and responsibilities of community-based users, including traditional coastal communities, women's groups and minorities/indigenous people, for management and enforcement of fishing and non-fishing concerns including eco-tourism.

- c) Set a system for small-scale fishworker rights.
- d) Recognize, record and apply traditional knowledge concerning marine resources and ecosystems and incorporate it into modern management systems in collaboration with those concerned.
- e) Strengthen environmentally sound artisanal and subsistence fishing technologies, and collaborate with coastal communities for the elimination of unsound ones.
- f) Reinforce training and extension services in coordination with rural agriculture services together with appropriate financing mechanisms.
- g) Develop or reinforce fisheries extension and management activities among women.
- h) Recognize the special status of indigenous peoples including their rights to utilization and protection of their habitats on a sustainable basis.

95. Coastal States should ensure that, in their negotiation and implementation of international agreements on the development or conservation of living marine resources, indigenous peoples are represented and their interests, in particular, their right to subsistence, are secured.

96. For important coastal ecosystems such as coral reefs, countries with the assistance of international and regional organizations should:

- a) Survey the present state of coral reef resources to determine risks to development and conservation.
- b) Establish systematic observation systems to follow future trends as a basis for management measures.
- c) Provide information for regional and global assessments of the state of coral reefs.
- d) Undertake research on major changes observed in coral reef ecosystems and their possible relationships to human impacts and global change.
- e) Plan for the multiple use of coral reef resources where compatible with the preservation of their productivity and biodiversity.
- f) Take steps to eliminate damaging impacts on coral reefs and to restore damaged reefs to a productive state.

Data and Information

97. States with the cooperation of international and regional organisations should:

- a) Make available data and information adequate for fisheries assessment, including verifiable catch and effort statistics.
- b) Develop and share analytical and predictive tools such as stock assessment and bioeconomic models to assist in risk management and decision-making in data-limited situations involving uncertainty and irreversibility.
- c) Acquire all the data, current and historic, necessary for effective management of fisheries resources including data on catch and effort, by-catch and the impact of fishing on other users and the marine environment.

98. Coastal states together with regional and international organizations should:

- a) Complete/update marine biodiversity, living resource and critical habitat inventories of coastal areas and EEZ's, at national and regional levels.
- b) Improve data collection systems, and, provide the appropriate data to regional and international fisheries bodies and organizations.
- c) Develop information systems incorporating the ecosystem management approach at the national and regional level.

International and Regional Cooperation and Coordination

99. Relevant United Nations and other international agencies should coordinate their efforts to increase their assistance to coastal developing countries in implementing the above activities, and in particular:

- a) Provide for the transfer of environmentally sound technologies to develop their fisheries, and to replace harmful fishing practices.
- b) Establish a methodology to assess the nutritional and health impacts of fishery policies and projects.
- c) Promote the study, scientific assessment and use of traditional

management systems.

- d) Develop necessary international controls, and transfer management methods and environmentally sound fishing technology for rare and fragile resources in trade, including ornamental tropical fish, shells and corals.
- e) Identify new additional funds for implementation.

100. Relevant UN and other international agencies should prepare guidelines on:

- a) Sustainable fishing in order to reduce waste, protect endangered species, reduce pollution and improve fishing gear efficiency and selectivity.
- b) Applications of a precautionary approach to living resources management.
- c) The concept of the Marine Catchment Basin for enclosed seas, as well as the ecosystem management approach and "large marine ecosystems" concepts, including the practical implications and applications.
- d) Environmentally sound intensive aquaculture.

101. The international community and the private sector should develop/improve markets to promote direct human consumption of fish and to enhance the contribution of subsistence fisheries.

Means of Implementation

Financing and Costing:

102. The total cost to restructure the fisheries sector is of 11.1 billion dollars per year. This does not include investments needed to correct overfishing and organize sector reconversion to reduce overcapitalization. [explanatory note]

The catalytic funding required to improve national data systems and research capacity, infrastructures and management systems through technical assistance, research networking, pilot programmes and improved cooperation, especially at the regional level, is estimated to be in the order of \$55 million annually.

Scientific and Technological Means:

103. Special attention should be given to mechanisms for transferring resource information and improved fishing technologies to the fisherfolk and other users at the local level.

104. Countries should implement the FAO/ICES Code of Practice for Consideration of Transfer and Introduction of Marine and Freshwater Organisms and regional bodies should transfer available safe technologies in cooperation with national centres.

105. Countries should agree on global quality assurance systems for seafood in order to improve consumer confidence and maximize economic returns.

106. Financial organizations should provide support for the development of deep-sea fishing by developing countries, particularly where coastal resources are overfished and scientific assessment shows that resources are potentially available.

Human Resource Development:

107. Regional bodies should encourage multidisciplinary training and research on marine living resources, particularly in social and economic sciences as well as in the use of geographical information systems.

108. International and regional organisations should assist countries to create training opportunities to support artisanal including subsistence fisheries, to develop small-scale use of living marine resources at national and regional levels and to encourage equitable participation of women and indigenous peoples.

Capacity Building:

109. Each coastal country with the assistance of relevant regional and international agencies should:

- a) Complete their legal and policy frameworks in line with UNCLOS.

- b) Establish a coordinated institutional framework and intersectoral mechanisms for living marine resources management through regular consultation between the decision makers and the users.
- c) Develop procedures to involve the coastal communities, the academic and private sectors in the development and implementation of programmes.
- d) Develop or upgrade scientific and technical infrastructure for systematic observations, control and surveillance required for decision-making and strategic assessments of development potential.

110. Existing regional fisheries management bodies should be strengthened and new ones created where necessary.

111. Provide support to traditional coastal communities of indigenous peoples and to subsistence fisherfolk, the technical and financial assistance to organize, maintain, exchange and improve traditional technological knowledge of marine resources.

F. ADDRESSING CRITICAL UNCERTAINTIES FOR THE MANAGEMENT OF MARINE ENVIRONMENT AND CLIMATE CHANGE

Basis for Action

112. The cornerstone for providing rational use and development of coastal areas and marine resources is the ability to determine their present state of systems and to predict future conditions. The high degree of uncertainty in present information prevents effective management and limits the ability to make predictions and assess environmental change. Systematic data on ocean environmental parameters will be needed to apply integrated management approaches and to predict effects of global climate change on fisheries. In order to determine the role of the oceans in driving global systems and to predict natural and man-induced changes in marine and coastal ecosystems, the mechanisms to collect, synthesize and disseminate ocean information from research and monitoring activities need to be restructured and reinforced considerably.

113. There are many uncertainties about climate change and particularly sea

level rise. Small increases in sea level have the potential of causing significant damage to small islands and low-lying coasts. Response strategies should be based on sound data. A long-term co-operative research commitment based on differentiated responsibilities of countries is needed to provide data required for global climate models and to reduce uncertainty. Meanwhile, precautionary measures should be initiated to diminish the risks and effects, particularly on small islands, low-lying States and coastal zones of the world.

Objectives

114. By 1995, begin coordinated national and regional observation programmes for coastal and near-shore phenomena related to climate change and for resource parameters essential for ocean and coastal management in all regions.

Activities

Management-related

115. States, acting individually and through appropriate regional and international mechanisms, should:

- a) Conduct scientific research on, systematic observation and monitoring of the marine environment, within and beyond the limits of national jurisdiction.
- b) Exchange data and information resulting from scientific research and monitoring.
- c) Develop standard inter-calibrated procedures, measuring techniques, and data storage capabilities for scientific research on and systematic observation of the marine environment.
- d) Provide improved forecasts of marine conditions for safety of inhabitants of coastal areas and efficiency of maritime operations.
- e) Communicate the information generated by research and systematic observations to all levels of the management structure and the public.

116. Coastal states should adopt special measures to cope with potential climate change and sea level rise, including the development of globally accepted methodologies for coastal vulnerability assessment, modelling and

response strategies particularly for priority areas, such as small islands, low-lying states and critical coastal areas.

117. Coastal countries with the cooperation of relevant UN organizations should establish research priorities to address critical uncertainties for ocean and coastal area management. They should identify on-going and planned programmes of systematic observation of the marine environment, with a view to integrating activities and establishing priorities. Research priorities include:

- a) Living resources potential including species life cycles and migration to identify critical areas and life stages.
- b) Optimal fishing regimes and acceptable levels of exploitation.
- c) Fate and effects of all forms of chemical pollution and toxic phytoplankton blooms in coastal ecosystems.
- d) Human health related to consumption of fishery products from marine and coastal ecosystems.
- e) Development of appropriate and new marine technologies to utilise under-exploited resources, for aquaculture, food processing and for pollution control.
- f) Utilization of marine environmental accountancy as a management tool.
- g) Response of critical or sensitive marine ecosystems to coastal sustainable development and rehabilitation strategies for degraded areas.
- h) Marine ecosystem functioning and resilience under stress.
- i) The role of ocean circulation and upwelling in heat, nutrient and pollutant transport and their effects.
- j) Development of species information useful as indicators of significant changes in ocean systems, and improvement of correlations between biological and physical oceanographic data.

Data and Information

118. The Global Ocean Observing System (GOOS) of the IOC is being designed in cooperation with WMO, UNEP and other agencies, to provide basic information on the world ocean required to analyze, assess and predict global climate and

environmental changes, and to provide data for Geographic Information System and other information systems, but more elements will be needed for an effective system. Specifically, States should:

- a) Support development of the interdisciplinary systematic global and regional observation networks of coastal, nearshore and open ocean areas as proposed in GOOS (A/CONF.151/PC/70).
- b) Create regional accessible and readily-transferred multi-sectorial information bases, covering the results of research and systematic observation programmes.
- c) Link these databases to existing data and information services and mechanisms such as the World Weather Watch and Earthwatch for communicating these results to decision makers, environmental managers and the general public.
- d) Promote the exchange of data and information, and its storage and archiving through the World Data Centres.

International and Regional Cooperation and Coordination

119. Since a coordinated global effort is fundamental to address critical uncertainties for the management of the marine environment and climate change, nations in cooperation with international organizations should:

- a) Offer technical cooperation in developing the capacity of coastal States for marine research and monitoring, and for using its results.
- b) Establish joint international ocean analysis and prediction centres in order to prepare and disseminate global and regional oceanographic analyses and forecasts and to provide facilities for international research and training.

120. Relevant UN Agencies should establish high-level inter-agency coordination and review mechanisms to develop and integrate systematic observation networks. This would include:

- a) Review of existing national, regional and global data bases.
- b) Mechanisms to develop comparable and compatible techniques, validate methodologies and measurements, organize regular scientific reviews, agree on formats for presentation and storage, and communicate the

information gathered to potential users.

- c) Systematic observation and monitoring of coastal habitats and sea level changes, inventories of marine pollution sources and reviews of fisheries statistics.
- d) Organization of periodic assessments of ocean and coastal states and trends.

121. Develop and integrate regional systematic long-term observation programmes into the UNEP Regional Seas Programmes in a coordinated fashion to implement global and regional ocean and coastal observing systems based on the principle of exchange of data. One aim would be predicting the effects of climate-related emergencies on existing coastal physical and socio-economic infrastructure. Site-specific analysis of sea level rise effects and temperature elevations on sensitive coastal ecosystems and lagoons and economically important species will also be necessary.

Means of Implementation

Financing and Cost Evaluation:

122. For data and information activities, GOOS is presently estimated to require about \$614 million annually, largely in national expenditure. In full operation, not counting new satellite systems and development costs, compared to present annual costs for oceanic observations of \$50 million. Of this amount, \$370 million would be for open ocean observations largely by developed countries, and \$244 million for EEZ observations shared by 100 coastal countries. Present international organization costs of \$1 million should be increased at a minimum to \$2.5 million for existing ocean observing and data management activities, and to \$5 million for the full implementation of GOOS. Other large-scale scientific programmes are being planned but their costings are not presently available.

123. Relevant UN organizations, donor countries and development agencies should establish funding mechanisms to assist all coastal States to build national capabilities, infrastructure and institutions to implement interdisciplinary systematic observations of oceans, to develop marine

technology and engineering, and to apply the results for management.

Scientific and Technological Means:

124. To address critical uncertainties through systematic coastal and ocean observations and research, coastal States should:

- a) Develop and adopt, through existing cooperation with the relevant United Nations organizations, the common scientific and technological methods, standards, quality assurance procedures, norms for data exchange, and research approaches required.
- b) Cooperate on a regional basis, through existing programmes where possible.
- c) Share infrastructure and expensive and sophisticated equipment and develop human resources jointly.

Human Resource Development:

125. Countries, with assistance from donors and international organizations, should:

- a) Use an interdisciplinary approach to teaching and training in marine science and ocean observation.
- b) Make technical training more accessible to developing countries through new educational techniques such as computer-aided learning, expert systems, distance teaching, and multi-media learning packages.
- c) Establish, on a national or regional basis, continuing education and training for professionals and support staff.
- d) Provide the necessary institutional and financial support to maintain a core of trained marine professionals and technical support staff to undertake research and systematic observations; provide the scientific basis for management decisions; make scientific inputs to assessments of climate change impacts and response strategies; and train students to continue high-quality indigenous capabilities.
- e) increase the availability of information on ocean issues to decision-makers, teachers and others.

Capacity building:

126. Countries should strengthen or establish National Oceanographic Commissions or equivalent bodies representing government departments, universities and research institutions to liaise with national users, work closely with international organizations, and develop and support marine science activities.

127. Countries should strengthen and stimulate the use of existing regional mechanisms to develop knowledge of their shared marine environment, exchange information on protective measures, identify common marine problems, organize systematic observations and assessments, and make most effective use of scientists, facilities and equipment.

G. STRENGTHENING INTERNATIONAL, INCLUDING REGIONAL COOPERATION AND COORDINATION

Basis for Action

128. In order to implement the above strategies and activities through efficient and cost-effective actions and to ensure the integration of environment and development aspects, existing institutional arrangements at national, regional and global level need adjustment and strengthening. There are numerous global and regional institutions with competence in marine issues, with a fragmented largely-sectoral distribution of responsibilities reflecting the situation at the national level. There is a need to improve coordination among institutions concerned with oceans and coastal areas at the international level, to strengthen the links between international institutions and Governments, including through regular and effective intergovernmental discussion, and to ensure that all levels operate in an integrated and multi-sectoral way, particularly relating environment and development.

129. Intergovernmental and inter-secretariat cooperation and coordination is also required at the regional level, where a number of bodies already exist both within and outside the United Nations system.

130. The United Nations Convention on the Law of the Sea (UNCLOS) provides

a global framework and lays down basic rights and duties relating to ocean environment and development activities. Acceptance of these rights and duties and of other relevant international agreements forms an important basis for international coordination and cooperation.

Objectives

131. Ensure, at the regional and global level, consistency among and integration of the various sectoral activities addressing environment and development in oceans and coastal areas, including those covered in the other programme areas on oceans in Agenda 21.

132. Create, within the United Nations system, an opportunity for regular intergovernmental review and consideration of environment and development with respect to oceans and coastal areas as a whole, and of the agreed principles, strategy and standards.

133. Establish effective information exchange and, where appropriate, institutional linkages between regional institutions dealing with environment and development in oceans and coastal areas.

134. Ensure the effective operation of coordinating mechanisms for the components of the United Nations system dealing with environment and development in oceans and coastal areas, and links with other concerned organizations including donor and assistance agencies.

Activities

Management-Related

Global

135. The United Nations General Assembly should ensure regular consideration within the UN System at intergovernmental level of general ocean and coastal issues, including environment and development matters, and request the Secretary-General and Executive Heads of UN agencies and organizations to strengthen consultative and coordinating mechanisms for this purpose, including the following:

- a) Introduce special arrangements to ensure the participation of all relevant international organizations, including the development and donor agencies.
- b) Seek scientific advice and consider the use of advisory expert groups, as needed.
- c) Establish reporting arrangements between the General Assembly and the governing bodies of the UN system.
- d) Strengthen coordination and develop improved relationships among the relevant international organizations with major ocean responsibilities (UNEP, UNESCO, IOC, WMO, IMO, FAO, IAEA, UN OALOS, etc.), including their regional components and strengthen coordination with other U.N. organisations, institutions and specialized agencies dealing with development, trade and other related economic issues, as appropriate.
- e) Improve representation of agencies dealing with the marine environment in UN-wide coordination efforts.
- f) Better coordinate international and regional coastal and marine programmes.
- g) Provide for adequate agency input into the Global Environmental Facility and similar funding mechanisms that may be established.

136. Settlement of disputes, such as on trade and environment, should be dealt with in appropriate bilateral, regional and international forums, e.g. GATT, in accordance with established international rules and dispute settlement agreements as well as with multilateral standards to be agreed upon, giving due consideration to concerns for sustainable development. Pending enactment of such standards, States should refrain from taking unilateral non-tariff measures to protect a given marine resource.

137. Governments participating in various international forums often send representatives of different national sectors. In ocean-related fields, where all issues are closely interrelated it is essential that each government integrate sectoral interests.

Regional

138. States and regional organizations, with the cooperation of international organizations, should:

- a) Strengthen existing intergovernmental regional cooperation, particularly the Regional Seas Programmes of UNEP, and use regional intergovernmental forums to harmonize policies and integrate cooperative activities.
- b) Introduce arrangements for the regional collaboration and coordination of all relevant organizations and bodies, development assistance and donor agencies, and the private sector.
- c) Arrange for periodic interregional consultations in support of those conducted at the global level.
- d) Develop regional centres or networks for expertise and assistance such as the Regional Centres for Marine Technology now being established in some areas.

Data and Information

139. To ensure an adequate flow of information from the international and regional levels to catalyze action, international and regional organizations and donor countries should:

- a) Assist States, on request, to implement the principles in the Law of the Sea Convention and other relevant instruments, including using marine scientific research as a management tool.
- b) Develop a central reference point for information on legislation and for advice on implementation of legal agreements.
- c) Strengthen the capacity of international organizations to handle information globally and to assist in developing national and regional data and information systems.
- d) Further develop existing international information coordination and assessment mechanisms such as Earthwatch and GESAMP to review the adequacy of present data and information at the global level and to organize regular assessments of global ocean problems.
- e) Preparation of periodic overview reports of efforts to understand the oceans.

140. Through UN system-wide consultations, preparation of agendas and supporting documentation on:

- a) General policies, planning and needs for coordinated effort, such as integrated coastal area management and national capacity building.
- b) Review of impediments to implementation and enforcement of global and regional agreements, and of developments in international law such as liability regimes and dispute settlement.
- c) Review of assistance to developing countries and of needed collaboration with development assistance and donor agencies, non-governmental organizations and the private sector.

Means of Implementation

Financing and Cost Evaluation:

141. Global and inter-regional consultations and coordination on a regular basis will cost about \$1 million per year. Ocean and coastal management-related costs to international organizations are presently about \$10 million with an additional \$2 million in support to countries on global issues, coordinating much larger national expenditures. These amounts would need to increase by \$10 million to implement Agenda 21 effectively. Strengthening regional cooperation such as through Regional Seas and equivalent programmes, which presently cost about \$57 million a year, will require \$12 million in additional support for international organizations and regional coordinating units, and \$25 million annually in further direct support to activities within the regions. Assistance to States on specific questions, and international information coordination and reporting, will require an average of \$4 million per year.

Scientific and Technological Means:

142. International organizations and donor countries should encourage the development of international and regional centres of excellence in marine technology and in the analysis and assessment of scientific data on the oceans.

Human Resource Development:

143. International and regional organizations and donor countries should stimulate the development of new or expanded training centres in developing regions to produce the full range of human resources needed on a continuing basis to develop and manage marine resources sustainably.

144. The staffs of international and regional organizations need to be strengthened and given broader experience in integrated approaches to ocean issues through interagency exchanges and short-term assignments. It should also be agency policy for staff occasionally to participate directly in field activities in developing countries.

Capacity Building:

145. The capacity of the UN System to implement oceans activities is handicapped by the fragmentation of responsibilities among many agencies and programmes. The mechanisms for interagency policy development and programme coordination should at a minimum be increased through regular formal consultations. A more radical rationalization and restructuring of the UN System in this area should also be considered, as the cost savings and improvements in efficiency could be considerable and present tendencies to duplication could be avoided. This is particularly true of the coastal area management activities of FAO, UNEP and Unesco/IOC, the marine pollution activities of FAO, IAEA, IMO, UNEP, Unesco/IOC and WHO, and the legal activities of FAO, OALOS and UNEP. Where mandates inevitably overlap because of the breadth of ocean issues, close cooperation and the development of joint programmes should be required.

146. The capacity of international organizations both within and outside the UN system to cooperate at the regional level should be strengthened. The multiplication of separate regional programmes should be avoided by strengthening or establishing of regional coordinating units or programmes under the responsibility of the governments of the region (such as the Regional Seas Programmes), through which international organizations and donor countries can develop cooperative activities that respond to the development and environment priorities of the States in the region.

G. SUSTAINABLE DEVELOPMENT OF ISLANDS

Basis for Action

147. Islands are a special case both for environment and development. They tend to be ecologically fragile and vulnerable with frequently a unique flora and fauna, giving them a proportionally very high share of global biodiversity. Their small size, limited resources and isolation disadvantage them economically and prevent economies of scale. They have all the problems and challenges of the coastal zone concentrated in a limited land area. The indigenous island peoples have rich and diverse cultures with special adaptations to the island environment and knowledge of the sound management of its resources. Because island development options are limited, there are special challenges to planning for sustainable development. Many islands must depend for their economic development on marine resources shared with the high seas. With the threats of global climate change and sea-level rise, many islands may also be at increasing risk, and certain island States could in the long term be threatened by the loss of their entire national territory.

Objectives

148. To adopt and implement sustainable development plans for islands, including meeting essential human needs within island limits, maintaining biodiversity, and increasing the quality of life for island peoples.

Activities

Management-Related

149. Island States and Territories, with the assistance as appropriate of international and regional organizations, should:

- a) Prepare medium and long-term plans for sustainable development integrating the multiple use of limited island resources and identifying types of development compatible with island limits.
- b) Adapt coastal area management techniques to the special characteristics of islands.
- c) Prepare or complete an inventory of island natural resources and species, and define measures to protect endangered species and to

maintain biodiversity with the assistance of the international community.

- d) Study the special environmental and developmental characteristics of islands and possible appropriate development strategies.
- e) Develop techniques for determining the carrying capacity of islands under different development assumptions and resource constraints.
- f) Explore new kinds of technology for development within island limits and identify chemicals and technologies which should be excluded because of their threats to essential island systems.
- g) Study the vulnerability of islands to global change and sea-level rise and possible response options.

Data and Information

150. Information on the geographic, environmental and socio-economic characteristics of islands should be compiled and assessed to assist in the planning process. Existing island databases should be expanded and geographic information systems adapted to islands developed.

International and Regional Cooperation and Coordination

151. States, regional and international organizations should develop inter-island, regional and inter-regional cooperation and information exchange, including periodic regional and global meetings on sustainable development of islands.

Means of Implementation

Financing and Cost Evaluation:

152. Technical cooperation costs to implement these activities amount to \$7 million per year. A programme on integrated planning for sustainable development of islands will cost about \$140 million per year. Since many small islands will never develop an adequate economic or population base to provide all of the services necessary for a reasonable quality of life, some external support will frequently be required on a continuing basis. In addition, the need to maintain the island share of global biodiversity will further limit development options and should be supported by the international

community with at least \$3 million per year.

Scientific and Technical Means:

153. Centres for the development and diffusion of technologies appropriate to islands should be established on a regional basis.

Human Resource Development:

154. Since small island populations cannot maintain all necessary specializations, training for island management and development should aim to produce generalists able to integrate the main factors which need to be considered in island governance. Resource users should be trained to carry out many management and protection functions for themselves. Educational systems should be modified to meet these needs and special training programmes developed in integrated island management and development.

Capacity Building:

155. The small scale of islands will always limit their total capacity. Existing capacity must therefore be restructured to meet the needs for sustainable development and integrated management efficiently within present human and financial means. New technologies may be used to increase the capacity of very small populations to meet their needs.

EXPLANATORY NOTES

A. Integrated Management and Sustainable Development of Coastal Areas,
EEZs and Marine Ecosystems

Financing and Cost Evaluation

Paragraph 16

The cost figures given are for the incremental additional cost to expected coastal development to make it environmentally sound and sustainable. Many of these developments would be endangered physically or economically by environmental deterioration without these additional investments. These amounts should come primarily from the national public and private sectors and could be at least partly covered by income from user fees.

B. Marine Environmental Protection

Paragraph 30

The Intergovernmental Meeting of Experts on Reduction of the Degradation of the Marine Environment from Land-based Sources of Pollution and Activities in Coastal Areas which met in Nairobi, 9-13 December 1991, following the decision of the 16th UNEP Governing Council, has prepared elements of a strategy and a targeted and costed programme of action as well as a set of principles (A/CONF.151/PC/...) which should be considered together with this section. A costed and targeted programme of action should then be finalized and adopted at an appropriate intergovernmental meeting soon after UNCED. This should include specific elements for a subsequent global strategy and action plan. There should be provision for an effective mechanism to review systematically the implementation of global and regional agreements and action plans, as well as institutional and financial mechanisms ensuring the global coordination of the implementation of the action plan.

Financing and Cost Evaluation

Land-based Activities

Paragraph 45

In the absence of any global inventory of land-based activities damaging the marine environment, it is presently impossible to give accurate global estimates for the control of the major sources of pollution and other impacts. Only two regional costings are now available. The cost for protecting the Mediterranean Sea against land-based sources of pollution and activities in coastal areas is estimated at \$25 to 100 billion, but spread over 20 years this is only \$5-20 per person per year for the 250 million coastal residents and tourists. Estimates for the Baltic are similar on a per capita basis. These costs should be set against the benefits from the 51 million foreign tourists who contributed on average 6.5 percent of the GDP of Mediterranean countries; in France alone, Mediterranean coastal tourism brought in revenue of \$7 billion in 1988. In addition, Mediterranean fisheries production is worth some \$450 million. Both cost estimates are for the protection of nearly enclosed seas bordered by heavily populated and industrialized areas; on open coasts where certain wastes are rapidly eliminated or dispersed, a different level of control might be justified and costs per capita could be expected to be lower.

Sea-based Activities

Paragraphs 46 and 47

Costs for controlling pollution from sea-based activities include \$560 million for oily waste reception facilities and \$27 million for garbage reception facilities in ports, for an annual rate of investment of \$84 million over the period 1993-2000. Oil spill response materials for the 100 countries not yet so equipped would average about \$3.5 million per country or \$350 million total, giving \$50 million per year. The additional costs for technical

cooperation and capacity building amount to \$38 million per year. These costing do not include the additional costs (approximately \$20 million each) for constructing tankers to the new double hull standard, which will be absorbed by the tanker owners.

Living Marine Resources

C. Sustainable Use and Conservation of High Seas Living Resources

Financing and Cost Evaluation

Paragraph 77

The catalytic funding of \$12 million per year required to improve high seas fisheries management has been costed on the basis of the activities listed in the action programme. However the principal costs of the investment needed to put high seas fisheries on a more sustainable basis (\$275 million per year) have only been estimated as a pro-rata share of 5% of the costs described in the note below for paragraph 103, since this is the high seas share of global ocean fisheries.

D. Sustainable Use of Living Marine Resources under National Jurisdiction

Financing and Cost Evaluation

Paragraph 103

The catalytic funding of \$59 million per year required by developing countries has been estimated based on the activities listed in the action programme. These include the cost of primary technical assistance, policy and technical advice to governments, improved data systems, policy and technical guidelines, training, meetings, demonstration projects, and additional support to NGOs, the regional bodies and international agencies to back up this effort. These costings do not include principal costs such as capital costs, heavy

investments (e.g. research vessels or patrol boats), pre-investment studies, long-term training, etc. which would be many times higher than the catalytic costs. While there is no sound basis for estimating these costs, they must be funded if the catalytic expenses are to be justified. The crude estimation of \$5.5 billion per year provided was derived from a global macroeconomic approach to give an order of magnitude figure. Total principal expenses required to restructure world fisheries on a sustainable basis by reducing world fishing effort come to about \$111 billion, not counting \$36 billion required to reduce overcapitalization in large fleets; if the reconversion is spread over 20 years it would require \$5.5 billion per year, but would result in a savings of losses through overinvestment of \$15-20 billion per year. Pre-financing of the reconversion, including the additional \$36 billion for fleet reduction, would be necessary since the industry is too weak financially to start the process.

Sustainable Development of Islands

Section G

PrepCom III, in its consideration of land resources, requested the Secretary-General to add a programme area on islands within the oceans and coastal areas theme (A/CONF.151/PC/). It should logically follow programme area A on coastal area management and development.

ENDNOTES

To facilitate cross-referencing earlier documents, the following notes to each paragraph in the text give the paragraph numbers in the compilation document from which the text was derived. The compilation document in turn shows which wordings came from PC/42/Add.6, from text proposed by delegations during PrepCom III, or from submissions by delegations up to 15 October 1991. Text synthesized and reduced from the compilation document is indicated as "edited"; text to which new wordings have been added is indicated as "revised". Minor editorial changes not affecting the sense of the text are not separately noted. New material prepared by the Secretariat on the basis of inputs from many sources is so indicated.

1. Note by the Secretariat
2. Note by the Secretariat
3. Note by the Secretariat
4. 1,2,3 edited and revised
5. 4 edited and revised
6. 4 edited and revised
7. 5 edited
8. 7,6 edited
9. 8 revised
10. 11 revised
11. 4 edited and revised
12. 12 edited
- 12a. 12a revised
- 12b. 12 edited
- 12c. 12b edited
- 12d. 12c edited
- 12e. 27bis(e) edited
- 12f. 12c edited
- 12g. 12c edited and revised
- 12h. 12d edited
- 12i. 12e edited and revised
- 12j. 12f edited and revised
13. 13, 13bis edited and revised
- 13a. New
- 13b. 13 edited
- 13c. 13, 13a, 13bis a, 13bis b edited and revised
- 13d. 13a edited
- 13e. 13c edited
- 13f. 13d edited and revised
14. 16 edited and revised
- 14a. 16b edited
- 14b. 16c edited and revised
- 14c. 16d edited and revised
- 14d. 16e edited

- 14e. New
- 15. 14a
- 15a. 14a edited
- 15b. New and 14b edited
- 15c. 14c edited and revised
- 15d. 15 edited
- 15e. 15 edited and revised
- 16. New
- 17. New
- 18. 20b edited and revised
- 19. New
- 20. 18 revised with additions
- 21a. 17 revised with additions
- 17b. 17a revised with additions
- 17c. 17b edited and revised
- 17d. New
- 17e. 17c edited
- 22. 19 edited and revised
- 22a. 19a edited
- 22b. 19b revised
- 22c. 19c edited
- 22d. New
- 22e. 19d revised
- 22f. 19e revised
- 23. 21 edited and revised
- 24. 22, 26 edited and revised
- 25. 23 edited and revised
- 26. 24, 25 edited and revised
- 27. 28 edited
- 28. 29 revised
- 28a. 29a
- 28b. 29b
- 28c. 30a edited
- 29a. 32b, 29 edited and revised
- 29b. 32c edited with additions
- 29c. 49a, 49b edited
- 29d. 43a, 43b revised
- 29e. 39a edited
- 29f. 39c edited
- 30. 33 edited with additions
- 30a. 33a
- 30b. 33b with additions
- 30c. 33c edited with additions
- 30d. New
- 31. 34 edited and revised
- 32a. 35a edited and revised
- 32b. 35b edited and revised
- 32c. 35c edited and revised with additions from UNEP expert consultation
- 32d. 35d revised

- 32e. 35e edited and revised
- 32f. 35f revised
- 32g. 35g edited
- 33. 36
- 33a. 36a
- 33b. 36b revised with additions
- 33c. New
- 33d. 36c edited and revised with additions from UNEP expert consultation
- 33e. 36d revised with additions from UNEP expert consultation
- 34a. 37a
- 34b. 37b edited
- 34c. 37d edited
- 34d. New
- 35. 39 with additions
- 35a. 39, 39a, 39b edited and revised
- 35b. 39 edited
- 35c. 44 edited
- 35d. 39c edited and revised
- 35e. 39d revised
- 36. 41
- 36a. 41 edited and revised
- 36b. 41 edited
- 36c. 40 edited
- 37a. 39a edited
- 37b. 42 edited
- 37c. 42a
- 37d. 42b
- 37e. 42b
- 37f. 42c edited and revised
- 38. 43a
- 39. 43b edited and revised
- 40. 44 edited and revised
- 41. 46 edited
- 42. 47, 48 edited and revised
- 42a. New
- 42b. New
- 42c. 48c with additions
- 42d. 49c edited and revised with additions
- 42e. 48a, 49c edited and revised with additions
- 42f. 48b
- 42g. New
- 43. 52bis edited
- 44. 53 edited
- 45. New
- 46. New
- 47. New
- 48. 55 with additions
- 49. New
- 50. New

51. New
52. New
53. New
54. New
- 55.
- 56.
- 57.
- 58.
- 59.
- 60.
- 61.
- 62.
- 63.
- 64.
- 65.
- 66.
- 67.
- 68.
- 69.
- 70.
- 71.
- 72.
- 73.
- 74.
- 75.
- 76.
- 77.
- 78.
- 79.
- 80.
- 81.
- 82.
- 83.
- 84.
- 85.
- 86.
- 87.
- 88.
- 89.
- 90.
- 91.
- 92.
- 93.
- 94.
- 95.
- 96.
- 97.
- 98.
- 99.

100.
101.
102.
103.
104.
105.
106.
107.
108.
109.
110.
111.
112.
113.
114.
115.
116.
117.
118.
119.
120.
121.
122.
123.
124.
125.
126.
127.
128.
129.
130.
131.
132.
133.
134.
135.
136.
137.
138.
139.
140.
141.
142.
143.
144.
145.
146.
147.
148.

