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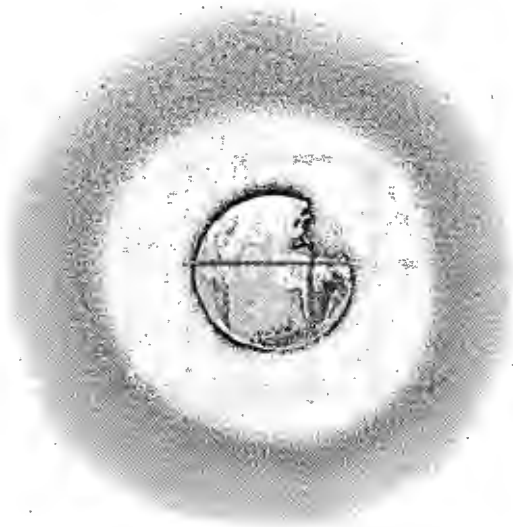
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United Nations Environment Programme

1988 ANNUAL REPORT

of the Executive Director

Nairobi, 1989



United Nations Environment Programme

1988

of the Executive Director

**ANNUAL
REPORT**

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ABBREVIATIONS

ACC	Administrative Committee on Co-ordination
ACSAD	Arab Centre for the Study of Arid Zones and Dry Lands
ALEC SO	Arab League Educational, Cultural and Scientific Organization
AMCEN	African Ministerial Conference on the Environment
ANEN	African NGOs Environment Network
ASEAMS	Association of South-East Asian Marine Scientists
ASEAN	Association of South-East Asian Nations
ASPEI	Association of South-Pacific Environmental Institutions
AVHRR	Advanced very-high-resolution radiometer
BAPMoN	Background Air Pollution Monitoring Network
CEFIGRE	International Training Centre for Water Resources Management
CIDIE	Committee of International Development Institutions on the Environment
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMEA	Council for Mutual Economic Assistance
COMIDES	Dakar Ministerial Conference on Desertification
CPPS	Permanent Commission for the South-Pacific
DANIDA	Danish International Development Agency
DESCON	Consultative Group for Desertification Control
DOEM	Designated Officials for Environmental Matters
ECA	Economic Commission for Africa
ECE	Economic Commission for Europe
ECG	Ecosystem Conservation Group
ECLAC	Economic Commission for Latin America and the Caribbean
ECOSOC	Economic and Social Council
EEC	European Economic Community
ELC	Environment Liaison Centre
EMINWA	Environmentally sound management of inland waters
ESCAP	Economic and Social Commission for Asia and the Pacific
ESCWA	Economic and Social Commission for Western Asia
FAO	Food and Agriculture Organization of the United Nations
GATT	General Agreement on Tariffs and Trade
GEMS	Global Environmental Monitoring System
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Pollution
GIS	geographic information system
GRID	Global Resource Information Database
IAEA	International Atomic Energy Agency
IARC	International Agency for Research on Cancer
IAWGD	Inter-agency Working Group on Desertification
IBM	International Business Machines
IBPGR	International Board for Plant Genetic Resources
ICC	International Chamber of Commerce
ICES	International Council for the Exploration of the Sea
ICIPE	International Centre of Insect Physiology and Ecology

ICSU	International Council of Scientific Unions
IDRC	International Development Research Centre
IEO	Industry and Environment Office (UNEP)
IFAD	International Fund for Agricultural Development
IGADD	Intergovernmental Authority on Drought and Desertification
IIASA	International Institute for Applied Systems Analysis
IIED	International Institute for Environment and Development
IISI	International Iron and Steel Institute
IITA	International Institute of Tropical Agriculture
ILEC	International Lake Environment Committee
ILO	International Labour Organisation
IMO	International Maritime Organization
IOC	Intergovernmental Oceanographic Commission
IPAI	International Primary Aluminium Institute
IPCS	International Programme on Chemical Safety
IPIECA	International Petroleum Industry Environmental Conservation Association
IPU	Inter-Parliamentary Union
IRPTC	International Register of Potentially Toxic Chemicals
ISSS	International Soil Science Association
IUCN	International Union for Conservation of Nature and Natural Resources
IUFRO	International Union of Forestry Research Organizations
JPO	Junior Professional Officer
LEAP	Less Developed Country Energy Alternatives Planning System
MARC	Monitoring and Assessment Research Centre, University of London
MIRCEN	microbiological resources centre
MSDN	International Microbial Strain Data Network
NASA	National Aeronautics and Space Administration, United States
NFP	national focal point
NGO	non-governmental organization
NOAA	National Oceanic and Atmospheric Administration, United States
OAU	Organization of African Unity
OECD	Organisation for Economic Co-operation and Development
PEEM	Panel of Experts on Environmental Management for Vector Control
PPSC	Programme and programme support costs
ROA	Regional Office for Africa (UNEP)
ROPME	Regional Organization for the Protection of the Marine Environment
SACEP	South Asia Co-operative Environment Programme
SADCC	Southern African Development Co-ordination Conference
SASTF	special account for support to trust funds
SASREG	Southern Africa Sub-regional Environment Group
SCOPE	Scientific Council on Problems of the Environment
SNA	System of National Accounts
SPC	South Pacific Commission
SPEC	South Pacific Bureau for Economic Co-operation
SPREP	South Pacific Regional Environment Programme
TVE	Television Trust for the Environment

UN	United Nations
UNCRD	United Nations Centre for Regional Development
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNDTCT	United Nations Department of Technical Co-operation for Development
UNEP	United Nations Environment Programme
UNEP/COM	USSR Commission for UNEP
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNCHS	United Nations Centre for Human Settlements (Habitat)
UNIDIR	United Nations Institute for Disarmament Research
UNIDO	United Nations Industrial Development Organization
UN/PAAERD	United Nations Programme of Action for African Economic Recovery and Development 1986-1990
UNSO	United Nations Sudano-Sahelian Office
WCIP	World Climate Impact Studies Programme
WCMC	World Conservation Monitoring Centre
WICEM	World Industry Conference on Environmental Management
WHO	World Health Organization
WMO	World Meteorological Organization
WorldWIDE	World Women in Defence of the Environment
WRI	World Resources Institute
WWF	World-Wide Fund for Nature

Chapter I

THE YEAR IN RETROSPECT

THE YEAR IN RETROSPECT

1. Since my first Annual Report, in 1982, I have regularly tried to characterize the year under review in a single word or phrase. Thus, I described 1982 as “disappointing” in that commitments and resources failed to match the words and declarations at the commemorative session of the Governing Council ten years after the Stockholm Conference; 1983 was the year in which the International Community took a “fresh look at the environment” and called for an Environmental Perspective to the Year 2000 and Beyond; 1984 was a year of special “outreach” efforts to spread concern about the environment to a wider public; I described 1985 as a year of “inventory and stock-taking”; I saw 1986 as a year of “crises”, with the nuclear explosion at Chernobyl, chemical poisoning and pollution of the Rhine by the Sandoz accident at Basel, and the financial crisis of the United Nations; and, finally, I characterized 1987 as a “milestone” year, with the adoption by the General Assembly of the Environmental Perspective to the Year 2000 and Beyond, the unanimous welcome accorded to the report of the World Commission on Environment and Development, agreement between two superpowers to reduce their nuclear weapons, and the signing of the Montreal Protocol on Substances that Deplete the Ozone Layer.

2. None of the above descriptions or characterizations fits 1988. It was not, for the environmentalist, a headline year in one sense: during 1988, the world witnessed neither spectacular breakthroughs nor major environmental disasters, although the terrible earthquakes, droughts, hurricanes, floodings and other “natural” catastrophes were undoubtedly exacerbated, if not caused, by human activity. So how, then, should the year 1988 be characterized from the standpoint of the environmentalist?

3. I would characterize 1988 as *the year in which “environment” became a top item on the world’s political agenda.*

4. During the year, a spate of environmental emergencies around the world produced great public anxiety about the earth’s environment. Summer heat waves and droughts in North America, China and elsewhere, disastrous flooding in Bangladesh, mud-slides in Thailand, an ozone hole over Antarctica, earthquakes in the Soviet Union and China, the outrage aroused by the dumping of hazardous wastes in developing countries, the sight of beaches littered with medical wastes, excessive ozone in cities, and continuing forest loss from acid rain brought a cascade of concern about the danger of environmental degradation. Out of this concern emerged a strong and widespread feeling that our actions were triggering environmental destruction and that we were pressing further and further beyond limits we should never have exceeded. Sir Francis Bacon’s seventeenth century dictum, “Nature, to be commanded, must be obeyed”, suddenly assumed an ominous tone.

5. The political response to this growing concern was quick and strong. Environmental themes were prominent in the election campaigns in Sweden and the United States; the World Conference on the Changing Atmosphere in Canada called for bold action to combat climate change; the Council of Ministers of the Organization of African Unity meeting in Addis Ababa called the dumping of toxic waste in Africa a crime against Africa and the African people¹; in Toronto, the final communiqué of the economic summit of the leaders of seven major industrial nations emphasized environmental concerns; at a meeting in Cyprus, foreign ministers from countries of the non-aligned movement devoted a major chapter of

their final statement to environmental issues; the meeting of Commonwealth finance ministers called attention to the close link between poverty, environmental degradation and long-term sustainable development; the United Nations General Assembly, in a year in which it would not normally discuss the environment, added two new environment-related items to its agenda and adopted four resolutions on environmental questions.² Also at the General Assembly, Mr. Gorbachev, General Secretary of the Communist Party of the USSR proclaimed that environment and debt relief were as important to peace as arms reduction, and Mrs. Thatcher, Prime Minister of the United Kingdom, called for a world ozone conference.

6. The depth and breadth of this public concern and the widespread intensity of the political reply established a positive and receptive climate for addressing domestic and international environmental needs. Unlike the anxiety over industrial pollution in the late 1960s and early 1970s, which produced strong national action to address pollution, and, incidentally, led to the establishment of UNEP, the current concern has broadened to encompass wider international and global issues.

7. In 1987, the comprehensive discussion of sustainable development reinforced the knowledge that preserving the environment was central to long-term economic development. In 1988, with the public revelation of the practice of uncontrolled dumping of hazardous wastes, came the recognition that environmental and health matters can also become serious sources of conflict among States. In our efforts to protect the stratospheric ozone shield, we have come to learn that environmental protection is a planetary problem in which all countries must share responsibilities. And while the greenhouse effect has even greater planetary implications, it also spotlights the security aspects of ecological change.

8. Throughout 1988, UNEP carried out several programmes to address some of these pressing environmental issues. Let me briefly describe some of the most important.

9. None of our activities has been more politically charged than that aimed at the conclusion of a global convention on the control of hazardous wastes. Every year, several million tons of hazardous wastes are moved across international boundaries—a million tons or so crosses from West to East Europe alone. In the second quarter of 1988, the media was full of reports of dumping of hazardous wastes in third world countries, primarily in Africa. Although the ensuing outcry was new, the problem was not. The North-South flow is of unknown dimensions and a South-South flow is developing. It is a billion dollar business, and a dangerous one, sometimes marked by deception on the part of exporters and ignorance or greed on the part of receivers. It has outraged Governments and public opinion.

10. The effort to address the hazardous wastes threat started in UNEP in 1981 with the recommendation of the Montevideo Meeting of Senior Government Officials Expert in Environmental Law, which considered the transport, handling and disposal of toxic and hazardous wastes as a priority matter and foresaw, at the world level, the preparation of guidelines, principles or conventions.³ A year later, the Governing Council authorized me to establish a working group of experts on the environmentally sound management of hazardous wastes,⁴ and in 1987 the Council, by its decision 14/30, approved the Cairo Guidelines and Principles for the Environmentally Sound Management of Hazardous Wastes, as formulated by that working group, and authorized me to convene a working group to prepare a global convention on the control of transboundary movement of hazardous wastes. The *Ad Hoc* Working Group established pursuant to that decision held three sessions in 1988. In addition, I conducted numerous consultations, all of which were intended to lead to an international convention that will make for practical and workable

control; encourage a reduction in the generation of wastes, as well as waste disposal near the point of generation; allow movement across boundaries only under environmentally sound conditions; and, assist developing countries in building the needed capacity for the effective management of hazardous wastes.

11. The negotiations have been long and arduous, but I am encouraged by the fact that all parties concerned have been striving, in a constructive and co-operative manner, to reach agreement.

12. Of the multitude of threats facing the global environment, none is greater than the changes taking place in our atmosphere. Man-made chemicals are destroying the ozone layer, which shields all life from the sun's lethal ultraviolet rays. UNEP has spent more than a decade of scientific and diplomatic work on this subject. In September 1988, three and a half years after its adoption, the Vienna Convention for the Protection of the Ozone Layer, having received the required number of ratifications, entered into force. By the end of the year, the necessary conditions had also been met for the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer to enter into force on 1 January 1989. The Convention and Protocol are the first truly global agreements on the protection of the atmosphere. An instrument for genuine anticipate-and-prevent action, the Protocol lays down pre-emptive steps to be taken to stop an emerging problem through an agreed series of far-reaching and costly controls without waiting for the absolute scientific proof of cause and effect that might come too late to avoid irreparable damage.

13. The task, however, is not completed; work is continuing. In November, UNEP and WMO organized a series of meetings in The Hague with Governments, scientists and industry at which scientific concern was expressed about the continuing danger of ozone depletion. But those meetings also provided reassurance from the industry that chemical substitutes for CFCs, substitutes that would not be ozone-depleting and would also not contribute to the greenhouse effect, would soon be available in reasonable quantities and at affordable prices. It was evident that industry had received the message and was gearing up to meet the challenge.

14. The need to involve all Governments—developed and developing—in planetary management programmes is nowhere so evident as in addressing the greatest environmental challenge now facing us—climate change. Many scientists are now convinced that pollution is creating a greenhouse effect, causing the world climate to warm and threatening to bring about changes without parallel in the history of human civilization, raising sea levels and upsetting food supplies world-wide. Warning signals are being sounded. The greenhouse problems are man-made and global. We are all in the greenhouse together. No effective solution is possible without broad international co-operation, and this will require sacrifice.

15. Again, UNEP and the environmental community are addressing the issue. Within the UN system, UNEP together with WMO and ICSU has been conducting scientific and effects studies and examining policy response options under the umbrella of the World Climate Programme. On all continents, UNEP is carrying out national and regional studies of the impact of sea-level rise. UNEP joined Canada in supporting the 1988 Conference on the Changing Atmosphere and co-sponsored the Netherlands study on European climate impacts.⁵ Together with the Director-General of Unesco, I initiated a meeting of the heads of UN agencies to discuss the climate issue in Paris last July. The subject of climate change is now on the April 1989 agenda of the Administrative Committee on Co-ordination, chaired by the Secretary-General and composed of the executive heads of all UN agencies.

16. Throughout the year, UNEP worked closely with WMO and Governments towards the establishment of the Intergovernmental Panel on Climate Change, which is the principal intergovernmental mechanism to carry out internationally co-ordinated scientific studies and potential impact assessments and to develop response strategies. A total of 140 representatives from 30 Governments and 19 international organizations participated in the Panel's first session in November 1988.⁶ It is hoped that the Panel will have a full report by mid-1990 and that the report could subsequently be considered at the second World Climate Conference.

17. Clearly, the issue of climate change is UNEP's highest priority.

18. A point worth recalling as we address climate change is that many of the actions required to deal with the greenhouse effect are sound for other reasons. Energy conservation and efficiency save money and resources. Reduction of emissions into the atmosphere would curtail air pollution and acid rain. Protecting and expanding forests provides ground cover, aids agriculture, prevents soil erosion, and protects watersheds, rivers and dams. Climate change only makes it more urgent to take actions that we should be taking anyway to provide environmentally sound development.

19. Another item high on UNEP's agenda is the conservation of biological diversity. The world-wide loss of species—the biological diversity crisis—is attracting political and public attention. The reason is that biological diversity is a common global resource, like the atmosphere, from which all nations benefit and from whose diminishment all will suffer. It is a common interest in which all have a common responsibility. Many species are on the verge of extinction—this is becoming the era of extinctions. Estimates of the rate and percentage of extinction vary—but they all agree on the seriousness of the loss. It is enormous. A conservative estimate is that, over the next several years, a million or more species are at serious risk.

20. There are, indeed, a series of treaties protecting endangered species, migratory animals and birds, wetlands, whales, and biosphere reserves. But there are gaps and overlaps—so UNEP, in co-operation with IUCN, is looking at the possibility of a global umbrella convention to conserve biological diversity. In this era of extinctions of species this is an urgent matter—for both economic and ethical reasons. In recognition of this fact, the Governing Council, by decision 14/26, requested me to establish an *ad hoc* working group of experts to investigate the desirability and possible form of an umbrella convention to rationalize current activities in this field. I convened such a working group in November 1988 and it made a series of proposals for further work in this field, proposals which will be before the Governing Council at its fifteenth regular session.⁷

21. On these and other fronts, UNEP has been active and can point with pride to the progress achieved during 1988. UNEP is unique and uniquely placed to catalyse and co-ordinate work for the environment. Despite the relatively small size of the secretariat, UNEP's mandate is as wide as the world. Its programmes and projects—there have more than 1,000 of them to date—cover the entire ecology of the planet: seas and rivers, soils and air, forests and wildlife, coasts and mountains, deserts and lakes. Keeping this watch on the world leads UNEP into other fields, because the web of the environment is complex. The process of protection has many elements and links. Thus, UNEP has also to be active in the areas of energy, industry, health, law, education, training, and, of course, information, including publishing and film-making.

22. UNEP works with allies and associates in all this, and there are many of them. There are the UN agencies—for whose environmental work UNEP acts as co-ordinator; there are

the NGOs—some 7000 at the latest count; and there are the scientists and hundreds of research centres.

23. UNEP, and indeed environmentalists the world over, are gratified that in 1988 environment became a top item on the world's political agenda. The message has sunk home. But despite gratification from the knowledge that we, as environmentalists, are no longer in the wings of the world stage, and despite the feeling of deep satisfaction at having had a year of solid work and visible achievements, I end the year with a feeling of uneasiness. Environment may be on the lips of the public and the politicians, but it has not yet reached their pocket-books. In 1988, contributions to the Environment Fund reached the highest level in nominal terms since the inception of UNEP nearly two decades ago, but, in terms of purchasing power, they were not up to the level of the funds at our disposal in 1979, a full decade ago. And this pattern is still reflected in government budgets where environment is still viewed as a type of "luxury" item, to be cut at the first signs of financial constraints. The potential dangers inherent in global warming, the depletion of the ozone layer, deforestation, desertification, soil erosion, acid rain and the pollution of inland waters and our seas and oceans are enormous. Staggering costs are involved in merely restoring our environment. The longer we procrastinate, the more it will cost to heal the wounds. And if we procrastinate too long, we may soon reach the point of no return, at which the damage becomes irreparable.

24. I would not wish to end this review of 1988 on a pessimistic note. We are now, more than ever before, aware of the dangers and threats to our human environment, indeed to life on this planet. We are gearing up to meet the challenge, but we must match declarations and statements with actions—and soon. It is high time that environment was at the top not only of the world's political agenda, but of its financial, economic and social agendas as well.

Notes

- 1 Resolution CM/Res.1153 (XLVIII), paragraph 1, of the Council of Ministers of the Organization of African Unity.
- 2 For a full account of the environment-related resolutions and decisions adopted by the General Assembly at its forty-third session, see chapter IV, paragraphs 24-37, of the present report.
- 3 UNEP/GC.10/5/Add.2, annex, chap. II, para. 2 (c).
- 4 Governing Council decision 10/24, para. 1 (b).
- 5 See chapter III, paragraphs 39-40 below.
- 6 See also chapter III, paragraphs 36-37 below.
- 7 See UNEP/GC.15/9/Add.2.

Chapter II

THE CO-ORDINATING AND CATALYTIC ROLE OF UNEP

Co-ordination within the UN System

Co-ordination with supporting organizations

Outreach

**Committee of international development
institutions on the environment (CIDIE)**

Clearing-house

THE CO-ORDINATING AND CATALYTIC ROLE OF UNEP

1. Dictionaries define “co-ordinating” as “bringing into proper relation”, and “catalytic” describes the effect of an agent of change. The two adjectives do, indeed, cover so much of the central work of UNEP that this chapter is best limited to a summary and overview. More details of UNEP activities and projects are to be found elsewhere in this report. In 1988 UNEP’s principal catalysing successes were the follow-up to the Montreal Protocol, acceleration of study of and mobilizing the organization to address climate change, and progress towards an agreement to control international movements of hazardous wastes. These measures are described in detail in the following chapter.

2. UNEP’s terms of reference are unique within the UN system. UNEP is not an environmental bank or funding institution. It does, however, provide some financial support to others for environmental activities. Although UNEP carries out a limited number of projects on its own, it was not established to be the UN body responsible for executing environmental programmes and activities, along the same lines as, for example, WHO or FAO in their fields.

3. UNEP’s role, as defined by the General Assembly and the Governing Council, is one of co-ordinating, catalysing and stimulating environmental action, primarily—but not exclusively—within the UN system. UNEP also works with and through the scientific community, intergovernmental organizations and non-governmental organizations (NGOs). Most environmental activities implemented by the UN system have little or no direct UNEP participation. Within their mandates, ILO, FAO, WHO, Unesco, WMO, and others have long been executing environmental projects, some pre-dating the establishment of UNEP in 1973.

4. UNEP is perhaps best portrayed as the world’s environmental “ginger group”. It pushes, pulls, persuades and prods the UN system, Governments, scientists, business and the media into environmental action.

5. UNEP exercises its co-ordinating and catalytic role in many ways—from policy planning and programming to support for grass-roots groups. The co-ordinating and catalytic elements are in every activity, project and programme of UNEP.

CO-ORDINATION WITHIN THE UN SYSTEM

6. System-wide co-operation on environmental matters was pursued actively in 1988, stimulated particularly by the 1987 reports of the World Commission on Environment and Development and the Environmental Perspective to the Year 2000 and Beyond and by the growing international awareness of environmental issues. This co-operation was carried out at the highest level through the regular meetings of the Administrative Committee on Co-ordination (ACC), which is chaired by the Secretary-General of the UN, with the participation of the executive heads of the specialized agencies and senior officials of the UN Secretariat.

7. Every year, ACC considers and approves an annual report to the Governing Council, prepared with the assistance of the Designated Officials for Environmental Matters (DOEM). At its October session, ACC approved its 1988 report, which will be submitted to the fifteenth session of the Council (UNEP/GC.15/8/Add.3). ACC decided, however, that one section of the report should be completed later by the Executive Director, with the assistance of DOEM, to reflect the ACC discussion and take account of developments in the General Assembly. This procedure was used to ensure that the report reflected adequately decisions on such issues as climate change and hazardous wastes.
8. The main co-ordination issues considered by ACC in 1988 were sustainable and environmentally sound development, including the integration of environmental considerations into development planning and projects, the revision of the second system-wide medium-term environment programme, and emerging environmental issues.
9. ACC agreed to contribute to the development of the new International Development Strategy in the spirit of Governing Council decision SS.I/1 (see chap. IV, below), which emphasized that sustainable and environmentally sound development should be one of the main objectives of the Strategy.
10. ACC is seeking to strengthen system-wide co-operation to assist Governments in selected priority areas, including the integration of environmental considerations into development, potential climate change, and other environmental issues of particular significance. ACC decided to consider these questions at its first regular session in 1989.
11. At its first special session, in 1988, the Governing Council approved the system-wide medium-term environment programme for 1990-1995, on the basis of a draft submitted by ACC, and invited ACC to prepare a revised programme of the programme for submission to the Council at its sixteenth session, in 1991. ACC expressed the view that presentation to the seventeenth session of the Council in 1993 would enable the revision to benefit from the results of the evaluation of the first system-wide medium-term programme, discussions in the General Assembly and the outcome of various meetings and conferences.
12. ACC noted the actions taken by relevant UN bodies in respect of three emerging environmental issues, namely climate change, biological diversity and hazardous wastes.
13. The groundwork for UN system-wide co-operation in environmental matters is laid by the Designated Officials for Environmental Matters (DOEM). In 1988, DOEM focused attention on implementation of General Assembly resolutions related to sustainable development, the joint preparation of the UNEP programme budget for the period 1990-1991, and the evaluation, monitoring and revision of the system-wide programme. In accordance with the views expressed by ACC, informal consultations were held between UNEP and its partners on the integration of environmental considerations into development. DOEM also assisted the Executive Director in the finalization of proposed goals and targets for UNEP for 1995.
14. Exchanges of views took place in 1988 between UN bodies and organizations on the reporting requirements called for by General Assembly resolutions 42/186 on the Environmental Perspective and 42/187 on the report of the World Commission on Environment and Development.
15. As recognized in the second medium-term programme, DOEM, the co-ordinating mechanism for the system-wide environment programme, has already shaped the content and timing of the planning processes of the organizations and bodies of the UN system, in spite of the difficulties caused by different planning schedules. During 1988, 63 out of a total

of 276 ongoing UNEP projects were being implemented in co-ordination with other UN agencies and bodies, including ECA(1), ECE(2), ECLA(2), ECWA(1), ESCAP(2), FAO(12), IAEA(3), ILO(2), IMO(1), UNCHS(2), UNDTTC(3), Unesco(13), UNSO(3), WHO(13), and WMO(3). These co-operating agencies accounted for commitments of \$4,248,678, representing 15.4 per cent of total 1988 Fund and Fund Programme Reserve commitments. UNEP continued work with UN bodies on initiatives for addressing the African crisis, including the Cairo Programme for African Co-operation, the United Nations Programme of Action for African Economic Recovery and Development 1986-1990 and the UN Plan of Action to Combat Desertification. In 1988 UNEP co-ordinated preparations for a UN inter-agency working group meeting to be held in 1989 to review the implementation of the Cairo Programme. In co-operation with ECA, UNDP and Unesco, UNEP participated in preparations for an African regional conference on environment and development to be held in June 1989 in Kampala, Uganda.

16. UNEP co-ordinates the implementation of the Plan of Action to Combat Desertification by organizations of the UN system through the mechanism of the Inter-Agency Working Group on Desertification (IAWGD). The Group also includes some international and intergovernmental organizations outside the UN system. In 1988, the Group focused on training of nationals of countries affected by desertification. In 1987 and 1988 UNEP organized 11 courses and a seminar in which a total of 224 participants received training in dryland management, monitoring and assessment of desertification and public information. Other IAWGD members reported training a further 950 people in related subjects. UNEP also co-operated with ESCAP, UNDP, UNEPCOM, Unesco and WMO in establishing an Asian Regional Network of Research and Training Centres on Desertification, with a membership of 17 Governments.

17. UNEP consulted with the World Food Council, the World Food Programme and the International Fund for Agricultural Development on programmes for achieving food security through environmentally sound agricultural development. It consulted with GATT on reviving the Group on Environmental Measures and International Trade to consider the effect which environmental standards in importing countries might have on exports. UNEP also proposed technical co-operation with GATT and UNCTAD to assist developing countries meet stringent environmental standards imposed by importers.

CO-ORDINATION WITH SUPPORTING ORGANIZATIONS

18. In UNEP terminology, other UN system agencies and organizations are referred to as "co-operating agencies". Organizations outside the UN system, both non-governmental and intergovernmental, that work together with UNEP in the implementation of projects and activities, are referred to as "supporting organizations". In the year under review, supporting organizations implemented 123 out of a total of 276 ongoing UNEP projects, and accounted for commitments of \$8,681,463, representing 32 per cent of total 1988 commitments.

Intergovernmental organizations

Africa

19. UNEP continued to work with the Organization of African Unity (OAU) for the implementation of the United Nations Programme of Action for African Economic Recovery and Development and the Cairo Programme for African Co-operation. The two

organizations worked together to study the environmental dimensions and impacts of emergencies; UNEP provided inputs to a meeting of representatives of the UN system and OAU, convened, *inter alia*, to strengthen co-ordination for more effective responses to emergency situations. At the request of the OAU Chairman, UNEP and OAU embarked on preparations for the first pan-African summit on the co-ordination of major regional initiatives to address the African crisis, to be held in June 1989.

20. Throughout 1988, UNEP continued to promote closer co-operation with subregional organizations in Africa. UNEP staff attended a meeting of the Council of Ministers of the Southern Africa Development Co-ordination Conference (SADCC) in January, and in May, the Southern Africa Subregional Environment Group, whose members are the Directors of the Environment of the SADCC countries, met with UNEP's assistance. UNEP and SADCC continued their co-operation towards the implementation of the integrated development plan of the Zambezi River basin.

21. UNEP also gave support to the Lake Chad Basin Commission on a feasibility study for the preparation of a plan of action for the environmentally sound development of the Lake Chad basin. Links were maintained with the Intergovernmental Authority on Drought and Development (IGADD) and the Dakar Ministerial Conference on Desertification (COMIDES).

22. As the secretariat of the African Ministerial Conference on the Environment (AMCEN), UNEP continued to assist in the organization of eight regional technical co-operation networks and in the supporting committees dealing with deserts and arid lands, river and lake basins, seas, forests and woodlands, (for the structure of AMCEN, see figure 1). In co-operation with other UN bodies, UNEP also continued to co-ordinate regional projects designed to achieve self-sufficiency in food and energy; it convened a donors' meeting in Nairobi in March attended by representatives of 19 African countries and 13 donor countries, 8 UN bodies and the OAU.

Asia and the Pacific

23. In 1988, through its Regional Office, UNEP made special efforts to catalyse additional outside resources for specific projects. Co-operation with the South Asia Co-operative Environment Programme (SACEP) was strengthened. Assistance was also provided for some of the actions of the ASEAN (Association of South-East Asian Nations) programme on environment. In view of the heightened concern of ASEAN countries about the socio-economic consequences of global climate change, GEMS assisted in commissioning national case-studies in Indonesia, Malaysia and Thailand. UNEP has catalysed support from several international organizations, such as FAO, Unesco, IOC, IMO, WHO and WMO, for the implementation of high-priority activities under the East Asian Seas Action Plan.

Europe

24. UNEP continued to follow closely the activities of the Organization for Economic Co-operation and Development (OECD), and played an active role, particularly in the Environment Committee, in consideration of transfrontier movements of hazardous wastes, accidents involving hazardous substances, and the follow-up to the report of the World Commission on Environment and Development. UNEP also took part in the OECD Development Assistance Committee's deliberations on the environment aspects of aid to developing countries.

25. UNEP took part in the ninth meeting of the Baltic Marine Environment Protection Commission (the Helsinki Commission) held in February in Helsinki which issued a declaration aiming at a substantial reduction, not later than 1995, of the substances most harmful to Baltic ecosystems (heavy metals, toxic or persistent organic substances and nutrients). UNEP representatives also attended the extraordinary session of the Nordic Council in Helsingor, Denmark in November, when a comprehensive environment programme for the Nordic countries was discussed.

26. UNEP maintained close contacts with the Council of Europe, especially with regard to its European Campaign on North-South Interdependence and Solidarity, aimed at raising public awareness of the relationship between Europeans and third world countries. UNEP was represented at the Madrid Conference, the culminating political event of the Campaign, in June 1988. The Conference issued the Madrid Appeal, which emphasizes the need for more co-operation rather than confrontation in an increasingly interdependent world.

Latin America and the Caribbean

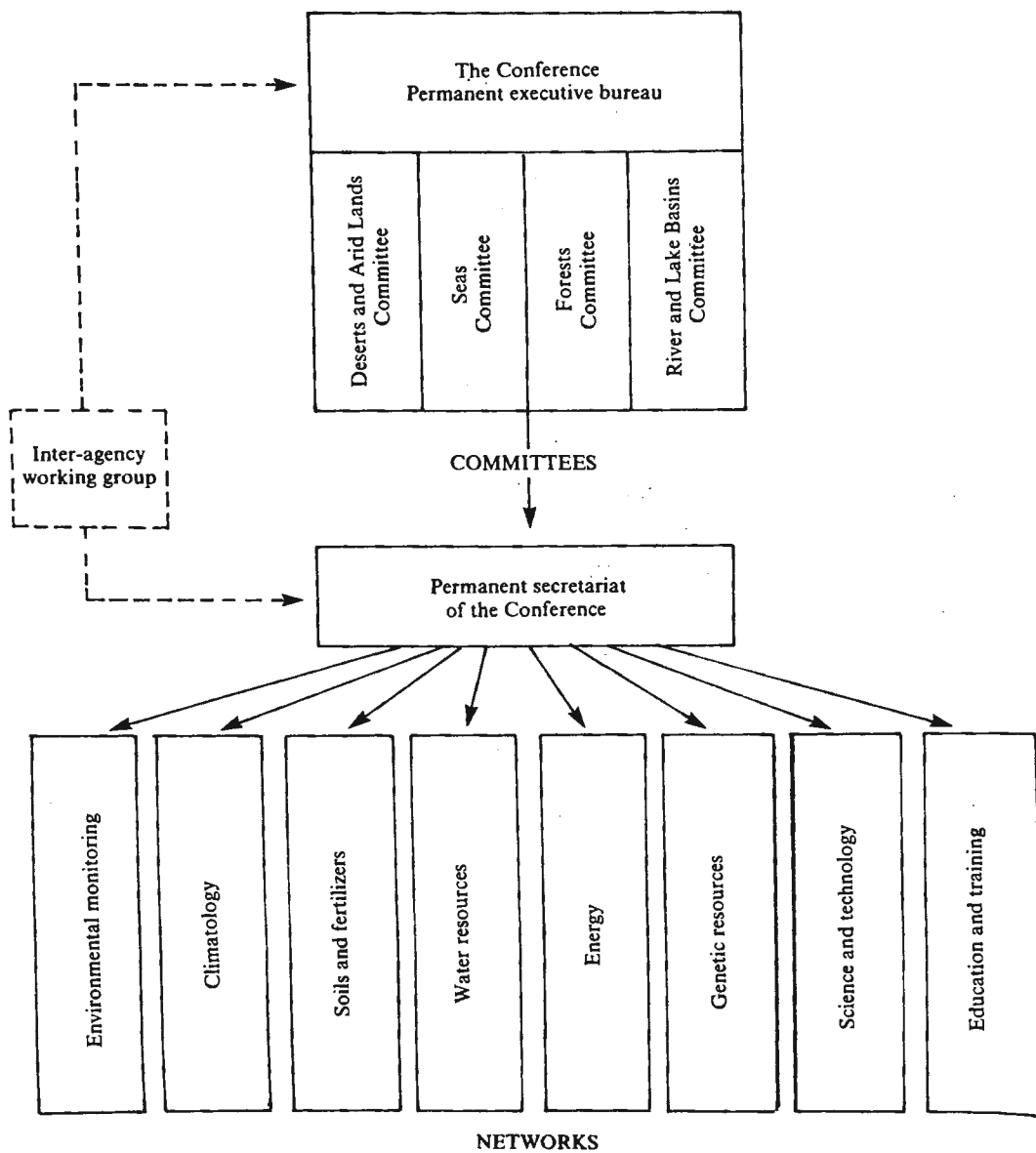
27. In 1988, UNEP assisted Latin American and Caribbean Governments in putting into practice an effective regional co-operation system on the environment. Governments were urged to take into consideration environmental issues in their development goals. By the end of the year, as a result of UNEP's catalytic role, 13 Governments were preparing digests of environmental legislation, organizing meetings of legal experts and providing advisory services in environmental law in the region.

28. Through its Regional Office, UNEP, co-operated with the Andean Pact in the implementation of a programme for the conservation and management of the natural resources and ecosystems shared by the member countries (Bolivia, Colombia, Ecuador, Peru and Venezuela).

West Asia

29. The first meeting of the Council of Arab Ministers responsible for Environment was held in Tunis in October 1988. This was preceded by a meeting of the Executive Bureau of the Council which UNEP has assisted in formulating project documents on desertification control, the control of industrial pollution, and environmental education and awareness. The three projects were ratified by the Council.

Figure 1
Institutional structure of the African Ministerial Conference on the Environment



OUTREACH

30. In 1983, the Governing Council acknowledged that the state of the world's ecological systems reflects not only the actions (or inaction) of Governments but also the *aggregate* of human behaviour at all levels of society and authorized the UNEP secretariat to reach out to specific publics in an attempt to engage new leadership in environmental management in furtherance of sustainable development.

31. Following that decision, UNEP identified the public leadership groups of youth, women, religious leaders, industry, parliamentarians and health leaders as strategic leadership groups and developed strategies to engage these groups with UNEP.

32. These constituencies are important because of their specific relationships to environmental resources—forests, coastal areas, soil use, consumer demand patterns—as well as to cultural priorities, values, ethics and educational traditions. Without the active engagement of these publics in environmental management and sustainable development, UNEP and Governments are without the broad base of support necessary to achieve the goals set in international, regional and national forums.

Women

33. Beginning in 1984, UNEP launched an extensive campaign in conjunction with the UN Women's Decade to encourage women to assume new roles and responsibilities in environmental management. The goals of UNEP's Outreach strategy for women are to:

- (a) increase world awareness of the unique environmental perspectives of women;
- (b) advance the participation of women in forums addressing environmental management;
- (c) encourage women to network with each other to reinforce their environmental management initiatives; and
- (d) increase the literacy of women about environmental issues so that they can more effectively participate in advancing them.

34. In 1984 a Senior Women's Advisory Group on Sustainable Development, consisting of 20 women prominent in the world community, was established to promote the involvement of women in environmental management. In 1988 the Group continued to contribute to international meetings, which highlighted the issue of women and the environment. These forums included the International Council on Social Welfare Asia and Pacific 1988 World Environment Day Workshop on "Women and environment for sustainable development" in Bangkok. UNEP also helped fund the 1988 Cairo Conference on "Environmental protection of the River Nile basin and the role of women".

35. UNEP has created a mailing list of over 1,000 women leaders. With direct UNEP assistance, an international non-governmental organization, WorldWIDE (World Women in Defence of the Environment) has been established to foster networking and co-operation among women in environmental management.

36. In 1988 UNEP, Canada and Finland committed funds for the first African Women's Assembly in support of the Cairo Programme for African Co-operation, to be held in 1989. Also in 1988, UNEP completed plans and committed funds for an Arab League meeting on Women and the Environment, to be held in Tunis in early 1989.

NGOs

37. Environmental NGOs are the infantry, and sometimes the artillery, of the global environmental cause. UNEP considers their work as crucial.

38. UNEP's approach with regard to NGOs is twofold. UNEP catalyses and supports the establishment of international and regional environmental NGO networks, and at the same time draws upon relevant individual NGOs in all regions in planning and implementing of programmes and projects.

39. On the global and regional levels, UNEP maintained during 1988, close contacts with the Nairobi-based Environment Liaison Centre (ELC) and other regional and international NGOs. ELC serves a network of over 6,000 NGOs worldwide and keeps the NGO community informed about UNEP. UNEP has supported ELC's bi-monthly *Ecoforum* since its inception in 1976.

40. In 1988, UNEP continued its backing of the African NGO community, mainly through the African NGOs Environment Network (ANEN), whose membership includes over 280 African NGOs in 29 countries. In November 1988, in co-operation with ANEN, a workshop was held in Nairobi on improving African NGOs' collaboration with Governments, aid agencies and the UN system. In desertification control, a UNEP-funded project, started in 1987, enabled ANEN to support village projects by NGOs in Botswana, Burkina Faso, Kenya and Senegal.

41. UNEP continued to produce information material to help NGOs and support again was provided to the Union of African Journalists which reaches African journalists in 30 countries through its magazine "African Journalist". The magazine seeks better media coverage of the environment.

42. At the programme and project level, the importance the Governing Council attaches to co-operation with NGOs is reflected in decision GC.14/8, in which it urged the Executive Director to systematically involve NGOs in all programme efforts.

43. UNEP has made special efforts to work closely with NGOs in the implementation of the environment programme. Some examples of support:

- In the field of environmental assessment UNEP has increased its support to the programme on biogeochemical cycles of the Scientific Council on Problems of the Environment (SCOPE) and began to support for the ICSU's International Geosphere-Biosphere Programme. In collaboration with the World Resources Institute and IIED, UNEP published the book "Global Resources 1988-1989", an assessment of the resource base that supports the global economy. This can be considered as the 'world's most up-to-date resource guide'. The International Soil Science Association (ISSS) collaborates with UNEP in the preparation of a Global Soil Degradation Assessment.
- The East-West Center in Honolulu successfully collaborated in the year under review with UNEP's Development Planning Co-ordination Unit in economic appraisal of dryland degradation and rehabilitation.
- UNEP's co-operation with NGOs in the field of environmental management aims at strengthening the abilities of indigenous NGOs in developing countries. Representatives of those NGOs were, for example supported to attend workshops on regional research planning of the International Union of Forestry Organization (IUFRO).

Youth

44. UNEP mentioned its support to the Arab Office for Youth and Environment, Cairo, in its awareness project involving the publication of an Arabic Newsletter, pamphlets and training for Arab youth journalists.

45. A network of 12 UNEP Regional Youth Focal Points was established early in 1988 and a framework for their activities was agreed at a Youth Roundtable meeting in Nairobi during January, attended by 36 major voluntary youth organizations. Individuals selected as Focal Points have since spoken at major meetings on UNEP's behalf.

46. In January 1988, a UNEP officer took part in the World Conference of the Scouts Movements which has 16 million members in 120 countries. As a consequence, the meeting held in Melbourne passed a resolution committing it to close co-operation with UNEP. (Similar global collaboration with Girl Guides and Girl Scouts groups is underway, following contacts made at their 1987 World Conference in Kenya, reported upon in the 1987 Annual Report.)

Industry and the environment

47. Following the recommendations of the World Industry Conference on Environmental Management (WICEM), sponsored with UNEP assistance in 1984, the UNEP Industry and Environment Office, Paris, established additional direct links between developed and developing countries, and these links were strengthened during 1988.

48. Workshops on hazardous waste management were held in Kuala Lumpur and Mexico using funds from the Federal Republic of Germany. The workshops were attended by over 80 personnel from both environmental and industrial institutions. ILO and UNEP continued training activities for employers in conjunction with Employers' Associations; in 1988, seminars were held in Barbados, Jamaica, and Trinidad and Tobago. A directory of training resource material was prepared for publication in 1989 to assist trainers in presenting environmental issues. A workshop on clean technologies was held in Cairo in March 1988 with the co-operation of the Governments of Egypt and France. Following a high level UNEP/ICC meeting in January 1988, specific pilot projects are being launched in some countries, using industry assistance. As a first step, industrial environmental profiles were commenced for eleven countries to identify the most useful options. One of these, Mexico, is being studied in considerable depth to guide subsequent studies.

49. A significant part of UNEP's work is to stimulate and support environmental initiatives within other organizations. In this UNEP/IEO worked closely with industry associations. The annual meeting with trade associations brought further useful exchange of ideas. UNEP was active in the industry environment field with UNIDO, ILO, World Bank, WHO, OECD, EEC and ECLAC, including presentations at conferences concerned with industry and environment issues.

50. In 1988, UNEP's Industry and Environment Office made an important contribution to coping with serious problems of industrial accidents. A handbook on Community Awareness and Preparedness for Industrial Accidents at Local Level (APELL) was prepared and released at a conference in Paris in December 1988 hosted by the French Government. The handbook sets out a flexible, structure approach which enables Governments, industry and local leaders prevent and, if necessary, deal with serious industrial accident threats. The handbook is now in use in several countries. UNEP's programme on industrial accidents involves other international organizations, NGOs and industry associations.

51. Information useful to industry in planning safer and cleaner means of production continued to be developed for environmentally important industry sectors, such as metals and mining and oil as well as smaller activities such as metal finishing, wood preservation and tanning. A number of guides were published during 1988 covering oil terminals, nickel mining, and hazardous waste management (jointly with the World Bank and WHO) after close consultation with industries.

National committees for UNEP

52. The formation of National Committees for UNEP continued during 1988. New committees were formed in Czechoslovakia, France, the Syrian Arab Republic and the United Kingdom. There are now seven national committees, the others being in the Federal Republic of Germany, Kenya and the United States.

53. The United Kingdom Committee was launched on 8 June 1988. Its Chairman is Sir Peter Harrod, formerly the Permanent Secretary of the Department of the Environment and Chairman of the United Kingdom Committee for the European Year of the Environment.

54. On 1 May 1988 the Syrian Arab Republic established a National Environment Committee whose terms of reference were subsequently expanded to include acting as the National Committee for UNEP.

55. Consultations on the establishment of a French National Committee advanced during 1988. Mrs. Simone Veil, a former Minister of Health and former Chairman of the European Parliament, and Chairman of the European Year of the Environment, agreed to become Chairman of the French National Committee, which is expected to be formally established during 1989.

COMMITTEE OF INTERNATIONAL DEVELOPMENT INSTITUTIONS ON THE ENVIRONMENT (CIDIE)

56. CIDIE was established in 1980, when eight multilateral development funding agencies met under UNEP auspices in New York to sign a Declaration of Environmental Policies and Procedures Related to Economic Development. The agencies thus formally agreed to policies for the practical implementation of environmental management and protection measures and stated their concern for the inclusion of environmental factors in decisions on their financial assistance to developing countries.

57. CIDIE, which now has 14 members, held its ninth session in the headquarters of the World Bank, in Washington D.C., in June. The Committee conducted its annual review of member institutions progress in implementing the Declaration of Principles. The CIDIE members' intense level of activity in the field of the environment was noted, and the need for greater co-ordination in a number of fields underlined. The Committee asked its secretariat, which is based at UNEP headquarters, and funded by UNEP, to finalize and publish a report on "Action and interaction on environment matters—The history and potential of CIDIE" in early 1989. It also released committee report on the environment and structural adjustment. It will be part of a series of CIDIE publications bearing the newly designed CIDIE logo.

58. It was agreed that CIDIE should be open to a selected number of new members to enable it to operate more effectively and credibly. Consensus was reached on a distinction between full membership and observer status, with full membership reserved for inter-governmental bodies, on application. The Committee also agreed on a five-year programme of work, and underlined the need for a financially strong and well-staffed secretariat within UNEP. In the latter half of 1988 UNEP recruited another Professional staff member to work on CIDIE matters and initiated the recruitment of a high-level staff member to co-ordinate the work of the CIDIE secretariat, in keeping with the request of the Governing Council as expressed in its decision 14/7.

CLEARING HOUSE

59. At its fourteenth session, the Governing Council, in decision 14/6 requested the Executive Director to arrange for an external evaluation of the clearing-house mechanism to be conducted and for the results to be presented to the Governing Council. The evaluation was carried out in 1988. The report of the Executive Director is found in document GC.15/5/Add.1. By the same decision, the Governing Council requested the Executive Director to report on progress in clearing-house activities in his report to the Governing Council. The present section is a summary of the activities carried out by the clearing-house in 1988.

60. In its fund-raising role, the Clearing-house supported the programme of the African Ministerial Conference on the Environment (AMCEN) by organizing a visit by African Ministers to 12 European and North American Governments, to Japan and to 7 international organizations to present AMCEN programme objectives and priority projects to potential donors. Later, the Clearing-house helped to organize a donor consultation in Nairobi. Regrettably, African Governments were slow to respond to the goodwill of donors, and by the end of the year, very few of the 30 projects prepared by 14 countries had been officially submitted to donors and none had been financed.

61. The Governments of the Federal Republic of Germany and Finland entered into trust fund agreements with UNEP for DM 800,000 and \$150,000 respectively, in support of Clearing-house activities. Preliminary discussions with several Governments took place in 1988 with a view to broadening the Clearing-house's financial base beyond the very small group of present supporters of this essential activity.

62. Clearing-house policy is for donors to take over the activities it initiates. However, UNEP tries to monitor project implementation and to inject advice or assistance when required. In 1988, it examined the preparation of Botswana's national conservation strategy, an offspring of a Clearing-house programme designed in 1983. UNEP teamed up with IUCN to advise the Government of Botswana on institutional and legislative changes called for by the strategy. Also in 1988, four Nordic governments decided to give a substantial boost to the implementation of the Zambezi Action Plan by undertaking a joint project formulation exercise, during which UNEP was consulted. Another project, to clean up the canals of the historic Chinese city of Shaoxing, was pursued in 1988 through a UNEP-organized visit by Chinese experts to Denmark, Finland and France to discuss assistance from the Governments of those countries.

63. Finally, the Clearing-house sought and obtained financial contributions from the Governments of Norway and Sweden to the Regional Seminar on Environment and Development in Africa, organized by the ECA and UNEP, which will take place in June 1989. The contributions of Norway and Sweden are \$127,012 and \$49,088 respectively.

64. During 1988, Clearing-house advisory or project formulation missions were sent to the Maldives, Mozambique, Togo, Uganda, the United Republic of Tanzania and the Yemen Arab Republic. The missions to Mozambique and Tanzania were funded by Finland, to Maldives, Togo and Uganda by Sweden, and to Yemen by the Federal Republic of Germany.
65. Two consultants were sent to the Maldives to prepare a proposal for an in-depth study of the potential impact of expected climatic changes on the natural environment and the socio-economic structures and activities of the country. The consultants, noting that the Maldives represent a critical case requiring urgent measures to cope with climate impacts and sea-level rise, recommended the formulation of strategies for sustainable development in the context of climatic change and the implementation of a series of measures to prepare for such change.
66. A team of four reviewed the environmental situation in Mozambique and recommended to the Government that it should formulate a comprehensive policy and strategy for environmental improvement, to boost its training programmes, and urgently undertake projects that would mitigate serious environmental risks.
67. In the United Republic of Tanzania, two consultants formulated a strategy and a package of proposals for the rational management and use of the most precious of all tropical hardwoods, the ebony (*mpingo*). The 15 projects identified, and endorsed by the Government, would ensure an adequate supply of the species for the future, more effective processing and alternative end uses. The Government and UNEP intend to launch a campaign to raise part of the funds necessary to carry out the programme from a number of sources, including a major consumer of ebony: the musical instruments industry.
68. Togo is beset by severe coastal erosion in the south, desertification in the north, and soil erosion in between. Two consultants designed a programme aimed at establishing monitoring and assessment facilities to follow these processes and predict future damages.
69. A three-member team visited Uganda to advise the Ministry of Environment on the structure and programme of the Department of Environment. Unfortunately, the mission was interrupted half-way through its work because of unforeseen circumstances. This activity may be resumed in 1989.
70. In the Yemen Arab Republic, a consultant prepared and submitted a medium-term programme for environmental health.
71. Since hazardous waste management is an emerging global problem, decision-makers must be briefed and technicians trained in this area. UNEP, with Clearing-house funds provided by the Federal Republic of Germany, held regional workshops on hazardous wastes for countries in Asia and the Pacific (30 participants) and in Latin America and the Caribbean (80 participants).

Chapter III

THE ENVIRONMENT PROGRAMME

Monitoring and assessment

Information Exchange

Oceans and coastal areas

Water

Terrestrial ecosystems management

Desertification control

**Environmental health (including
agricultural chemicals)**

Peace, security and the environment

Technology and environment

Support measures

Technical and regional co-operation

THE ENVIRONMENT PROGRAMME

1. As foreshadowed in the *1987 Annual Report*, the report for 1988 closely reflects the administrative structure of the programme by following the presentation of the approved programme budget for 1988-1989 (UNEP/GC.14/16 and Corr. 1). The basic structure remains as approved at the Stockholm Conference, comprising environmental assessment (Earthwatch), environmental management, and support.
2. This report is limited to activities during the calendar year 1988 and to reporting by budget line and subline. It is important to bear in mind when reading the accounts of programme activities that most of them either build on past achievements or prepare the ground for future work. The *1987 Annual Report* pointed out that many years of preparation had gone into UNEP's achievements in protecting the ozone layer which attracted so much attention in 1987 and 1988. The same may be said for the major environmental issues in 1988, such as climate change and hazardous wastes, and to a greater or lesser extent for activities throughout the programme. It should also be borne in mind that although they are difficult to present clearly in a report such as this, interconnections and co-operative efforts between different parts of the programme are the rule rather than the exception.
3. Information to supplement that provided in this chapter may be found in the *Report on New Projects 1988* and the *Evaluation Report 1988*. An innovation from previous Annual Reports is the omission of annexes containing lists of the Programme's meetings and publications. This information may now be found in two small booklets published separately by the UNEP Information Service.
4. The chapter ends with a short note on evaluation of UNEP activities.

EARTHWATCH

5. The spectre of global change preoccupies the world and forms a major framework for activities within UNEP's environmental assessment arm, Earthwatch. Our understanding of the nature and magnitude of the global changes in the Earth's capacity to support life are fraught with uncertainties: scientists ask for additional time to gather more information and perfect their models of ozone depletion, temperature, rainfall, soil loss, forest loss, etc., etc. But we do not have time to wait for the final results or the best model predictions in order to take action, because by the time these symptoms are evident it will be too late to address them successfully.
6. Earthwatch is about information—its collection from sources and its dissemination to users. In the case of the phenomena of global change, UNEP finds it must often be quite firm with the scientists, to force them to give their expert opinion and their best guesses now, when we need them. They are provided with a forum to meet, discuss and refine their models, for it goes without saying that when better information is available, we will need that, too.

MONITORING AND ASSESSMENT (Budget line 11)

The Global Environmental Monitoring System (GEMS) (Budget subline 111)

7. The main task of the GEMS Programme Activity Centre is to co-ordinate environmental data collection at the global, regional and national levels and to make relevant and timely information easily accessible to the managers and planners of natural resources and the environment.

8. Over the past few years these activities have coalesced into the orderly and logical sequence of monitoring, data management and environmental assessment:

- *Monitoring* is more than just the routine and often repetitive collection of data. The comprehensive concept of environmental monitoring within GEMS involves the co-ordination and support of sectoral and regional data-generating mechanisms. UNEP has also traditionally been concerned with the development and improvement of monitoring methods themselves.
- *Data management* today means much more than tables and files. It requires the co-ordination, verification, harmonization and analysis of key environmental data using the latest computerized techniques. These data are the raw materials of environmental analyses, which in turn provide the foundation for environmental assessments.
- *Environmental assessments* are the end-products of Earthwatch, which guide action and environmental management. They also provide the grist for the mills of international agreements. A good example is the ozone layer assessment, sponsored by UNEP and others, which helped galvanize the world into action in Montreal in 1987.

Environmental Monitoring

Renewable resource monitoring

9. As instructed by the Bureau of the African Ministerial Conference on the Environment (AMCEN) at its third meeting in March 1988, GEMS continues to co-ordinate activities related to environmental monitoring in Africa. A step-by-step approach has been followed for the co-ordinated establishment of national monitoring facilities. To date eight African countries have been visited, and UNEP has detailed information on their needs for resource monitoring and assessment capabilities. In the case of one country, Senegal, a proposal for the establishment of a national monitoring and assessment centre was developed in 1988, and funding for the centre is being considered by DANIDA. Additional information is also being gathered from all over Africa by means of questionnaires. It is quite obvious that the establishment of national monitoring centres is beyond UNEP's financial means, but GEMS has helped with technical advice and contacts with potential donor countries.

10. Together with FAO, EEC, IUCN, NASA and others, UNEP is developing a satellite-based methodology to map and monitor tropical forests. The pilot phase uses data with a one-kilometre resolution from the NOAA series of satellites equipped with an advanced very-high-resolution radiometer (AVHRR) which can be used to detect green biomass on the Earth's surface. Using GEMS computers, co-operating forest experts and UNEP analysts are delimiting forest areas in West Africa and the Amazon. The approach also makes use of higher-resolution satellite data and field checks, for example, in Côte d'Ivoire,

Ghana, and Nigeria in August 1988. LANDSAT thematic mapper data were used to separate forest and non-forest cover classes in Ghana to an accuracy of more than 85 per cent. Should the techniques being developed prove equally successful at estimating forest extent over larger areas, UNEP and its partners plan to extend the mapping to other tropical forest regions, and eventually to all the world's forests.

Climate-related monitoring

11. UNEP and WMO continued to co-operate in climate system monitoring. This activity focused on improving observing capability for meteorological data, monitoring the global climate system and analysing anomalous weather situations. Information received from this project, which is widely distributed to Governments, institutions and international agencies, facilitates long-term socio-economic and environmental planning in various climatic regions of the globe. Further, it is expected that analysis of anomalous situations and their persistence might provide a signal of onset of global climate change resulting from warming caused by greenhouse gases.

12. Glaciers contain a wealth of information on past climates and their evolution. Hence UNEP, Unesco and the Swiss Federal Institute of Technology have continued to co-operate in a World Glacier Monitoring Service to tap that information, contributing to our capability to recognize and predict trends in climatic evolution in the different glaciated regions of the globe. During the year a major publication, *Fluctuation of Glaciers 1980-1985* was issued as an output of this project. Like the previous four volumes in the series, which covered periods between 1959 and 1980, this report provides a general view of changes in a large number of the world's glaciers, serves as a basis for further research and encourages more extensive measurements as well as further processing of the results. The joint project also encompasses work on the World Glacier Inventory, the results of which will be published in early 1989.

Health-related monitoring

13. The major GEMS monitoring networks—on urban air, global water quality and food contamination—have continued to gather data. Major health-related activities in 1988 involved assessment of the global situation in these three areas. Details are provided below under "Assessment".

Long-range transboundary pollution monitoring

14. Whilst there is no doubt that pollutants are transported across national boundaries by air or water movements, the impact on ecosystems is far from straightforward. This is why, while continuing to support air and water monitoring networks to measure the arrival of substances, UNEP has also been giving attention to the development of methods to study the impacts of pollution on forest ecosystems. The survey of European forests co-ordinated by the UN Economic Commission for Europe showed that in just five European countries—Austria, Czechoslovakia, the Federal Republic of Germany, Poland and Yugoslavia—some 6 million hectares of forests are affected. In another 12 countries, damage is already known or suspected. The survey is being repeated at yearly intervals so that a medium-term assessment of air pollution effects on forests in Europe can be ready by 1990.

Integrated monitoring

15. Integrated monitoring involves the use of a set of techniques to study the behaviour of pollutants in all the compartments of ecosystems—air, water, soil, flora and fauna—what used to be called multi-media monitoring. This approach has been used in a GEMS study (involving UNEP, WMO, Unesco, the Government of Chile and various organizations in the United States) of comparable temperate biosphere reserves in Chile and the north-west United States. The study is providing methodological guidelines for the proposed biosphere observatories which are to be an important part of the forthcoming International Biosphere-Geosphere Programme. In 1988 attention was given to bringing together the existing integrated monitoring activities in the CMEA countries and existing GEMS activities as the nucleus of a GEMS integrated monitoring network.

Oceans monitoring

16. The oceans component of GEMS is handled by UNEP's Oceans and Coastal Areas Programme Activity Centre, whose activities are reported on under budget line 21 below.

Environmental Data Management

GRID, the Global Resource Information Database

17. GRID, the Global Resource Information Database, is the principal data management programme within GEMS. It was established on the premise that basic environmental data—on soils, forests, hydrology, vegetation, land use, climate and pollution—need to be more readily available, especially in developing countries, to both national and international environmental decision-makers and managers. At the heart of GRID is Geographic Information System (GIS) computer-based technology.

18. GRID is a distributed system, with major centres in the GEMS offices in UNEP Nairobi, in Swiss-donated premises in Geneva, and in a recently opened centre associated with the UNEP Regional Office for Asia and the Pacific in Bangkok. The functions of regional GRID centres are training, data analysis and provision of up-to-date environmental data. It is anticipated that the centres will form “switchboards” which will enable environmental data to flow easily to and from GRID-compatible national data management centres.

19. In December 1988 at a ceremony in London, the IBM Corporation donated some \$6 million worth of computer hardware to UNEP for use in the GRID programme. This is the largest donation the corporation has ever made, and is the largest UNEP has ever received from industry. It includes two mainframe computers for the GRID centres in Nairobi and Geneva and 15 micro-based systems for UNEP to deploy at its discretion in co-operating national institutions in African countries.

20. By the end of 1988 the GRID training course for third world professionals, sponsored by the Swiss Directorate for Development Co-operation, had trained 20 persons from 20 countries, giving them practical, hands-on GIS experience in national-scale case-studies. Trainees are chosen from national agencies which show some promise of forming a data management service within the government machinery, and it is hoped that such agencies will form productive targets for donor support, such as the IBM hardware mentioned above.

World Conservation Monitoring Centre

21. The newly constituted WWF/IUCN/UNEP World Conservation Monitoring Centre (WCMC), an element of GEMS and a development of the former IUCN Conservation Monitoring Centre, continued in its predecessor's task of gathering data on the status of rare and endangered species of plants and animals, parks and protected areas, and trade in animal products. A substantial part of the data, particularly those relating to trade, were provided to the secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) to help in determining trading quotas.

The Environmental Data Report

22. During 1988 the Monitoring and Assessment Research Centre (MARC) continued to collect and analyse data for the next edition of the Environmental Data Report, due to be published in April 1989. This work was carried out in co-operation with the International Institute for Environment and Development (IIED), the World Resources Institute (WRI) and the United Kingdom Department of the Environment. UNEP also collaborated with WRI in the preparation of the report *World Resources 1988-1989*, which was issued in November 1988.

23. An interactive environmental data base is being established at MARC in order to offer instant access to the best environment and environment-related data to permit a rapid response to emerging environmental issues and timely production of the Environmental Data Report.

Environmental Assessments

Health

24. Three major global assessments were undertaken by WHO and UNEP, in air quality, freshwater quality and food contamination. The assessments were based on data collected from the three health-related monitoring networks and other reliable information available from national and international sources. MARC played an important role in data analysis and in the preparation of the background papers. FAO also contributed substantially to the food contamination background paper. The assessments were approved by Government-designated experts at a UNEP/WHO meeting held in Geneva in September. Major findings are outlined below.

Urban air quality

25. The picture that emerges is that for sulphur dioxide (see figures 1 and 2), suspended particulate matter and lead the situation is improving in many industrialized countries as a result of various control and prevention strategies. The data show that, depending on the combination of control strategies, the impact on ambient levels can be quite significant, although ambient levels of sulphur dioxide and suspended particulate matter still give cause for concern in many urban areas. In industrialized regions strategies to control sulphur dioxide (as well as nitrogen dioxide) pollution now tend to focus on limiting acidic deposition in order to reduce ecological damage. With regard to the automobile-related pollutants, nitrogen dioxide and carbon monoxide, control efforts are much less generally applied.

26. Urban air quality in developing countries demands continued attention. The data and information available are scanty but nevertheless indicate deteriorating conditions.

Figure 1
Trends in SO₂ emissions in selected countries

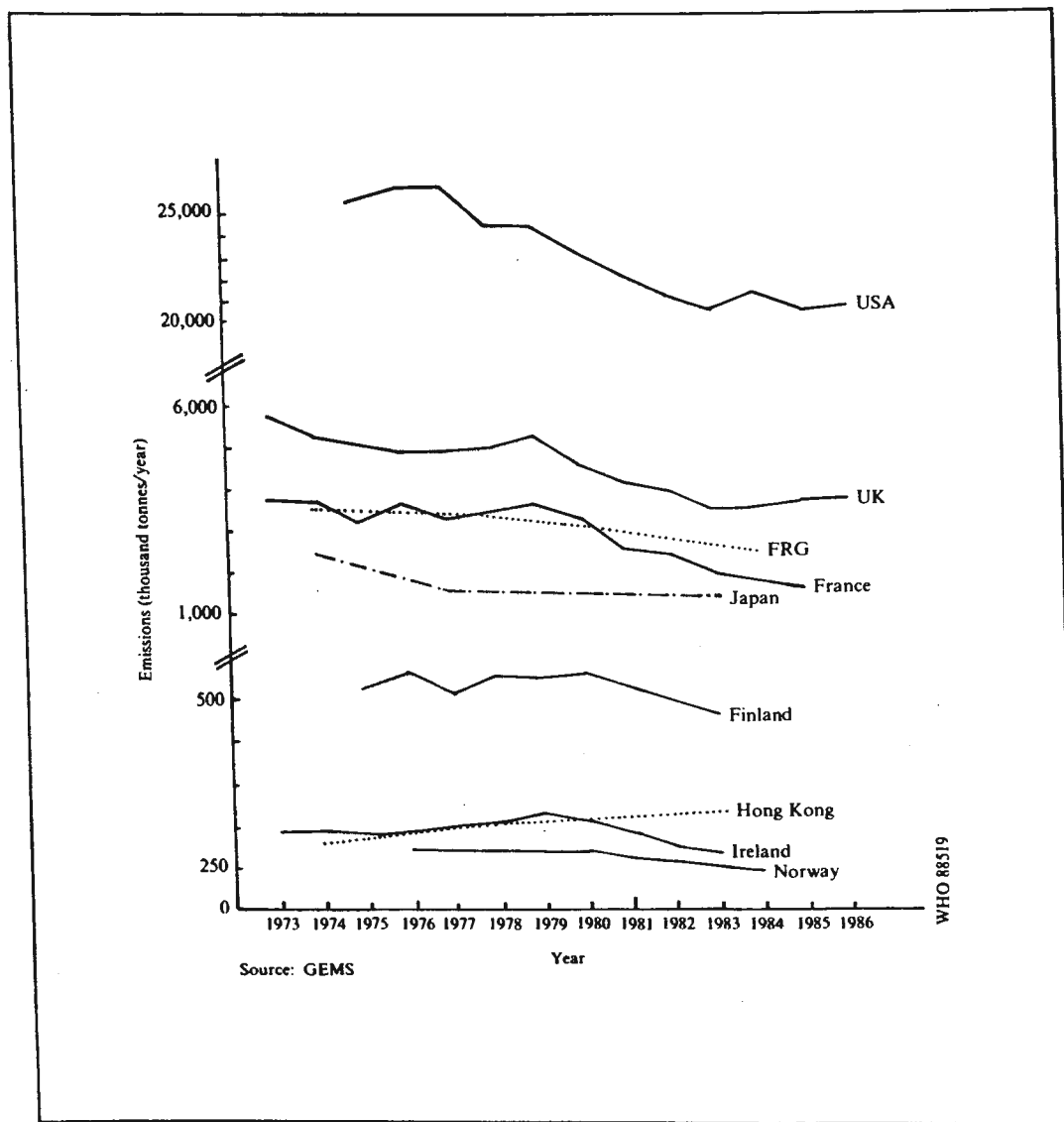
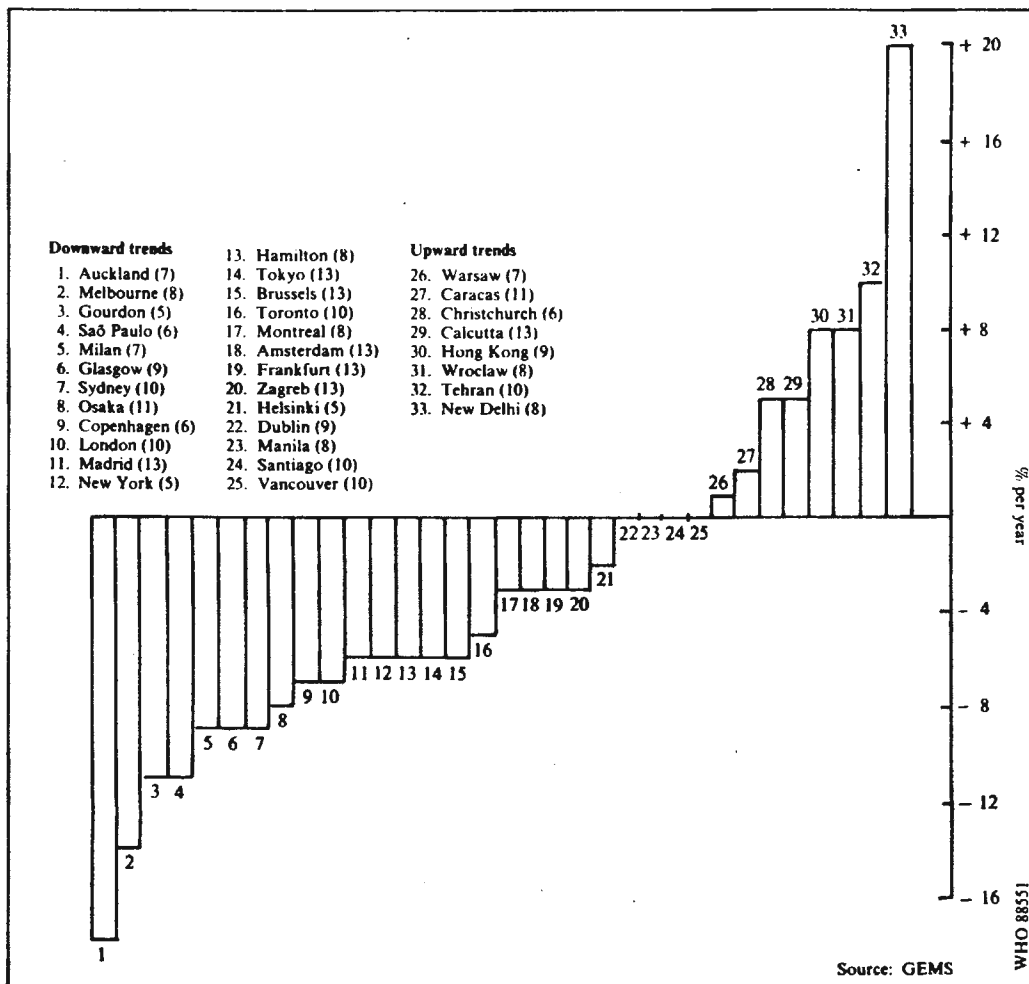


Figure 2
Trends in annual average SO₂ concentrations in cities
(values in brackets refer to the number of sampling years)



Increased efforts to evaluate the problem in more detail and to develop adequate protection measures for the populations affected are urgently required.

Water quality

27. In countries with a low level of development, point source pollution is only a marginal problem, mainly resulting from a lack of sewage networks in the cities. Although water pollution within cities may be severe, water resources do not in general suffer greatly from water pollution. Exceptions include mining areas, where mining very often causes far-reaching pollution on surface and ground water. Severe pathogen pollution can be found in many rivers in central and tropical South America, the Indian subcontinent and south-east Asia. Although poorly documented, African rivers are likely to present the same situation. The river Ganges in some stretches is probably the most polluted river in the world.

28. Eutrophication, often directly linked to organic waste, is a problem in many small lakes in Europe, the United States and more recently in Asia. A quarter of major Chinese lakes are already affected. Increased levels of nitrate in ground water are currently a severe problem in many western European countries, as well as in the United States. Salinization in ground water has become extremely widespread in Sahelian Africa and in the arid belt from the Middle East to India.

Food contamination

29. Current median/mean levels of contaminants in individual foods and in total diet, particularly in the industrialized countries, are generally well within the limits laid down in established health criteria, guidelines or standards. There are, however, some exceptions. These include, in quite a few countries, the levels of organochlorine pesticides in human milk, of mercury and polychlorinated biphenyls in fish, of lead in canned foods and of aflatoxins in nuts and cereals. Exposure of infants to organochlorine compounds in human milk is limited to a short period in a lifetime and therefore may not be of health significance. Furthermore, the alternatives for feeding the infants may subject them to even greater health risks.

30. While the situation in the developing countries is much less clear, there are indications that the median/mean levels—particularly for organochlorine pesticides and aflatoxins—can in many places be quite high and in excess of health guidelines.

31. In the industrialized countries the trend in contaminant levels in food, while mixed, is generally downward, as the use of persistent pesticides and other toxic chemicals has been curtailed or banned altogether.

Atmosphere (Budget subline 112)

32. The year 1988 witnessed increased awareness of and public concern for the potentially disastrous consequences of increasing emissions of gases that have changed the atmosphere's chemical composition and radiative properties. Such public concern was reflected, for example, in the General Assembly's adoption of resolution 43/53 on "Protection of global climate for present and future generations of mankind" (see chapter IV, paras. 26-28 below), and the action taken by the Commonwealth Secretariat to establish an expert group to study the implications of climate change for Commonwealth countries, a group in which UNEP is represented. The year also brought about an extensive debate and Congressional hearings in the United States on the severe drought and higher than normal temperatures in the Mid-west, a phenomenon that was attributed by some scientists to a global warming caused

by greenhouse gases. UNEP has continued to focus closely on these atmosphere issues, in particular the protection of the ozone layer, the issue of global warming and the continued implementation of the World Climate Impact Studies Programme.

Protection of the ozone layer

33. A notable event during the year was the publication of the report of the Ozone Trends Panel set up in October 1986 by three United States agencies—the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA) and the Federal Aviation Administration—UNEP and WMO. Carefully evaluated ground-based and satellite data established that:

(a) The atmospheric concentrations of trace gases important in controlling stratospheric ozone, e.g. chlorofluocarbons, halons, etc. continue to increase on a global scale because of human activities;

(b) The observed losses in total ozone amounts in the northern hemisphere and at middle and high latitudes in general were greater than had been predicted from theoretical calculations. This greater decrease was considered to be attributable to an increased abundance of atmospheric trace gases, primarily chlorofluorocarbons (see figure 3 (a));

(c) The repeated sudden and unexpected decreases in the amount of springtime Antarctic ozone was confirmed. Local decreases of up to 95 per cent in the altitude range from 15 to 20 km had been observed. Furthermore, total column ozone in the Austral spring of 1987 at all latitudes south of 60° South was the lowest since measurements began 30 years ago (see figure 3 (b));

(d) The weight of evidence strongly indicates that man-made chlorine species are primarily responsible for the “ozone hole” over Antarctica.

34. Article 6 of the Montreal Protocol on Substances that Deplete the Ozone Layer calls for a periodic review of control measures and their effectiveness. In preparation for the first such review, UNEP organized a series of meetings in The Hague in October. After reviewing the latest data on the condition of the ozone layer, the atmospheric scientists at the meeting confirmed that while implementation of the Montreal Protocol would do much to stabilize the global ozone layer with a loss of only a few per cent, current measures would be insufficient to reduce stratospheric chlorine concentration to a level sufficient to repair the Antarctic hole. That would require an almost total phasing out of the controlled substances.

Figure 3a
Observed trends in Ozone

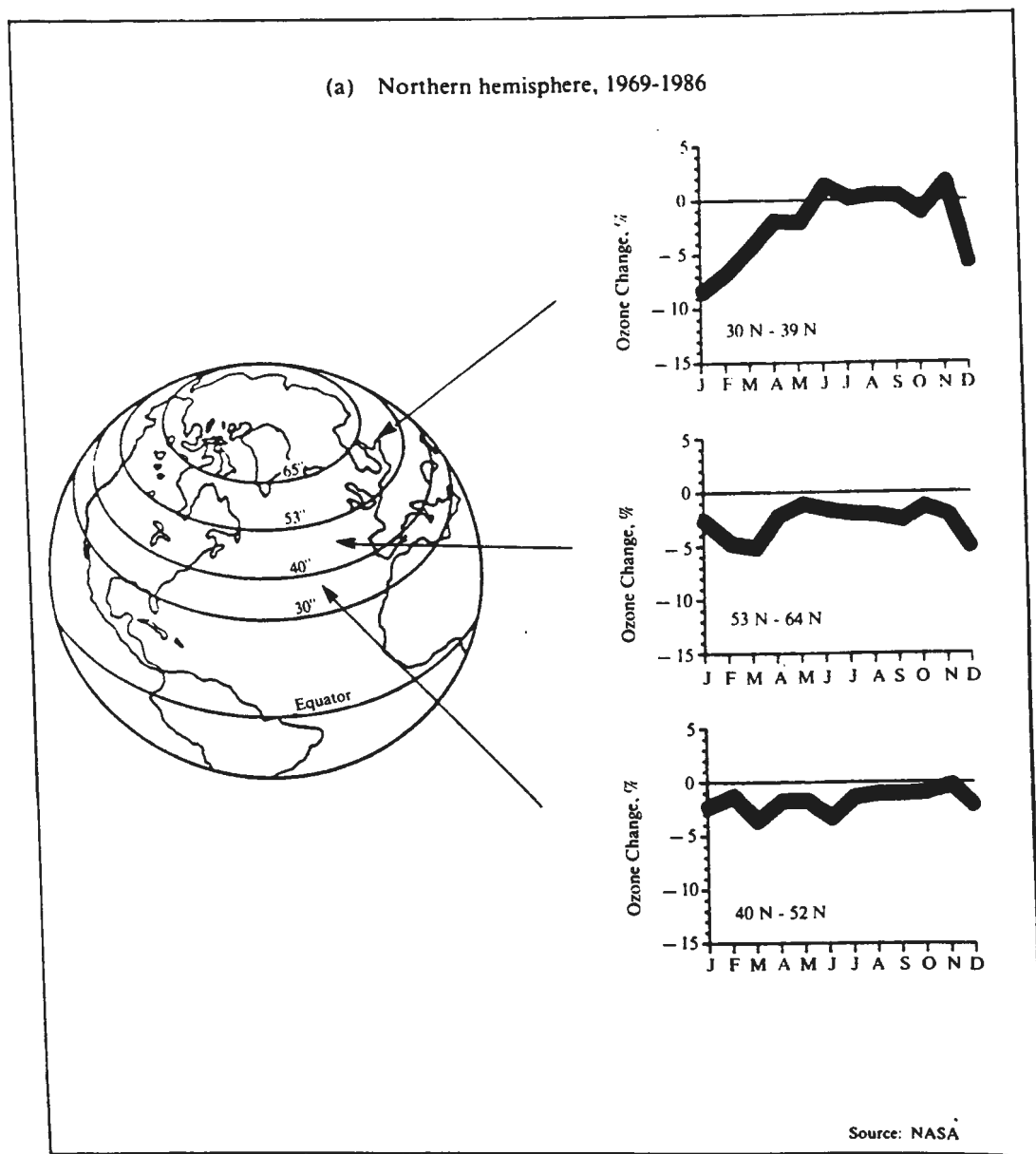
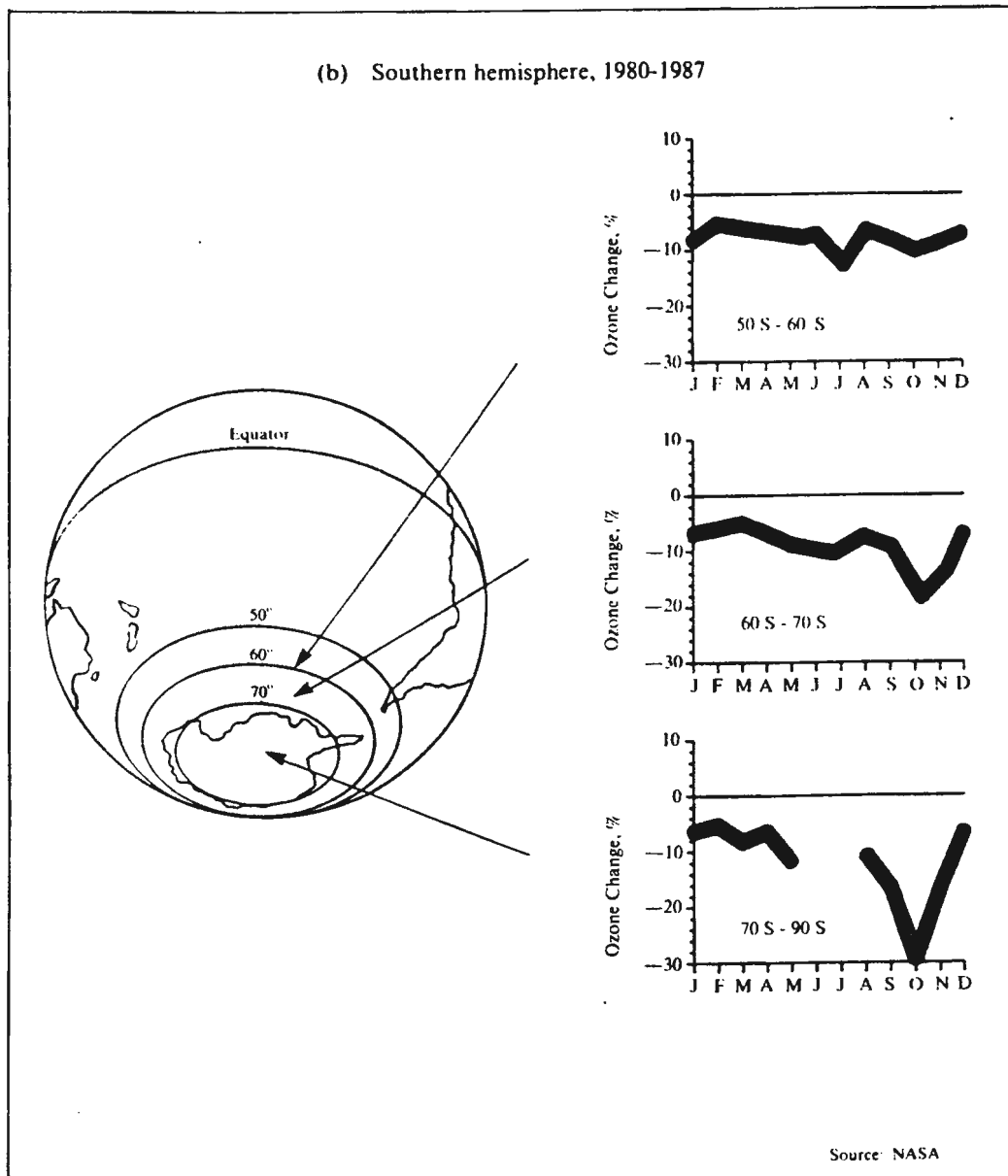


Figure 3b
Observed trends in Ozone



Greenhouse gases and global climate change

35. In January UNEP organized an internal seminar to identify environmental sectors which might be sensitive to climate change, and the implications of such change for UNEP programme development. After confirming that UNEP's overall approach to the issue of climate change was on the right track, the participants stressed the importance of sea-level rise as a consequence of global climate warming which is most likely to exert a serious impact on society and emphasized the need for better regional analysis of climate change and its impacts. (Figure 4 gives two examples of possible impacts on agriculture.)

36. In August, the Executive Director of UNEP and the Secretary-General of WMO invited Governments to designate representatives to serve on the Intergovernmental Panel on Climate Change, which was set up in response to concern expressed by the Governing Council and the Tenth World Meteorological Congress to carry out co-ordinated assessments of the magnitude, time and potential impacts of climate change. The establishment of the Panel has provided an extremely important forum in which Governments are jointly examining the important issue of greenhouse warming and global climate change.

37. The first session of the Panel, held in Geneva in November, was attended by 140 delegates representing 30 Governments and 19 international organizations. The Panel streamlined its terms of reference, which include assessing scientific and technical information related to the climate change issue, such as emissions of the major greenhouse gases and the resultant modification of the Earth's radiation balance, evaluating the environmental and socio-economic consequences, and formulating realistic response strategies.

38. One of the main objectives of the UNEP programme on climate change is to improve understanding of the probable impact of greenhouse gas warming on socio-economic systems in various regions of the world. Regional scenarios have barely been developed for third world countries, and consequently UNEP has continued to address those areas where knowledge is insufficient. To this end a variety of activities were initiated during 1988.

39. In Brazil, 13 case-studies are to be undertaken involving the sensitivity of a series of human activities and socio-economic systems to climate variability and change. Attention will also be paid to the analysis of strategies required to deal with the problems that climate change may cause. In Indonesia, Malaysia and Thailand, a project will establish the possible impacts of climate change on activities such as agriculture, fishing and tourism, studying in particular the possible impacts of sea-level rise in low-lying coastal areas. Thirdly, as a part of the co-operative effort between UNEP and the Government of the Netherlands on the impact of sea-level rise on society (1987 *Annual Report*, chap. III, para. 138), a project on criteria for assessing vulnerability to sea-level rise will provide information to enable Governments, international organizations and the scientific community to focus more sharply on the predicament of nations, groups of communities, ecosystems and human activities most vulnerable to an enhanced sea-level. Fourthly, in response to Governing Council decision 14/20, UNEP commissioned the Beijer Institute to prepare a report on possible responses by Governments and international agencies to anticipated climate change. It is expected that the report will provide Governments and agencies with guidelines to develop strategies to respond to global climate change, and will also assist the Intergovernmental Panel on Climate Change in its work.

40. In June, the Government of Canada organized in Toronto the "World Conference on the Changing Atmosphere: Implications for Global Security", co-sponsored by UNEP and

WMO. The Conference urged immediate action by Governments, the United Nations and its specialized agencies, other international bodies, non-governmental organizations, industry, educational institutions and individuals to counter the ongoing degradation of the atmosphere. It called for the development of a plan to protect the atmosphere, including an international framework convention, speedy ratification of the Montreal Protocol and the reduction of carbon dioxide emissions to approximately 80 per cent of 1988 levels by the year 2005, and the establishment of a World Atmosphere Fund, financed in part by a levy on fossil fuels and intended to support the implementation of the plan of action for the protection of the atmosphere.

41. The Advisory Group on Greenhouse Gases continued its role in advising the executive heads of UNEP, ICSU and WMO on new developments related to the climate change issue. At its third session in July it approved proposals for the establishment of three working groups to review analyses of limitation strategies, indicators for management of climatic change and costs of adaptation and limitation strategies.

WMO/UNEP Background Air Pollution Monitoring Network (BAPMoN)

42. BAPMoN operations continued along the same lines as in earlier years, including the regular publication of data and the holding of a training course in Budapest for observers at BAPMoN stations. In view of the recent slow expansion of the Network in Africa, Asia and South America, WMO and UNEP have initiated a thorough review of the objectives and operations of BAPMoN in order to find ways and means of facilitating the involvement of developing countries. The review will also include some global assessments of background air pollution trends based on 15 years of BAPMoN data.

World Climate Impact Studies Programme (WCIP)

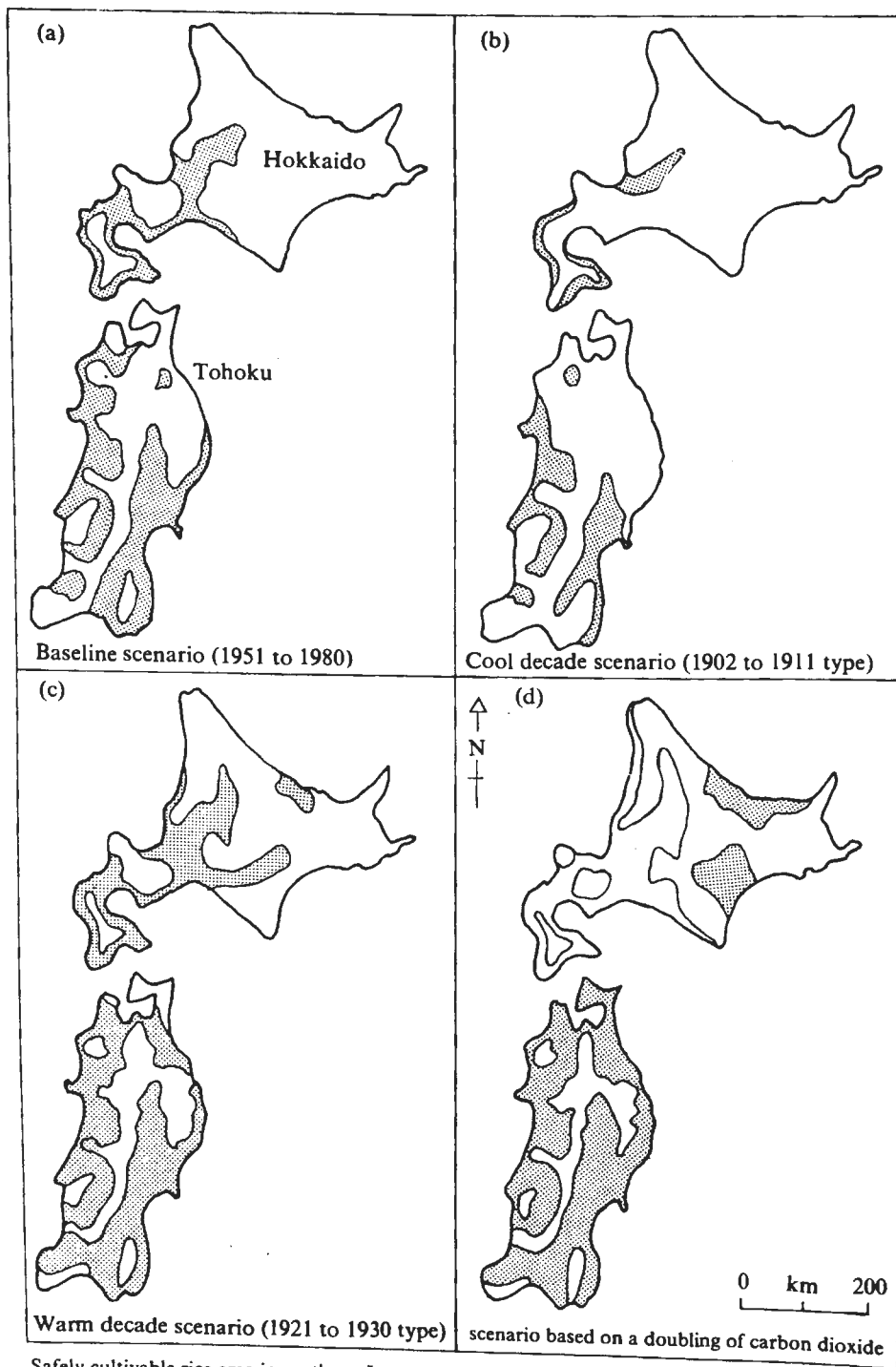
43. The sixth session of the Scientific Advisory Committee was held in Nairobi in April. The Committee, whose main responsibility is to advise the Executive Director on the implementation of WCIP, reviewed recent activities, examined plans for future work and expressed satisfaction with the manner in which UNEP was developing and implementing the Programme.

44. WCIP activities initiated and co-sponsored by UNEP are designed to stimulate and encourage the application of climate impact methodologies at the national level, particularly in agricultural planning, water resources management and the development of appropriate energy policies. In order to encourage improved dialogue and communication between national institutions involved in climate impact activities and their applications to national endeavours in various spheres, UNEP has continued to circulate an Inventory on Climate Impact Activities on a global scale. During July, drafts of the inventory were sent to over 200 scientists, and by November, sufficient replies had been received to facilitate the compilation of an up-to-date inventory for re-distribution. An advantage of the inventory is that by ensuring communication among those engaged in climate impact work, a global network of institutions and scientists will gradually be built up which will help to reduce the risk of duplication.

45. Another method by which UNEP has sought to encourage the application of climate impact assessment techniques to important socio-economic activities is the organization of roving seminars designed to reach as wide an audience as possible. Two such seminars were held during March, one in New Delhi and the other in Kathmandu, attended by 26 and 15 participants respectively. The techniques used in the seminars were developed in a UNEP/SCOPE project entitled "Improving the science of climate impact assessment". A

Figure 4a
Predicted impacts of climate on agriculture

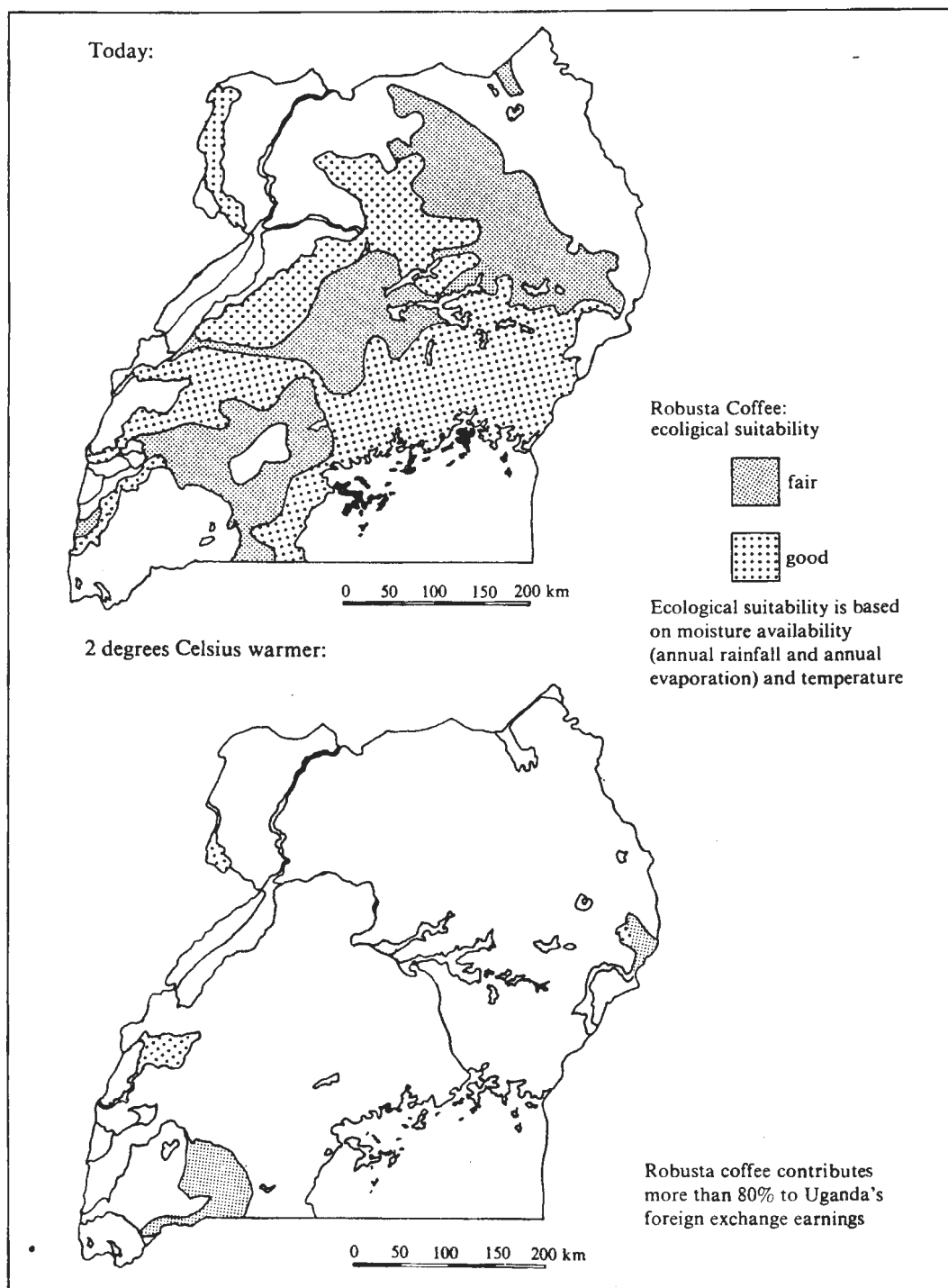
(a) Rice cultivation in Japan



Safely cultivable rice area in northern Japan under four climatic scenarios.

Source: M.L. Parry, T.R. Carter and N.T. Konijn, eds., *The Impact of Climatic Variations on Agriculture*

Figure 4b
Coffee-growing in Uganda



shortened version of the project output, originally published in 1985, was published in early 1988. It provided the text for the seminars and was also distributed to developing countries for their use.

46. The UNEP *Ad Hoc* Working Group on El Niño and the Southern Oscillation (see *1986 Annual Report*, chap. IV, para. 140) had its first meeting in Bangkok in January. After a comparative study of the climatic and socio-economic impacts in various parts of the world of the 1982/1983 and 1986/1987 El Niño events, the group concluded that both events were associated with world-wide climatic anomalies such as droughts in Australia, Brazil, Ethiopia and India, as well as temperature anomalies over large areas of the temperate latitudes in the northern hemisphere. After reviewing advances in research on the physical aspects of El Niño and identifying gaps, the group adopted objectives and a plan of work for the next two years.

47. International interest in the International Land Surface Climatology Project continues to grow. Following the workshop in Yalta (*1987 Annual Report*, chap. III, para. 152), the USSR is rapidly developing its own land surface experiments. UNEP support has enabled Soviet, United States and Western European experts to consult with a view to co-ordinating USSR programme development with ongoing project activities and paving the way for future joint experimentation.

INFORMATION EXCHANGE (Budget line 12)

International Register of Potentially Toxic Chemicals (IRPTC) (Budget subline 121)

48. Over the past decades, chemicals have been developed, manufactured and used in increasing numbers and amounts by a steadily growing number of industries, both in developed and developing countries. This continued expansion in production and use of chemicals, useful for a wide range of purposes, invariably leads to increased risks to the health of workers, the general population and the environment.

49. There is therefore an urgent need to intensify and strengthen the exchange of information on chemicals in international trade and to improve chemical safety at the country level. IRPTC has continued its activities in this field as UNEP's information exchange network on chemicals. Its main objective since it was established in 1976 has been to facilitate access to existing scientific and technical information on chemicals for the purpose of hazard assessment, risk evaluation and subsequent disposal or control. This has been accomplished by involving partners in Governments, research institutions, international organizations, non-governmental organizations and industry.

50. The computerized central files of IRPTC continued to be expanded and cover at present some 600 chemicals of international concern. During 1988, work by IRPTC and its network partners focused on updating files containing data on mammalian and environmental toxicity, and legal information. Furthermore, results of recent hazard assessments and risk evaluations by international expert groups were entered into the data bank. Additional improvements were introduced in the Instruction Manual for data profile development to assist contributing network partners in the process of selecting high-quality data on chemicals from scientific and technical literature and describing their toxic effects.

51. Technical work with the National Correspondent for Canada to make the IRPTC data files available for use on minicomputers culminated in June when the data base was offered

on-line to Canadian users through the national telecommunications network. Ways of making this system available to users outside Canada were also explored. Work continued at the Chinese national register on the conversion of the data files to a different minicomputer system, and met with considerable success. Transfer of the remaining files to China was also completed. The complete Legal File, which contains information on more than 7,000 chemicals from 47 countries and 6 international organizations, continues to expand and is accessible on-line, world-wide, through the Environmental Chemicals Data and Information Network (ECDIN) of the Commission of the European Communities as a result of an agreement (renewed in 1988) between UNEP and the Commission to develop co-operation and the exchange of information on environmental chemicals.

52. Close co-operation continued with network partners from Canada, the Federal Republic of Germany, France and Japan for the exchange of toxicity and legal data for chemicals in computerized form. This resulted in significant amendments and additions to the Legal File, which contains over 41,000 records. Co-operative projects with national network partners from the Netherlands and the Federal Republic of Germany for the collection of toxicity and environmental data on chemicals widely used in developing countries were continued, and several data profiles were brought up to date.

53. During 1988, one additional country appointed a national correspondent to IRPTC. The number now stands at 118 national correspondents from 111 countries with the following distribution:

IRPTC National Correspondents

	Number of countries	Number of national correspondents
Africa	27	30
Asia and the Pacific	23	24
Europe and North America	29	31
Latin America and the Caribbean	22	23
West Asia	10	10
Total	111	118

54. IRPTC has continued to operate through this network of national correspondents, and has maintained a regular information flow to and from the participating countries related to chemical hazards and their control. National correspondents have continued to assist the Programme Activity Centre in the distribution of bulletins and other publications, the handling and answering of queries, and reporting on national work in the field of chemical safety.

55. Throughout 1988, IRPTC continued to be an active participant in joint projects with the International Programme on Chemical Safety (IPCS) through the collection, selection and evaluation of data on chemicals for inclusion in Environmental Health Criteria documents and Health and Safety guides on chemicals. IRPTC participated in several IPCS Task Group meetings to provide and evaluate chemical data, and also collaborated in the dissemination of the assessments prepared by these groups. An updated version of the Registry of Chemicals Currently being Tested for Toxic Effects prepared on the basis of reports received from national correspondents and other network partners was published in October.

56. IRPTC continued to participate in expert meetings organized by IPCS, including the first meeting of the Poison Centre Working Group, held in London in March. It also participated in a meeting of directors of IPCS participating institutions in Raleigh, North Carolina in September, and helped to develop recommendations for the further expansion of the Programme.

57. IRPTC's Query-Response Service continued to receive queries on chemicals from national authorities, academia, industry, NGOs and interested individuals. Many queries are complex: from 294 queries received in 1988 1,530 specific questions had to be answered. The number of chemicals per query has significantly increased during the past two years. Of the queries received in 1988 (see table below), 52 per cent came from developing countries.

58. Interest in agrochemicals accounted for 36 per cent of the queries, while approximately 15 per cent related to regulatory measures and national and international recommendations for control of hazards from specific chemicals. IRPTC continued to answer queries which had been received by IPCS and INFOTERRA, for which the Register functions as a Special Sectoral Source.

59. In several cases, IRPTC called upon its national correspondents as well as on other network partners, including specialized institutions, individual experts and chemical companies to answer queries in part or in full.

Breakdown of queries received by the IRPTC Query-Response Service 1982 to 1988

Year	Total Queries	Agrochemicals (Per cent)	Legal Matters (Per cent)
1982	104	45	26
1983	197	38	30
1984	200	50	35
1985	335	44	27
1986	315	48	28
1987	316	41	25
1988	294*	35	17

* As at 31 October 1988.

60. In co-operation with the Government of the USSR an International Workshop on the Use of Classification Systems for Chemicals Based on Their Toxicity and Hazards was organized in Leningrad in 1988. The meeting was attended by 23 experts from 11 countries and 5 international organizations and programmes. The report of the meeting, together with a survey of information and documentation received in IRPTC from 76 countries and 9 international organizations, is being prepared for publication.

61. An expert consultation on a regional information exchange network for chemicals was organized in Moscow in close consultation with the CMEA secretariat. IRPTC national correspondents, other experts from the region and observers from international and national agencies who participated in the meeting developed recommendations for the format and contents of a feasibility study on a network compatible with IRPTC to be prepared under a joint project with the Government of the USSR.

62. In response to Governing Council decision 14/27 on the exchange of information on chemicals in international trade, IRPTC continued to implement the London Guidelines through the following actions:

- Maintenance and distribution of a list of Designated National Authorities—numbering 74 by 1 October 1988;
- Processing and dissemination of Notifications of Control Action to all such authorities, appropriate international organizations and other network partners;
- Maintenance of regular contacts with the Authorities on national implementation of the Guidelines; and
- Development and maintenance of a computerized data base of Notifications of Control Action received in IRPTC since the adoption of the Provisional Notification Scheme for Banned and Severely Restricted Chemicals in 1984.

63. In addition IRPTC participated actively in preparations for and the holding of a meeting of an *Ad Hoc* Working Group of Experts on Prior Informed Consent and other Modalities to Supplement the London Guidelines, held in Dakar in September. In response to the outcome of this meeting, IRPTC developed a position paper to assist the *Ad Hoc* Working Group in determining the most appropriate methods for implementing their recommendations related to information exchange on chemicals. IRPTC also participated in related efforts by FAO to incorporate the principle of prior informed consent into the Code of Conduct for the Distribution and Use of Pesticides; close co-ordination of activities by UNEP and FAO was achieved.

64. IRPTC continued to participate in the updating of the UN Consolidated List of Products Whose Consumption and/or Sale have been Banned, Withdrawn, Severely Restricted or not Approved by Governments. Notifications of Control Action for banned and severely restricted chemicals received under the London Guidelines are now transferred annually to the UN Secretariat for inclusion in the List.

65. In an effort to strengthen international co-operation and prevent unnecessary overlapping and duplication of efforts related to information exchange on chemicals, IRPTC maintained close liaison with a wide range of international organizations including the UN Secretariat, FAO, GATT, ILO and WHO as well as the Commission of the European Communities, CMEA and OECD.

INFOTERRA (Budget subline 122)

66. Fundamental to the achievement of sustainable development is the availability of scientific and technological information on environment and resource management issues such as water management, air and water quality, chemical safety, public health, etc. Ensuring access to accurate information for improved decision-making relating to the environment is therefore essential, and in itself constitutes an environmental activity of prime importance. Many countries, however, especially the less developed ones, are hampered in their efforts to gain access to the information resources existing all over the world. The problem for many developing countries lies in their lack of adequate material and human resources required to participate equitably in the international exchange of information. INFOTERRA, UNEP's International Environmental Information System, continues to address this problem, keeping in mind particularly the provisions of Governing

Council decision 14/18 on the use of environmental information systems for sustainable development.

67. During 1988 over 14,000 inquirers from some 90 countries made use of the information services provided by INFOTERRA. As in previous years, the emphasis was on the provision of substantive information and on quality. Most of the inquirers (83 per cent, according to the ongoing INFOTERRA user satisfaction survey) rated the services provided as excellent or very good. Over half of all queries answered by the INFOTERRA network were from users in developing countries.

68. The INFOTERRA network continued to grow. During the reporting period, 700 new sources of information were registered, bringing the total to 6,200. A number of leading institutions have been approached with a view to enlisting their services as INFOTERRA Special Sectoral Sources, but to date only one has been designated. The total currently stands at 25. The network of INFOTERRA Regional Service Centres has reached the target figure of eight, and the consolidation of that network is now taking place. With Lesotho joining the network, the number of INFOTERRA national focal points (NFPs) stands at 134. Eight NFPs rejoined the ranks of "active" focal points during 1988.

69. As part of the consolidation of the network, a number of surveys and studies were undertaken. Besides the above-mentioned user satisfaction survey, a survey on the possibility of introducing electronic mail was conducted among INFOTERRA focal points; a survey on desirable changes in the INFOTERRA *Thesaurus*, based on practical experience in using it, was conducted; a study of the information resources available at all INFOTERRA national focal points was completed; and a model project proposal for seeking financial assistance from various donors was prepared and disseminated to all INFOTERRA NFPs.

70. Several new publications were issued. The first volume in the INFOTERRA Exchange of Environmental Experience series—*Fire, Wood, Water: Reaping the Benefits...*—which was published in 1987 in English, was issued in French, Russian and Spanish editions in 1988. A specialized directory on pollution treatment technologies was published in collaboration with the UNEP Industry and Environment Office, and a directory of environmental information sources in the UN system was published in September 1988. An evaluation of the above publications, using reader questionnaires, indicated that the majority of the readers considered them useful or very useful.

71. A number of INFOTERRA national focal points stepped up their network promotion activities. Several of them reported special events organized for the World Environment Day celebrations, using the promotional kits distributed to them by INFOTERRA on behalf of the UNEP Information Service. The Republic of Korea's national focal point, for instance, mounted a nation-wide campaign, including poster displays (contributed by some 13 countries through INFOTERRA), and a special television programme. An INFOTERRA exhibition was organized at the National Focal Point in Venezuela, located at the Ministry of Environment and Natural Resources, on the occasion of a high-level meeting on environmental management in Latin America and the Caribbean in April 1988.

72. Collaboration with the agencies and organs of the UN system and with other organizations in the provision of environmental information continued. One hundred and forty-four INFOTERRA queries were processed by UN agencies, and 34 queries were submitted to INFOTERRA by such agencies themselves. Selected documents produced by UN agencies continued to be mailed, either directly or through INFOTERRA itself, to INFOTERRA national focal points.

73. Technical assistance to national focal points in developing countries remains a priority. The INFOTERRA data base on micro CDS/ISIS has been supplied to a further 26 NFPs (bringing the total to 46), as well as to 6 international agencies. INFOTERRA display panels have been copied in three languages for distribution to selected national focal points, regional offices and Regional Service Centres. INFOTERRA staff visited several national focal points and provided technical assistance, including the training of NFP staff in INFOTERRA's computerized operations, and INFOTERRA national seminars were held in a few countries. During 1988, three French-speaking and seven English-speaking NFPs attended a training course for new national focal point staff in Nairobi between 14 and 18 November.

74. The problem encountered most frequently during 1988 was the financial difficulties experienced by a number of developing countries. Nevertheless, through co-operation and sharing of information, the INFOTERRA network has succeeded in responding to the growing world demand for accurate and up-to-date information needed for sustainable development. During 1988, through the information services provided by INFOTERRA, several countries resolved problems associated with transboundary movements of hazardous wastes, drew up national legislation on various aspects of the environment, cleared accidental spillage of potentially toxic chemicals, contained an invasion of locusts, improved the efficiency of energy use and production, and developed their skills in the treatment of industrial effluents and discharges.

State of the Environment (Budget subline 123)

75. In 1988, in accordance with Governing Council decision 14/9 B, paragraph 6, the annual state-of-the-environment report entitled "The Public and Environment" (with special emphasis on the role of women) was issued and is being submitted to the Council at its fifteenth session under symbol UNEP/GC.15/7/Add.1. Additionally, most of the background work and research were undertaken in 1988 for the 1989 state-of-the-environment report, "The State of the World Environment 1989", which is being submitted to the Council in document UNEP/GC.15/7/Add.2

ENVIRONMENTAL MANAGEMENT

OCEANS AND COASTAL AREAS (Budget line 21)

Global marine environment

76. UNEP's activities in the field of oceans and coastal areas mainly took the form of a series of global and regional programme elements concentrating on issues which could benefit from UNEP's co-ordinating role and from the catalytic use of the Environment Fund.

77. UNEP continued to provide support to the IMO/FAO/Unesco/WMO/WHO/IAEA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP) as the central advisory body to the eight UN bodies sponsoring it. UNEP also co-sponsored and assisted six GESAMP working groups dealing with specific problems of the highest environmental concern: evaluation of the hazards of harmful substances carried by ship; review of potentially harmful substances; interchange of pollutants between the atmosphere and the oceans; coastal modelling; state of the marine environment; and

long-term ecological consequences of low-level contamination of the marine environment. The several substantive reports produced by these working groups provided the scientific basis for the formulation of proposals for management action (control measures) which Governments may take in pursuance of their obligations under the regional seas conventions for the various regions.

78. With co-ordination by UNEP and assistance from the Food and Agriculture Organization of the United Nations (FAO), the Intergovernmental Oceanographic Commission, Unesco (IOC), the Association of South-Pacific Environmental Institutions (ASPEI), the Association of South-East Asian Marine Scientists (ASEAMS), the Comisión Permanente del Pacífico Sur (CPPS) and the South Pacific Commission (SPC), assessments of the state of the marine environment were completed during 1988 in 14 regions, covering practically all coastal waters of the globe. These reports are intended to be used by GESAMP to finalize a global report on health of the oceans, and by the States participating in the regional seas programme in assessing their priorities in the field of marine pollution control.

79. The potential impact of expected climatic changes on coastal and marine ecosystems, as well as the socio-economic structures and activities of coastal States, is assuming the dimensions of a major problem. Six regional overviews on this topic, supported by numerous case-studies, were prepared during 1988 with co-ordination by UNEP and assistance from IOC, SPC and CPPS.

Reference methods for marine pollution studies

80. Under the overall co-ordination of the Oceans and Coastal Areas Programme Activity Centre, reference methods for marine pollution studies are developed, tested and applied in the marine pollution monitoring programmes in the various regions covered by the regional seas programme. The use of these methods ensures high quality and comparability of the data collected. The methods are prepared through inter-agency co-operation—those involved include the International Atomic Energy Agency (IAEA), the World Health Organization (WHO), IOC, the United Nations Educational Scientific and Cultural Organization (Unesco), the World Meteorological Organization (WMO), the International Council for the Exploration of the Sea (ICES) and others—with IAEA as technical co-ordinator. During 1988, eight new reference methods were prepared and two revised, and four translations into French and Spanish of existing methods were issued and distributed to laboratories participating in the regional seas programme.

Regional seas programme

Mediterranean region

81. During 1988 the number of countries which had ratified the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and the Protocol concerning Mediterranean Specially Protected Areas rose to 12 and 13 respectively. Pledges to the Trust Fund totalled \$3,988,035 for 1988; by the end of the year \$1,751,630 had been received.

82. During their fifth ordinary meeting the contracting parties approved joint measures to prevent mercury pollution and agreed on maximum concentrations of mercury for all effluent discharges in the Mediterranean; approved environmental quality criteria for shellfish waters; agreed to amend the Protocol on land-based sources; and decided to

expand the terms of reference of the Regional Oil Combating Centre to include dangerous substances other than oil.

83. In the course of the year pilot coastal zone development projects were progressing in Greece, the Syrian Arab Republic, Turkey and Yugoslavia. The Regional Centre for the Reduction of Seismic Risk in Mediterranean Coastal Areas, financed by a contribution of \$1.3 million from Italy, was inaugurated in Genoa.

84. Numerous technical meetings were organized during the year, as well as training programmes in France, Greece, Italy, Malta, Monaco and Yugoslavia on oil pollution control, microbiological methods for determining quality of beaches, determination of chlorinated hydrocarbons, renewable energy and management of liquid waste treatment plants. The first joint scientific cruise was conducted in the Alboran Sea using the Moroccan research vessel *Charif al Idrissi*. Laboratory equipment and supplies, training and fellowships, research grants and maintenance services were provided to Algeria, Cyprus, Egypt, France, Greece, Italy, Lebanon, Malta, Monaco, Morocco, Spain, the Syrian Arab Republic, Tunisia, Turkey and Yugoslavia in support of their monitoring programmes.

85. The results of monitoring were published in six volumes of the Mediterranean Action Plan Technical Report series; the final report of the Blue Plan programme—*Futures of the Mediterranean Basin 2000-2025*—was published with a summary. Other documents issued included a study of Greek legislation on the protection of large Mediterranean islands, a study on aquaculture development in the Mediterranean region, draft codes of practice on solid and liquid waste management, and an action plan for the management of the Mediterranean monk seal (*Monachus monachus*).

Kuwait Action Plan region

86. The Council of the Regional Organization for the Protection of the Marine Environment (ROPME) held its sixth meeting in Kuwait on 13 and 14 April 1988 and approved UNEP proposals for future co-operation with ROPME in specific areas related to: (a) coastal zone management; (b) strengthening of national and regional capabilities for monitoring of the state of the marine environment; and (c) environmental public awareness. The Council also agreed to a UNEP initiative for an in-depth evaluation of the Kuwait Action Plan with a view to its review and reorientation.

87. UNEP continued to provide support to ROPME and its member States in the above-mentioned areas. For the evaluation of the Action Plan, a group of experts formed jointly by UNEP and ROPME prepared a comprehensive evaluation report on the achievements, shortcomings and difficulties encountered and proposed a new plan of action with concrete costed targets. Ministers met the Executive Director of UNEP to discuss the findings of the report and recommended its submission to an extraordinary meeting of the ROPME Council, which was held in Kuwait on 31 October and 1 November 1988 and endorsed the reorientation of the action plan toward concrete achievable targets and approved the actions proposed for cleaning up the sea area after the eight-year Gulf war.

88. UNEP also continues to co-ordinate the provision of technical assistance to ROPME from IAEA and other UN agencies, as well as providing expert advice on technical matters to ROPME upon request.

West and Central African region

89. In May 1988 the Steering Committee agreed to a rescheduling of unpaid pledges to the Trust Fund, but the continuing failure of most Governments to contribute has seriously

retarded the implementation of the Action Plan. Despite these financial problems, the network of national institutions and laboratories participating in marine pollution monitoring grew to 23 in 10 countries during 1988. Monitoring activities were supported by a training workshop, visits by consultants and servicing personnel, and a split-sample exercise for quality control. The results, presented by 29 scientists from 10 countries at the second scientific workshop in Ghana in June, demonstrated the growing capacity for pollution monitoring in the region. Missions to Gabon and Ghana produced reports on the status of their national environmental legislation. A manual on methods for evaluating and controlling coastal erosion in West and Central Africa was also completed.

Wider Caribbean region

90. The UNEP Regional Co-ordinating Unit for the Wider Caribbean, formally established in Kingston, Jamaica in May 1987, reached full staffing in 1988. To date 15 Governments have ratified or acceded to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region and its Protocol Concerning Co-operation in Combating Oil Spills, which entered into force on 11 October 1986. Four umbrella projects in areas of regional significance—co-ordination and common costs, environmental management of coastal areas, assessment and control of marine pollution, and environmental training, education and public awareness—are currently being implemented and include a major contribution on the implications of global climatic changes and the state of the marine environment. The Regional Co-ordinating Unit's information network is now operational and contains data bases on environmentally oriented institutions, experts, projects and documentation. A draft protocol on specially protected areas and wildlife was prepared and discussed during an expert meeting convened in the United States Virgin Islands in October. It is expected to be ready for adoption in 1989.

East Asian Seas region

91. Activities within the framework of the East Asian Seas Action Plan continued on the basis of the long-term strategy adopted by the Co-ordinating Body of the Seas of East Asia and the region's immediate, short-term and long-term environmental problems identified at the second meeting of experts held in December 1987. Four projects were completed in 1988, leaving four ongoing and two others being formulated. The seventh meeting of the Co-ordinating Body, held in July 1988, reviewed progress with the Action Plan and requested UNEP to start preparations for a meeting of legal and technical experts in 1989 to look into the feasibility of preparing a draft convention and related protocols, as a possible legal framework for the Action Plan. The regional report on the state of the marine environment was completed. UNEP also initiated the preparation of a regional study on the socio-economic implications of expected climatic changes. The report is being prepared by a team of scientists from the countries of the region.

South-East Pacific region

92. Following the entry into force of the Convention on the Protection of the Marine Environment and Coastal Area of the South-East Pacific, its supplementary agreement and its protocols, protocols on environmental impact assessment and specially protected areas are under preparation. About 200 experts benefited from the different activities carried out under the action Plan in 1988, such as seminars, workshops, training courses and consultation missions. The regional institutional network now comprises 50 institutions which include research laboratories, universities and institutes carrying out research activities in 29 areas of regional interest.

Red Sea and Gulf of Aden region

93. Following a proposal received from the secretariat of the Red Sea and Gulf of Aden Environment Programme concerning marine conservation surveys in Democratic Yemen, Somalia and the Sudan, UNEP is drafting a project on strengthening research and monitoring capabilities in Democratic Yemen for assessment of pollution in the marine environment.

South Pacific region

94. A wide range of activities in areas of environmental research, monitoring, management, education and training continued in the framework of the South Pacific Regional Environment Programme (SPREP), which was operated as a joint project of the South Pacific Commission (SPC), the South Pacific Bureau for Economic Co-operation (SPEC), the Economic and Social Commission for Asia and the Pacific (ESCAP) and UNEP, with strong substantive involvement from the Association of South Pacific Environmental Institutions (ASPEI). An intergovernmental review meeting on the SPREP Action Plan (Noumea, 27 June—1 July 1988) approved a concentration on six major programme elements:

- (a) Monitoring, research and control of pollution;
- (b) Management of specially protected areas, historic sites and exotic organisms;
- (c) Inland water quality, pesticides and pollution control;
- (d) Natural resource management, environmental planning and administration;
- (e) Environmental education, training and information; and
- (f) Impact of climatic changes and sea-level rise.

The future association of UNEP with SPREP, in the context of the regional seas programme, was considered by the intergovernmental meeting but remained an unresolved issue.

Eastern African region

95. Somalia ratified the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region. A national oil spill contingency plan for Mauritius was developed by IMO and UNEP in co-operation with the Government of Mauritius, and a national action plan for the protection, management and development of the marine and coastal environment of the United Republic of Tanzania was prepared by UNEP in close collaboration with the Tanzanian National Environment Management Council. The Government of Somalia was assisted by IMO, IOC, FAO and UNEP in assessing the pollution situation at the site of the wreckage of *M. V. Ariadne*, which went aground in Mogadishu harbour on 24 August 1985 spilling a significant amount of hazardous chemicals.

South Asian Seas region

96. In view of the lack of agreement in December 1987 at the second meeting of national focal points on the question of the institutional and financial arrangements required for the implementation of the region's action plan, UNEP has requested clarification of certain issues from the countries of the region. As its contribution towards the development of the

action plan, UNEP, with the co-operation of IUCN and IMO, has initiated two projects in the region and is also in the process of formulating a third project with the assistance of the South Asia Co-operative Environment Programme. Furthermore, the regional report on the state of the marine environment was completed and the regional report on the socio-economic implications of expected climatic changes is being finalized.

The AMCEN Committee on Seas

97. Within the framework of the African Ministerial Conference on the Environment (AMCEN), UNEP serves as the secretariat for AMCEN's Committee on Seas. The Committee held its second meeting in December, finalized its composition, terms of reference and work plan and established a mechanism for the exchange of information and expertise between the African subregions in the field of protection and development of the marine and coastal environment in Africa. The Committee also declared an African Decade for the Protection of the Marine and Coastal Environment in the years 1991-2000.

Living marine resources

98. UNEP continued its efforts to promote the implementation of the Global Plan of Action for the Conservation, Management and Utilization of Marine Mammals. As mentioned above, a regional action plan for the protection and management of the Mediterranean monk seal was prepared by representatives of intergovernmental and non-governmental organizations and experts from countries participating in the Mediterranean Action Plan. An extensive evaluation of the development of the Global Plan of Action and its achievements to the end of 1988 was undertaken. A meeting of the Planning and Co-ordinating Committee, established under recommendation 36 of the Plan, reviewed progress in the implementation of the Plan and made recommendations regarding its future orientation and co-ordination.

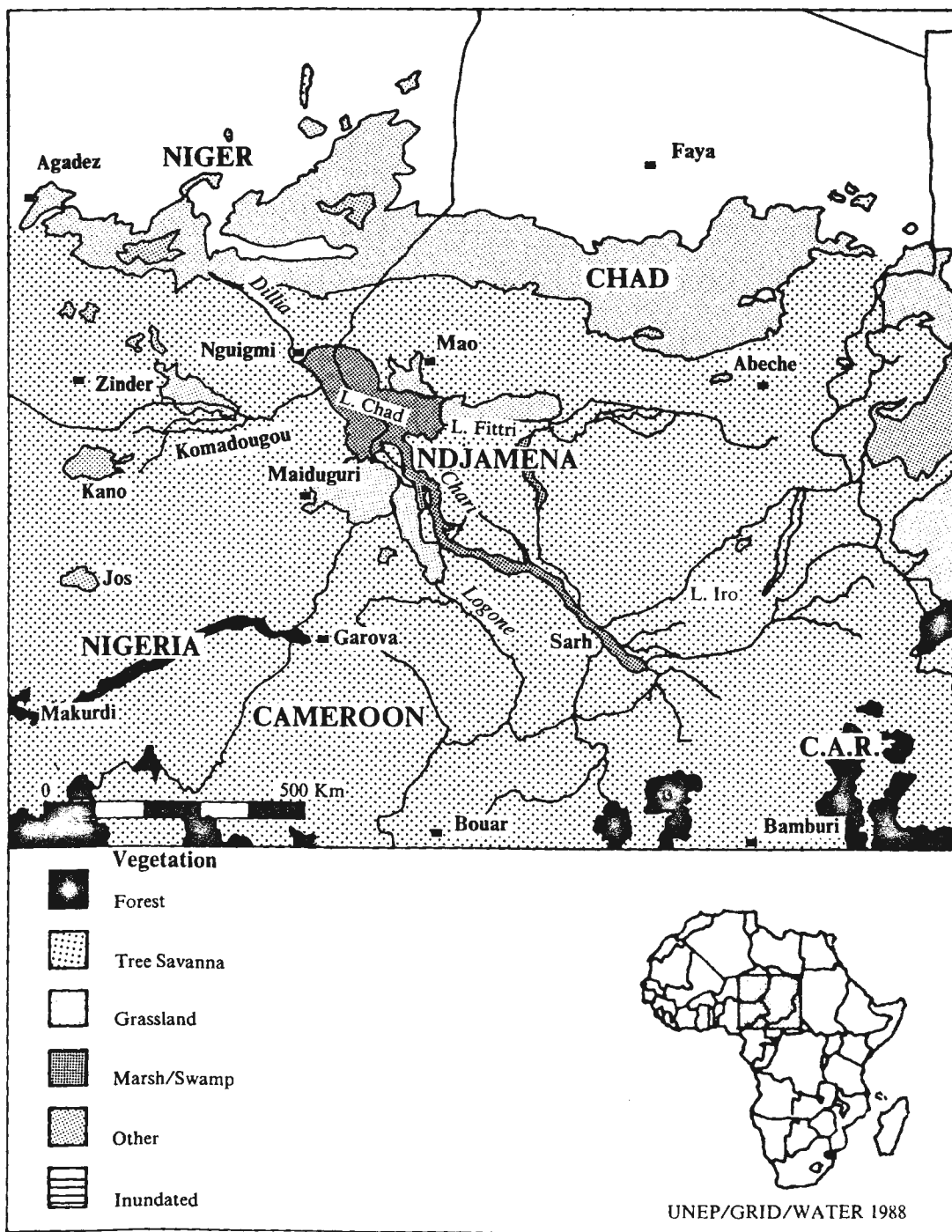
WATER (Budget line 22)

99. Fresh water resources play an important role in every continent. The traditional approach to water resources management dealt with water almost exclusively as a natural resource. The other uses of fresh water as a major component of ecosystems and a carrier of matter in natural cycles, and its role in socio-economic development, are taken into account in UNEP's new programme for the environmentally sound management of inland water (EMINWA), described in the *1986 Annual Report*.

100. In 1988 attention under the EMINWA programme focused on the Lake Chad basin (Figure 5), which had deteriorated as a result of a prolonged dry period. UNEP assisted the Lake Chad Basin Commission by outlining the necessary steps for the preparation of a water master plan and an action programme for the environmentally sound management of the basin through:

- (a) Lake inflow and water balance control;
- (b) Reinforcing the recharge of underground waters;
- (c) Development of sound water use;
- (d) Water and soil conservation projects;

Figure 5
The Lake Chad Basin



- (e) Improvement of rain-fed and irrigated agriculture; and
- (f) Restoration of vegetation.

101. While the implementation of the Zambezi Action Plan has for the most part become a matter for SADCC, UNEP's concern with the development of large international basins (and the Zambezi basin, in particular) has been focused on an advanced decision support system for basin management. In 1988, in co-operation with the International Institute for Applied Systems Analysis (IIASA), an interactive programme for the decision support system continued to be developed and tested. A case-study of the Zambezi basin was prepared to demonstrate the methodology to the institutions involved in the implementation of the Zambezi Action Plan.

102. In the Mekong Delta, one way to increase food production lies in more intensive agriculture and the improvement of water and land management through restoration of the agricultural productivity of the acid sulphate soils, though the method of improvement of acid soils is not feasible over large areas. In co-operation with UNEP/COM, a survey mission was dispatched to the Delta to establish two pilot farms covering at least 5,000 hectares each. Some 12 Vietnamese specialists underwent training in the USSR in rational agricultural land use and water resources development, and another 16 were trained in the technology of intensive rice growing in the Mekong Delta.

103. Projects were also developed for the protection and development of Lake Xolotlán basin in Nicaragua and the Orinoco-Apure river system in Venezuela.

104. UNEP is equally concerned with the environmentally sound development of ground-water resources. An expert group meeting was held in Bahrain in March to discuss the preparation of an action plan for the environmentally sound management of the Damman aquifer. Experts from Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates, and from the Arab Centre for the Study of Arid Zones and Dry Lands (ACSAD) and the Economic and Social Commission for Western Asia (ESCWA), agreed on the need to prevent the pollution of recharge water by industrial and domestic waste and to co-operate in the conservation of ground-water resources. The plans are now being revised in the light of the meeting's conclusions.

105. In September UNEP was represented at a fourth planning meeting organized by Unesco and WMO on the fresh-water part of the World Climate Programme. The participants recognized that in view of the importance of the planning cycles, decisions and funding of the agencies concerned, the value of joint meetings lay in reviewing all the projects concerned jointly and simultaneously. They agreed that in climate and water resource development projects attention needs to be focused on: (a) studies of hydrological data in the context of climate variability and change; (b) modelling of the hydrological cycle; and (c) a methodology for the application of climatological data to water resources projects.

106. The International Drinking Water Supply and Sanitation Decade (1981-1990), led by WHO, initially paid less attention to rural than to urban areas. To correct this and improve the methods of water quality examination in small rural communities, UNEP and WHO established water quality surveillance systems in villages in Indonesia, Peru and Zambia under a new project on control of drinking-water quality in 1988. It is hoped that its successes will be replicated in the United Republic of Tanzania and Vanuatu.

107. Planning water resources development has too often concentrated on major construction efforts with little consideration of their environmental and social effects on the basin communities. Although benefits from water resources schemes are many and substantial, they also give rise to a whole series of problems, such as the forced resettlement of population, the aggravation and spread of water-borne diseases, the spread of undesirable aquatic plants and the disruption of fisheries. In a joint project the International Lake Environment Committee (ILEC) and UNEP are exploring ways and means of assisting Governments to enhance their ability to avoid these adverse effects as far as possible. This is to be achieved through three workshops on environmentally sound lake management (the first of which was held in Otsu and Nagoya, Japan in February 1988), and the development of guidelines, to be based on limnological and socio-economic data collected on the present status of lakes in the world, which were published in interim form in 1988.

108. Under the auspices of the Economic Commission for Europe a first draft code of conduct on accidental pollution of transboundary inland waters was prepared by government representatives from 13 European countries. Once approved, the code of conduct, will be used not only in the framework of European environmental activities but also as guidance for the solution of similar problems all over the world.

109. A series of guidelines on environmental impact assessment methods was prepared in co-operation with Unesco. The guidelines will help Governments, institutions and individuals to highlight environmental components in the design of water resources projects. Methodological guidelines for the integrated environmental evaluation of water resources development were published, and a draft training manual for the environmental evaluation of water resources management and development was finalized. In addition, work was completed on a draft of a new world-wide classification of waters in which ecological aspects are emphasized. The draft is currently under review by various organizations with expertise in this field.

110. Under the training component of the EMINWA programme, UNEP has been working to develop human resources for environmentally sound water management as part of its collaboration with CEFIGRE. Three training courses were organized in 1988: one in Bangkok for trainees from Asia, another in Niamey for French-speaking Africa, and the third in Cairo for Latin America and English-speaking Africa.

111. A regional workshop on the management of water resource development projects was held in the USSR for senior staff of national water agencies. ESCAP organized the workshop with the support of UNEP for the purpose of strengthening the capabilities of developing countries in the region to integrate environmental considerations into their water resources development projects.

112. Following a world-wide survey of educational programmes for water resource engineers, conducted in co-operation with Unesco, UNEP published recommended syllabuses on the "Integration of environmental aspects in water resources engineering education" which the two organizations recommend for inclusion in training schemes for water resources engineers.

113. The Advisory Group on Water Resources held its sixth and seventh sessions in 1988. Attention focused on the preparation of guidelines for sustainable water management and on the implementation of the EMINWA programme, particularly in the Lake Chad basin.

TERRESTRIAL ECOSYSTEMS MANAGEMENT (Budget line 23)

Renewable resources management and conservation (Budget subline 231)

Soils

114. Soil erosion is now so severe in many areas of the developing world that controlling it has become a matter of life and death, particularly for low-income farmers. Moreover, as demand for food and energy climbs, land-hungry farmers are pushing their farms onto steep slopes and into semi-arid regions where ploughed land is vulnerable to water and wind erosion, thus converting once renewable resources into non-renewable ones. More and more marginal land is being cultivated in such areas, often using inappropriate methods and technology.

115. Since the beginning of agriculture, approximately 2 billion hectares of productive land have been irreversibly lost. The current rate of loss has reached 6-7 million hectares per year, 30-35 times mean annual historical losses. The introduction of European-style agriculture in many parts of the world during the last three centuries, coupled with over-population and over-stocking, has led to accelerated man-induced soil degradation. World-wide, soil erosion totals about 26 billion tons per year, equal to the loss of some 20 million tons of grain per year. Soil erosion rates in Africa have increased 20-fold in the last 30 years. Erosion rates as high as 200-300 tons per hectare per year are commonplace in certain parts of the continent. African soils are low in clay and organic matter, and are thus particularly susceptible to erosion. In Peru, 50-60 per cent of the country is affected by erosion. In India, about 6 billion tons of soil wash or blow away each year. The Yellow River in China carries about 1.2 billion tons of soil to the ocean each year. Soil erosion is seen as the most serious natural resource problem in the Dominican Republic: erosion rates of between 100 and 500 tons per hectare per year have been recorded.

116. In the United States croplands were losing 3.1 billion tons of topsoil annually in the years up to 1986, exceeding the rate of soil formation by 2 billion tons. This meant that for every ton of grain produced, six tons of soil were lost. The United States Department of Agriculture recently reported a historic year-to-year reduction in cropland soil erosion of 460 million tons, achieved as a result of major US legislation and a public awareness of the serious environmental threat.

117. In pursuance of the Plan of Action for the Implementation of the World Soils Policy, adopted by the Governing Council in 1984, a project entitled "Global assessment of soil degradation", initiated in September 1987, is being implemented by the International Soil Reference and Information Centre in the Netherlands, in association with FAO, the International Society of Soil Science, the Netherlands Soil Survey Institute and the International Institute for Aerial Survey and Earth Sciences. The long-term objectives of this project include the global application of soil degradation assessment methodology, and preparation of a report on the economic implications of soil degradation processes, leading to improved land use planning and management. There are global deficiencies in both comprehensive data on soil degradation and land degradation assessment methodology. So far, the project has produced a set of "Guidelines for general assessment of the status of human-induced soil degradation", published in April 1988. This document was discussed and adopted at a regional workshop on soil degradation assessment held in Montevideo in March, attended by about 20 Latin American soil scientists. Another document, "Procedure manual for small-scale map and data base compilation", was completed in December 1988.

118. In the context of the implementation of the Cairo Programme for African Co-operation, UNEP and the Soil Research Institute of the Council for Scientific and Industrial

Research in Kumasi, Ghana, signed an agreement under which the Institute will assume overall responsibility for the co-ordination of the African Soils and Fertilizers Network (cf. figure 1), in close co-operation with UNEP and FAO. Initial activities included a development and training workshop organized by the University of Zimbabwe in May—June 1988 under the auspices of the International Union of Biological Sciences' Decade of the Tropics and the Unesco Man and the Biosphere programme, participation in the first All-Africa Soil Science Society Conference (Kampala, Uganda, December 1988), and holding of the second meeting of the Network's Management and Planning Group in Kampala, also in December, to discuss the organization of work, operational arrangements, the promotion of joint activities with relevant UN and other organizations, and the future work plan.

119. UNEP sponsored the participation of experts from nine developing countries in the International Conference on Soil Classification in Alma-Ata, USSR, in September 1988. UNEP also supported the International Workshop on Classification, Management and Use Potential of Swell-shrink Soils (Nagpur, India, October 1988) by presenting a keynote paper on the subject and sponsoring the participation of experts from eight developing countries.

Forests and other ecosystems

120. There is growing concern at nearly all levels regarding the continuing destruction of forest ecosystems in general and tropical forests in particular. So far, however, there is no clear indication of any decline in the overall rates of destruction reported in past years. Governmental institutions, NGOs and the public at large are increasingly raising their voices to urge action to reverse the increasing destruction and degradation of forests in temperate and tropical zones. But there is no sign of any abatement of forest destruction at the field level, despite the relatively new and urgent grounds for urgent action: the links between forests and climate change; the need to protect biological diversity, the relationship between crops and their wild relatives; and the potential benefits of medicinal plants as yet unknown to modern science. UNEP played an active role in the implementation of the Tropical Forestry Action Plan by strengthening its conservation component.

121. Further to the Executive Director's initiative in contacting major producers and consumers of tropical forest products with a view to taking urgent action to safeguard tropical forest ecosystems, contacts with selected developed countries have continued, unfortunately with little response so far. At the technical level, an expert meeting on compensation mechanisms for conservation of tropical forest ecosystems was held in Nairobi in March. The experts analysed the technical aspects of incentives and compensation for reinforcing conservation of tropical forest ecosystems, reviewed recent developments in debt swaps in Bolivia and Costa Rica and recommended follow-up activities, including the development of methodologies to assess the real value of forest ecosystems.

122. FAO continued to co-ordinate the implementation of the Action Plan with the support of Governments, the UN system including UNEP, multilateral and bilateral donors and NGOs. More than 10 national forestry sector reviews have been completed and 33 are being developed.

123. UNEP's capacity to support the Tropical Forestry Action Plan has been improved through an internal project initiated in July 1988. The project allows UNEP to play a more active role in selected country missions, to increase its overall action in environmental components in forestry training, to support youth activities in tree-planting and forest ecosystem conservation and to increase action related to environmental awareness. Since its launching the project has supported missions to Bolivia by a consultant in forest ecosystem

conservation and to Mexico by a consultant in environmental impact assessment. Other consultant missions are in the planning process.

124. Together with direct action for conservation of tropical forest ecosystems, other steps should be taken to release pressure on these forests, UNEP's efforts have been focusing also on training in agroforestry, remote sensing applications to forestry management and public awareness. A training seminar on agroforestry applications for arid and semi-arid French-speaking African countries was organized jointly with ICRAF and UNEP/COM in Samarkand, USSR in May. The seminar was attended by 23 participants from 11 African countries. As a follow-up to the Workshop on Applications of Remote Sensing to Forestry held in the USSR in August-September 1987, two missions visited Costa Rica and Peru in early 1988, producing proposals for the training of local experts in both countries.

125. Mali, the Niger, Nigeria, Senegal, Zambia and Zimbabwe expressed interest in the reafforestation plans recommended by the African Ministerial Conference on the Environment (AMCEN). Implementation of the AMCEN recommendations is to be linked with activities to carry out the Tropical Forestry Action Plan whenever possible. Consultant missions were sent to Nigeria and Zambia. Support was given to participants from Madagascar, Uganda, Zaire and Zambia to enable them to attend a workshop organized in October by the International Union of Forest Research Organizations (IUFRO) in Lilongwe, Malawi to discuss planning of research on multiple-use forest species for Eastern and southern Africa. UNEP also assisted five participants from Bhutan, China, Nepal, the Philippines and Sri Lanka to attend an FAO/Government of Finland workshop on popular participation in upland conservation. UNEP supported the participation of 45 students from developing countries in an international congress on nature management and sustainable development held at the University of Groningen in the Netherlands in December.

126. In order to develop a comprehensive plan to improve forestry conservation and management in the United Republic of Tanzania, two expert missions have produced a list of project proposals which have now been cleared by the Government and are being submitted to potential donors. This programme is focusing on the *mpingo* or African ebony (*Dalbergia melanoxylon*) because of its cultural value and its use in the production of high-quality musical instruments. Plans are being developed to raise funds through musicians in capitals of selected developed countries to help support the project. A leaflet has been produced for this purpose entitled "Don't stop the music—Save the *mpingo*".

127. UNEP provided support for the preparation of a forestry sector overview in Uganda, which has now been published. Technical advice was provided for the production of a report on forestry, rangelands and climate being prepared by the World Resources Institute.

128. An International Workshop on Evaluation of Air Pollution Pressure Through Pine Needle Analysis and Mapping was held in Warsaw in September 1988. The Polish Botanical Garden has produced a practical methodology for assessing air pollution pressure in Poland, which can easily be used by other countries in Europe.

129. An International Seminar on the Ecology and Management of Natural Resources in High Mountain Areas was held in August 1988 in Cajamarca, Peru. The seminar was attended by 72 participants from seven countries, including government officials, parliamentarians, farmers' representatives and researchers. The report of the meeting was published in Spanish. The pilot project under which the seminar was organized has been active in encouraging farmers' voluntary participation and involvement in training activities, rescuing traditional technologies and improving living conditions. A 30-minute NTSC video tape has also been produced in English and Spanish.

Wildlife and protected areas

130. As the global population continues to grow, the pressure on the world's biological resources will become increasingly intense, reaching levels far beyond those prevalent now. These renewable resources are the primary basis for human civilization, and will have to be used much more wisely in the future than has yet been possible. The Earth's total biological diversity has been variously estimated to be between 5 and 30 million species or more, though only about 1.4 million have actually been described. One of the most serious consequences of the non-sustainable, exploitative use of natural resources is the rapid destruction of the world's most diverse ecosystems, especially in the tropics, and the accelerating permanent loss of biological diversity, which has led most experts to conclude that perhaps a quarter of the Earth's total biological diversity, amounting to at least 1 million species, is in serious risk of extinction during the next 20 or 30 years.

131. The significant erosion of the global biological heritage will severely curtail the potential for building or rebuilding sustainable agriculture or forestry systems, producing useful products in the future or developing the life sciences. For example, only about 150 of the estimated 265,000 species of plants are used widely as sources of food, and only about 5,000 have ever been cultivated for this purpose. Clearly thousands more have potential for this and many other purposes. Even the major crop plants and animals are suffering serious genetic erosion, despite efforts to forestall it. UNEP's approach to this problem is to promote the conservation of biological diversity by:

- (a) Establishing protected areas;
- (b) Promoting the formulation and implementation of regional and national conservation strategies;
- (c) Encouraging the ratification and application of global and regional conservation conventions;
- (d) Taking measures to protect particular habitats as protected areas;
- (e) Incorporating the maximum amount of biological diversity in existing and future protected areas;
- (f) Providing secure scientific management for existing and future protected areas and their wild species;
- (g) Taking measures to protect particular species or groups from destructive exploitation; and
- (h) Encouraging Governments to apply to non-protected lands the conservation principles outlined in the World Conservation Strategy and the World Charter for Nature.

132. The World Conservation Strategy, published by UNEP, IUCN and WWF in 1980, has become the most influential conservation document of the decade, promoting the formulation of numerous national conservation strategies and through them the conservation of biological diversity for sustainable development. Drawing on UNEP's Environmental Perspective to the Year 2000 and Beyond and the report of the World Commission on Environment and Development, the strategy is currently being updated and expanded. During 1988 a framework (annotated skeleton), a table of contents with annotations and draft chapters on "Population and resources" and on "Building a world conservation ethic" were prepared and approved by the three sponsors, UNEP, IUCN and WWF.

133. Recognizing the serious problem of the rapid disappearance of the world's species and the urgent need for adequate conservation of biological diversity, UNEP contacted all Governments seeking information on their involvement in national and international activities relating to the conservation of biological diversity and on the kind of support that they could provide in implementing Governing Council decision 14/26. Responses have so far been received from 58 Governments. A small group of highly qualified experts met in Nairobi in August 1988 and extensively analysed the issues relating to international action to conserve biological diversity. They concluded that a global convention would be a powerful catalyst drawing together the efforts of the various sectoral and regional conventions in the field of conservation of biological diversity. However, they urged that work on a convention should proceed only if it:

- (a) Has a sound basis in science;
- (b) Is truly comprehensive in scope;
- (c) Is practical in defining obligations and goals;
- (d) Has the commitment of Governments to funding at an adequate level;
- (e) Provides realistically for a transfer of resources to allow implementation of the convention by the poorer countries which are also the custodians of much of the biological heritage of the Earth; and
- (f) Is capable of catalysing and co-ordinating the efforts of Governments and agencies under other conventions in this field.

The experts analysis and the views of the Ecosystem Conservation Group provided the main inputs for an *Ad Hoc* Working Group of Experts on Biological Diversity which met in Geneva in November 1988.

134. The Group of Experts further agreed that an umbrella convention to rationalize existing international instruments was neither desirable nor possible because of political and logistical difficulties, and that other ways and means should be sought to achieve better co-ordination and co-operation between the parties to the existing conservation conventions and the realization of their full potential. The Group generally endorsed the view that a new global legal instrument and other additional measures were required for the conservation of biological diversity, advised on the possible form of such a global instrument (a framework convention or a substantive convention) and gave preliminary views on the approach which could be taken in drafting the convention. Finally, the Group proposed that the Governing Council should decide on the process and procedures, including consideration of additional sessions of the *Ad Hoc* Working Group of Experts, which might be needed to resolve several important issues critical to the convention, particularly socio-economic, political and financial, as well as consideration of financial means and mechanisms for fund-raising.

135. During 1988, UNEP continued to provide the secretariat for the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in Lausanne, Switzerland. International wildlife trade, worth billions of dollars annually, has contributed substantially to massive declines in the numbers of many species of animals and plants. The 97 parties to the Convention have banned commercial trade in an agreed list of endangered species and regulate and monitor trade in others that might become endangered. A world-wide system of controls on international trade in threatened wildlife and wildlife products has been established through a system of government permits. The revised list now covers more than 20,000 species. The CITES secretariat also works closely with customs officials at

the national level as a means of combating illegal trade and over-exploitation. Six technical assistance missions took place in 1988 to assist developing countries in implementing the Convention. The Ivory Co-ordination Unit continued its work on an ivory quota system and a survey of ivory trade and stocks. Participants at the first meeting of the CITES African Elephant Working Group, which was held in Nairobi in October-November, agreed to submit a comprehensive elephant conservation strategy, discussed at the meeting, to Governments for consideration, and to strengthen the regulatory system for trade in raw ivory.

136. The finances of the Convention Secretariat entered upon 1988 in substantial debt to the Environment Fund. The latter had been called upon to advance funds in 1987 to meet a deficit in the Secretariat budget incurred as a result of non payment, or delayed payment, by some of the parties to the Trust Fund established to manage the finances of the Convention. The deficit was incurred also as a result of the unanticipated rise in 1987 of Secretariat costs expressed in terms of United States dollars, owing to the sharp rise in the exchange value of the Swiss franc. In 1988, the situation improved somewhat and as a result of budget economies part but not all of the debt to the Environment Fund was repaid.

137. UNEP also continued to provide the secretariat for the Convention on the Conservation of Migratory Species of Wild Animals, with support from the Government of the Federal Republic of Germany. The wider geographical coverage created by increased membership (totalling 28) is most significant in terms of migration routes and ranges. The principal mechanisms of conservation under the Convention are agreements between all the range States of a species or separate population of a species. The first meeting of the Scientific Council and the second meeting of the Conference of the Parties to the Convention held in Geneva in October discussed the further development of such agreements. The Conference also directed that priority should be given to a global review of the conservation status of small cetaceans, including freshwater species. In 1988, the activities of the secretariat for the Convention were constrained by a delay in the payment of contributions to the trust fund established to manage the finances of the Convention.

138. Under an agreement with the Government of Uganda on co-operation in environmental protection, UNEP has undertaken a survey and assessment of some Ugandan natural resources with recommendations for their environmentally sound management. Nine technical volumes, plus a summary entitled *Natural Resources and Environment in Uganda*, have been published and officially submitted to the Government by UNEP. Joint studies on the conservation of biological diversity, wildlife and protected areas, fisheries and wetlands have confirmed that there are a number of serious environmental problems in Uganda needing urgent attention. The Government has indicated that the reports will greatly help in drawing up action programmes.

139. The successful UNEP/FAO project on Wildlands, Protected Areas and Wildlife Management in Latin America and the Caribbean continues. Numerous technical workshops have contributed to the improvement of wildland, wildlife and protected area management, the utilization of wild species of fauna, *in situ* conservation of genetic resources in wildland and protected areas, the management of natural resources in protected areas and the full exploitation of the resources on a sustainable basis to provide economic and social development in the region. The technical capabilities of field personnel in wildlands, protected areas and wildlife management have been strengthened. A Latin American network has been established and developed to facilitate the co-ordination of activities and the exchange of scientific and technical information on national parks, other protected areas, wild flora and fauna. The project, which also aims to integrate planning and management of wildlands into national conservation strategies and national development

plans, has so far involved 19 different countries in hosting workshops, seminars and training courses.

140. UNEP continued to provide secretariat services to the Ecosystem Conservation Group (ECG), comprising the four major global conservation organizations—UNEP, FAO, Unesco and IUCN—with UNDP, the World Bank and WWF invited as observers. At its fifteenth general meeting the Group reviewed activities over the past year for implementing the Action Plan for Biosphere Reserves. It reaffirmed its conviction that biosphere reserves are extremely important in the conservation of biological diversity, allowing for research, monitoring, conservation, education and training, and agreed to collaborate more closely. UNEP has drawn up a project on training of biosphere reserve managers in Africa in co-operation with Unesco.

141. By June 1988, when the College of African Wildlife Management at Mweka in the United Republic of Tanzania celebrated its twenty-fifth anniversary, it had trained over 1,500 wildlife and protected area managers from 18 African and 11 non-African countries, partly with UNEP support. The silver jubilee provided an opportunity to review the College's achievements during those 25 years and examine what it can do to improve and intensify its commitment to the conservation of protected areas in Africa and abroad.

Genetic resources

142. Plant genetic resources are essential for boosting and stabilizing crop yields and expanding the number of crops traded between nations. There is much scope for looking beyond today's major crops to species that may have future value either in themselves or as sources of genes for use with other species. This would make it possible to expand small-scale and large-scale agriculture and build a more stable and sustainable food and energy supply, as well as to revegetate land damaged by or threatened with erosion and desertification. Much important work has been carried out recently in conserving crop plant genetic resources in gene banks. But the genetic diversity of the world's crop plants is still under threat.

143. Compared to major cultivated species, less is known about the wild species and primitive land races required for further breeding and improvement of crop plants, their distribution and the potential dangers of genetic erosion through changes in habitat and agricultural practices, careless development activities, the spread of grazing land, civil disturbances, natural disasters and the introduction of new varieties. In 1988, under a joint IBPGR/UNEP project for the conservation of crop plant genetic resources and their wild relatives, a total of 194 samples of *Zea*, *Pennisetum*, *Sorghum*, *Cajanus*, *Vigna*, *Phaseolus*, *Cucurbita*, *Hibiscus*, *Arachis*, *Oryza* and *Sesamum* germ-plasm were collected from areas of lower Zaire. The material was deposited in the gene bank network established and co-ordinated by IBPGR to house the world base collections.

144. Medicinal plants have very considerable potential for extensive use not only in traditional and folk medicine but also in modern medicine. Sales of crude plant drugs in China are estimated at \$1.4 billion annually, while the retail value of plant-based drugs in OECD countries was estimated at about \$43 billion in 1985. However, the extent of the risks to medicinal plant species (mainly due to over-exploitation in the wild), the genetic erosion of their populations and their importance to human welfare is almost certainly underestimated. To promote the conservation and rational and sustainable utilization of the biological diversity of medicinal plants, WHO, IUCN and WWF, with support from UNEP and FAO, organized an international consultation on the conservation of medicinal plants in March 1988.

145. Although Africa is short of food, it is not using the full potential of its genetic resources. To help develop a comprehensive programme of activities aimed at the conservation of the continent's wealth of plant genetic resources, UNEP, in collaboration with IBPGR and IITA, and with support from Finnish, Netherlands, Norwegian and Swedish aid, organized a pan-African workshop on plant genetic resources in September 1988. The workshop called for greater African co-operation through networking on germ-plasm research, collection, conservation and utilization and the transfer of information and technology on how to use them, and for greater co-operation between national and international organizations in the exchange of materials and information and the development of projects to conserve important plant species.

146. There is need to provide ready access to information on the genetic characteristics of indigenous and exotic animal breeds and populations and environments in which they perform, and to encourage the use of such resources for the implementation of livestock improvement programmes and the conservation of breeds and populations at risk of disappearance. As a follow-up to pilot trials of animal genetic resources data banks in developing regions undertaken under a joint FAO/UNEP project in 1982-1986 (see *1986 Annual Report*, chapter IV, paragraph 214), agreement has been reached between FAO and the European Association of Animal Production to expand the newly established data bank for Europe to hold a summary of genetic characterizations of breeds from developing countries, thus making the data bank a global one.

147. FAO—with support from UNEP—continued to provide technical inputs for the establishment of regional gene banks for animal genetic resources. In 1988 studies began on methodologies of operation, logistics, animal disease problems, economics and training in identification techniques for endangered breeds as a step towards the creation of regional animal gene banks in Africa, Asia and Latin America for the cryogenic storage of semen and embryos of endangered breeds.

148. Large financial investments have been made in research on micro-organisms and their development and use in agriculture, health, industry, environmental management and biotechnology. In the process of these investigations, extensive microbial strain and cultured cell line germ-plasm and data thereon have been accumulated. In order to maximize the benefits and minimize the risks presented by micro-organisms, and to bridge the gap between scientific research and its application, particularly in developing countries, UNEP continued its support during 1988 to the regional Microbiological Resources Centres (MIRCENs) in Brazil, Egypt, Guatemala, Kenya, Senegal and Thailand, enabling them to organize training activities and carry out pilot projects for the application of microbial resources in environmental management.

149. To facilitate microbiological information exchange, UNEP continued its support throughout the year to the International Microbial Strain Data Network (MSDN) as a global co-ordinated means of collating knowledge about and ensuring access to data on the location and availability of strains with desired properties. To maximize its effectiveness, the Network—with support from UNEP and other institutions and organizations—is conducting two training courses a year at different locations around the world for potential Network users and operators. The 1988 courses were held in Guatemala and the United States.

150. As biotechnologies emerge from the laboratory through manufacturing facilities and into the environment, there will be a growing need for biosafety. The deliberate release of genetically engineered organisms for purposes as diverse as the promotion of plant growth, crop protection, the biological control of insect pests and disease vectors and the treatment of pollution is accompanied by vigorous debate on the possible environmentally harmful

effects of introducing genetically manipulated organisms—micro-organisms, plants or animals—into the environment; the need for the development of risk assessment criteria and methodologies; the need for a globally acceptable binding regulatory framework; and the need to effectively meet public concerns about release hazards by discussing fears rather than dismissing them. The joint UNIDO/WHO/UNEP Working Group on Biotechnology Safety has continued its work; in addition, UNEP and a wide range of other institutions sponsored the First International Conference on the Release of Genetically Engineered Organisms in Cardiff, United Kingdom in April 1988. The conference provided an opportunity for open discussion among workers in this new field and a frank exchange of views and opinions between specialists on the need to proceed with responsibility and caution and raise the level of understanding and confidence among the general public.

Bioproductivity research

151. It is essential to understand how the increase in atmospheric carbon dioxide concentrations will affect the productivity, physiology and ecology of terrestrial plants. However, at present, there is only a minimal understanding of such effects, and the work that has been started has nearly all been in temperate regions. Tropical grasslands are the second largest biome in the world in terms of area, and equal in net primary productivity to tropical forests, but nothing is known of carbon dioxide effects on tropical grasses, while knowledge of their net primary productivity is very incomplete. Additionally, very little is known of the interactions between changes in carbon dioxide concentrations and soil moisture availability, which are likely to be important factors affecting the productivity of tropical grasslands.

152. In 1988 UNEP, in collaboration with King's College of the University of London, initiated a new project on "Environmental changes and the productivity of tropical grasslands". Following up a previous project entitled "Primary productivity and photosynthesis in natural ecosystems of the tropics in relation to environmental variables" additional core productivity data were collected for the world-wide time-series data base on tropical bioproductivity. The new project will have important new directions which allow monitoring of the effect of climate changes on tropical net primary productivity.

Lithosphere (including biogeochemical cycles) (Budget line 232)

153. While "Lithosphere" remains the title of this subprogramme, most of the activities outlined below involve a wider concept: that of the interrelationship between the Earth's surface, its subsurface and biogeochemical cycles.

154. Regarding the lithosphere alone, the UNEP/Unesco/USSR project on "Geology and environment" continued. The proceedings of the first international workshop on the impact of water management projects on the hydrogeological and engineering geological conditions of the lithosphere (held in October 1985 in Tashkent, USSR) were published.

Biogeochemical cycles

155. Chemical elements essential for life are commonly referred to as biogeochemical elements. Since they may stem from the air, the water, the crust or the biological cell, biogeochemical cycling of elements involves all compartments of our Earth from a depth of 50 km (crust and upper mantle) to a height of 100 km (troposphere and stratosphere).

156. In general, biogeochemical cycles describe the pathways along which organic and inorganic substances move and interact in the various compartments of the Earth. Globally combined, they can be looked upon as a complex and dynamic network of flows of matter and forces in the lithosphere-biosphere interaction. Assessing their principles of operation requires a constant crossing of disciplinary boundaries between physics, chemistry and the environmental sciences. A holistic approach is mandatory, because only in this fashion can multifarious feedbacks and processes be properly considered.

157. In September 1988, a joint workshop of the SCOPE/UNEP Carbon and Sulphur Units was held on the shores of Lake Baikal in the USSR. Lake Baikal contains close to a fifth of the world's freshwater reserves, and is also the deepest lake on Earth. The Baikal workshop was the first to appraise all major biogeochemical elements with respect to their integrated feedbacks in what one might call a "biogeochemical supercycle". The aim was to look at the state of water in relation to the role biogeochemical elements play in this medium. The proceedings of the workshop will form part 7 of the UNEP/SCOPE publication series on the transport of carbon and minerals in major world rivers, lakes and estuaries.

DESERTIFICATION CONTROL (Budget line 24)

158. Desertification continues to be a major environmental problem, worsened by the persistent droughts reported in the northern hemisphere during 1988. In Africa, where drought and desertification rank as the foremost environmental concerns, heavy rains broke the drought of the previous years, but also provided favourable conditions for catastrophic floods and for an unprecedented desert locust plague. Locust swarms infested millions of hectares of land in the Maghreb countries, the western Sahel, eastern Africa and the Arabian peninsula.

159. The gravity and scope of desertification are more widely recognized today than a decade ago, particularly among the developing countries prone to desertification. Efforts to combat desertification, however, in most of the countries are limited to isolated sectoral anti-desertification projects whose development impact is severely hampered by the lack of a clearly defined framework for desertification control effectively integrated into national development plans. Effective and concrete actions, and technical and financial support, fall far short of what is needed. Furthermore, in the majority of countries worst-affected by desertification national institutions capable of co-ordinating and harmonizing anti-desertification programmes and activities do not have enough human and financial resources.

160. In response to these problems UNEP has made a major effort to provide assistance to Governments that have developed or are developing national plans for desertification control, a total of 16 so far. However, very few of these action plans have been fully integrated into overall national development plans and implemented within that broad framework. Accordingly UNEP and the United Nations Sudano-Sahelian Office (UNSO) consulted with various Governments to agree on steps to formulate concrete project proposals on priority areas identified under the national action plans.

161. In compliance with Governing Council decision 14/15, the Executive Director consulted with representatives of Governments and UN agencies on enhancing the work of the Consultative Group for Desertification Control (DESCON), a new approach to the Special Account for financing desertification control programmes, and general issues pertaining to means for financing the implementation of the UN Plan of Action to Combat

Desertification. A meeting of high-level officials and experts in Geneva in July 1988 made various recommendations in these areas.

162. The Inter-Agency Working Group on Desertification has been co-ordinating a programme for the establishment of regional networks on desertification in accordance with Governing Council decision 12/10. The programme culminated in 1988 in the creation of a major operational sand dune mapping, stabilization and afforestation network for the Middle East and North Africa, an arid lands forestry network for the Sahelian and north Sudanian zones of Africa, and five Caribbean and Latin American Technical Co-operation Networks on Watershed Management, all of which were established by FAO. The network of research and training centres for desertification control in Asia and the Pacific, established by UNEP in co-operation with ESCAP and Unesco, and the Latin American and Caribbean Environmental Training Network, established by UNEP, also continued to consolidate their programmes during 1988. The regional networks have proved effective in promoting the exchange of scientific research information and expertise, and in organizing courses and seminars, which during 1988 contributed to the training of 94 participants in the management of drylands and monitoring and assessment of desertification. UNEP is funding a three-year project, implemented by the International Institute for Environment and Development (IIED) in association with the African NGOs' Environment Network (ANEN), for establishing an NGO network of research and information on the development of sustainable livelihoods in arid and semi-arid lands in Africa.

163. A detailed account of UNEP's work during 1987 and 1988, in the general implementation of the UN Plan of Action to Combat Desertification, covering also the Special Account, the Inter-Agency Working Group on Desertification, the Consultative Group on Desertification Control and the implementation of the Plan of Action in the Sudano-Sahelian region, is to be found in a separate report to the Governing Council (UNEP/GC.15/9/Add.4).

ENVIRONMENTAL HEALTH (INCLUDING AGRICULTURAL CHEMICALS) (Budget line 25)

Environmental health

164. The burden tropical diseases impose on the economies of developing countries is still enormous. Existing information shows that the world-wide incidence of malaria is of the order of 100 million cases a year, with enormous consequent mortality and morbidity, including foetal death and low birth weight. Annual mortality from malaria is probably in the range of 1.5 to 2 million, most of which occurs in infants and children. More than 200 million people are estimated to be infected with the schistosomiasis parasite, 108 million are believed to be infected with one of the four filarial parasites that cause human disease, and 50 million people live in areas of transmission of African trypanosomiasis. It follows that current efforts to develop tools to control both the parasite and the disease must be strengthened alongside environmental management measures. At the same time, it will be vital to continue to prevent the accumulation of pollutants, especially of a chemical nature, and to assist developing countries to recognize, evaluate and assess the health risks associated with them, particularly through training, research, capability strengthening and education at all levels.

165. The work of the FAO/UNEP/WHO Panel of Experts on Environmental Management for Vector Control (PEEM) continued. The report of the seventh session, held in Rome in 1987, as well as 20 working papers presented during the technical discussions, were published. The eighth session of the Panel was held in Nairobi in September, with technical

discussions on the theme “Education and training for the planning, design and implementation of environmental management in water resource development projects”. The Panel made a number of recommendations. It felt that the three sponsoring organizations should encourage Governments and donor agencies to increase intersectoral collaboration by establishing clear-cut policies with specific objectives and responsibilities in relation to health and water resource development projects. It also recommended that general guidelines for use by those required to implement programmes for promoting intersectoral collaboration should be prepared and their effectiveness tested under field conditions. Short workshops should also be organized at the regional level to enable decision makers to become conversant with the intersectoral approach. The Panel also considered the report of the World Commission on Environment and Development, the Environmental Perspective to the Year 2000 and Beyond, the Final Act of the Conference of Plenipotentiaries on the Environmental Management of the Common Zambezi River System (Harare, May 1987) and various AMCEN reports, and made specific recommendations regarding the Panel’s involvement in the implementation of the relevant sections of these programmes.

166. Prior to the eighth session, the ninth meeting of the PEEM Steering Committee met in Geneva in April. Discussions mainly concerned the responses of each of participating organizations to the recommendations contained in an evaluation report prepared during 1985-1986, and particularly those concerning the future orientation of the work of PEEM.

167. Two regular issues of the *PEEM Newsletter* were published in 1988, with the second issue devoting most of its attention to the report of the World Commission on Environment and Development. The *Newsletter* is distributed to around 3,800 individuals, institutions and Governments in English, French or Spanish.

168. The report of a Symposium on “Genetic Monitoring for the Protection of Human Health and Environment” organized by the International Association of Environmental Mutagen Societies and the Latin American Association of Environmental Mutagenesis, Carcinogenesis and Teratogenesis, the Ministry of Health, Costa Rica and UNEP was published in October 1988. The main objective of the Symposium, held in San José, Costa Rica in March 1988, was to promote and encourage research in the field of environmental mutagenesis in the Latin American region through promotion of interaction and the exchange of ideas between scientists working in genetic toxicology, industry representatives and politicians responsible for environmental protection. The symposium was attended by 47 participants from the region and 27 other scientists.

169. UNEP co-operates with ILO and WHO in the International Programme on Chemical Safety (IPCS), providing a concerted UN effort to assess the risks to human health and the environment of chemicals as well as to strengthen national capabilities in the field of chemical safety. By way of example, in collaboration with FAO, the IPCS evaluates the toxicological risks of chemicals in food, including additives and contaminants, pesticide and veterinary drug residues; The resulting evaluations provide a scientific basis on which Governments may set their chemical safety regulations.

170. By 1988, 29 countries and institutions were supporting the IPCS. UNEP’s IRPTC continued to work closely with IPCS in the field of collection, validation, storage and dissemination of data on chemicals (see also IRPTC, budget subline 121). IPCS also maintained close working relationships with the International Agency for Research on Cancer (IARC) related to the evaluation of carcinogenic risk posed by chemicals.

171. Priority chemicals for evaluation through IPCS are chosen by a process of consultation among the partners associated in IPCS—authorities from health, environment

and labour ministries in developed and developing countries, representatives of industry and workers, and other international organizations dealing with chemicals. During the year, 15 further documents on potentially toxic chemicals were published in the Environmental Health Criteria (EHC) series, bringing to 75 the number of chemicals thus far evaluated. These studies are designed for scientific experts responsible for the evaluation of the risks posed by chemicals to human health and the environment, enabling relevant authorities to establish policies for their safe use. Twenty-one Health and Safety Guides, summarizing the toxicity information in non-technical language, and providing practical advice on matters such as safe storage, handling and disposal of the chemical, accident prevention and health protection measures, first aid and medical treatment in cases of exposure leading to acute effects and clean-up procedures have also been published, and a further 30 are in the pipeline. The preparation of 75 International Chemical Safety Cards is in a pilot phase: the cards give identity data and health and safety information on chemicals for advice to workers and employers in factories, agriculture and other places of work.

172. Chemical accidents are of growing concern in all industrialized developed and developing countries. Consequently, during the year an annotated check list was produced, providing categories of information useful for the identification of hazards during the manufacture, storage and transport of chemicals. The list is intended for use by authorities when setting up industrial installations involving chemicals or when reviewing existing industrial facilities.

173. Poisonings by chemicals is a very serious health problem in many countries; One million people a year probably die through poisonings and many more suffer disability. Natural toxins, poisonous plant and animals, pharmaceuticals and drugs as well as industrial and household chemicals may be involved. Misuse of pesticides is a major source of poisonings in many developing countries. A survey on the facilities available throughout the world for dealing with poisonings was published in 1988. The survey covering nearly 200 institutions in 40 countries, showed that only 11 developing countries had a full range of facilities to respond to poisonings. Subsequently, IPCS launched the preparation of a trilingual computerized poison information package for developing countries. The package contains primarily information on diagnosis and treatment of poisonings caused by the 500 chemicals most commonly encountered.

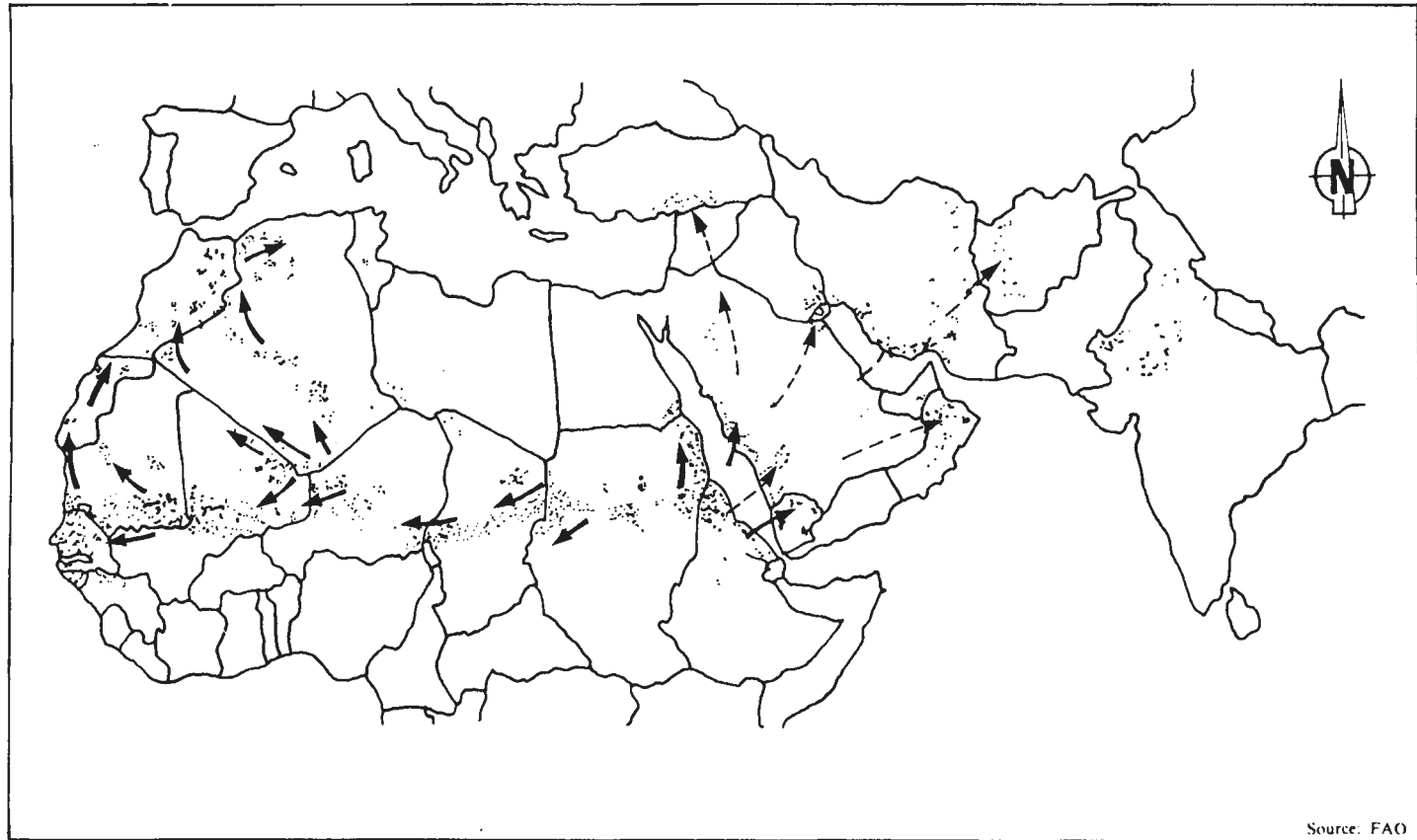
174. Further activities in the field of chemical safety, conducted through the International Programme on Chemical Safety (IPCS), are reported under budget subline 121 above.

Agricultural chemicals

175. Intensification of agriculture to increase basic crop yields and livestock production will continue to require greater attention to pest control in the tropics and subtropics than in temperate zones. In many cases pesticides are considered to offer the principal means of periodically reducing pest populations to manageable levels, and there can be no doubt about the need for increases in pesticide use over the years to come, unless intensive campaigns to promote the use of alternative means such as biological control are undertaken. In 1981 FAO estimated that pesticide use will increase by as much as 70 per cent a year by the year 2000. With the current locust plague (cf, figure 6), most of this increase is likely to be realized on the African continent.

176. The Proceedings of the Symposium on Integrated Pest Management and Environmental Conservation organized by the African Association of Insect Scientists in Dakar, Senegal in December 1987 with support from UNEP, Unesco and IDRC were published in a

Figure 6
Direction of locust swarms in November 1988



combined English-French version in February 1988. UNEP had assisted participants from 11 African countries to attend the Symposium.

177. The field evaluation of the FAO/UNEP Co-operative Global Programme for the Implementation and Development of Integrated Pest Control in Agriculture was concluded in December 1987, and a report submitted to UNEP by FAO in February 1988. While the report acknowledges the difficulties in arriving at a general assessment of the impact of FAO and UNEP activities in promoting integrated pest control, since the two organizations are not alone in working in this field, it cites a number of specific examples where FAO/UNEP efforts have had a distinct impact. For example, the change in pest control policy in Pakistan adopting integrated pest control as the only method to be applied reduced the quantity of imported pesticides from 16,225 tons in 1977, when the Global Programme was launched, to 13,339 tons by 1985. In the Sudan the use of DDT in cotton pest control was totally banned in 1981, while in the Philippines the Government has set itself the goal of reducing foreign exchange spending on pesticide imports by 50 per cent without losses in production through the intensive application of integrated pest control methods and strategies, particularly for rice pests.

178. A Latin American Inter-country Programme for the Development and Application of Integrated Pest Control in Cotton-growing was developed and implemented under the Global Programme. A follow-up work was initiated in late 1988 on the preparation of guidelines for integrated pest management in cotton production for Latin America. It is expected that the guidelines will be used by Governments and scientific institutions not only in the nine countries that participated in the Inter-country Programme (Bolivia, Brazil, Colombia, El Salvador, Guatemala, Mexico, Nicaragua, Paraguay and Peru), but also in all the cotton-growing countries of Central and South America.

179. In April-May 1988 an independent consultant evaluated a joint UNEP/ICRPE project entitled "Training for self-reliance in ecological pest management in the tropics (Phase I—Africa)" under which three-week courses were held in 1985 (in English) and 1986 (in French) at the Regional Centre for Training in Plant Protection in Yaoundé, Cameroon. The aim of the courses was to provide selected countries in Africa with a capability to design practically oriented programmes for integrated crop pest and livestock vector control which would achieve optimum yields with minimal hazardous effects on man, livestock and the agroecosystem. The consultant concluded that the overall impact of the training courses had been positive. In Guinea, for example, certain programmes designed by the graduate trainees had been absorbed within major government projects or internationally assisted programmes. Furthermore, the training centre was found to be an adequate institution for similar future courses, and its continued use was recommended. A number of other recommendations of an academic and administrative nature were also made.

Figure 6

Direction of locust swarms in November 1988

180. During August-October 1988, a working group of experts appointed by ICRPE in collaboration with UNEP and IFAD identified five areas of research which could be addressed in a longer-term programme for locust control. These are population dynamics and simulation modelling; the use of pheromones and kairomones in locust control; endocrinology of locust phase change and gregarious behaviour; biological control of locusts and grasshoppers; and development of new approaches to the use of baits. A meeting of scientists and donor agencies interested in locust control, including UNEP, was held in Cairo in December to discuss such a programme. They noted that promising avenues of

research included the economic and environmental impact of various control strategies, the survey, modelling and prediction of desert locust outbreaks, the exploitation of locust/plant interactions, locust genetics, and potential biological control agents. They agreed that the pursuit of alternative control strategies would be promoted through an international research network of individuals and institutions in both developing and developed countries.

181. As part of activities organized under the Zambezi Action Plan, a consultant was recruited in September-October to undertake a review of current activities in selected SADCC countries (Botswana, Malawi, Zambia and Zimbabwe) for the control of tsetse and the reduction of African animal trypanosomiasis, paying special attention to their environmental acceptability, and co-ordination of tsetse control operations with overall land use planning and manpower development needs. The consultant was also asked to outline the shorter-term and longer-term issues that UNEP should address in its future programming to ensure sustainable agricultural and rural development, including the need to develop a model ecologically sound package for tsetse control for application in the SADCC countries.

182. The Guidelines on Biological Control in Developing Countries prepared by two consultants under an FAO/UNEP/Government of China project were finally completed in October 1988, and a joint FAO/UNEP meeting was held in November in Rome to review them. The guidelines are expected to be published in 1989.

183. As part of preparations to launch a project on training in zoonosis epidemiology, control and prevention in Mongolia, two Soviet scientists undertook a mission to the proposed project site in Ulan Bator to conduct a feasibility study and make recommendations to the Soviet Government and UNEP. Apart from training of Mongolian nationals in both Mongolia and the Soviet Union, project work will include field sampling at the Gamaleya Research Institute for Epidemiology and Microbiology, a WHO Collaborating Centre for Rickettsial Reference and Research. WHO has been approached for assistance and participation in the project.

184. Under a joint project with the National Council of Social Welfare of Thailand, training aids were prepared for 150 women's group leaders from six Thai provinces on the efficient and safe use and handling of pesticides between May and October 1988 in a five-course training series.

PEACE, SECURITY AND THE ENVIRONMENT (Budget line 26)

185. In February 1988, the Executive Director invited a representative group of experts to review and clarify the expanded concept of international environmental security, so that any initiative taken by UNEP in this area would have a clear conceptual foundation. They developed a working definition of the concept and indicated the basic prerequisites for achieving such security at the national, regional and global levels. Their report also contained general and specific recommendations for future programmes in this area. Non-military threats to the security of nations stemming from environmental issues (i.e. environmental security) should be given priority attention. Beyond its activities under this specific budget line, UNEP should make sure that the concept of environmental security is reflected throughout its programme; and emphasis should be placed on regional approaches as steps towards achieving global environmental security.

186. Following publication of the experts' report, UNEP initiated several activities in 1988, including studies on environmental security and regional co-operation, aimed at

elucidating the nature of and potential for co-operation among countries in tackling environmental problems as a means of enhancing confidence. The Baltic region, the Horn of Africa and Central America were singled out for early attention.

187. UNEP, the United Nations Institute for Disarmament Research (UNIDIR) and the International Peace Research Institute, Oslo, organized a symposium in Geneva in October on the topic "Conventional war and the human environment". The symposium explored the environmental implications of a conventional (non-chemical, non-nuclear) war in crowded and heavily industrialized zones, such as in central Europe. Despite the global consensus against nuclear warfare, there is a less clear perception of the significant advances in conventional weaponry and explosives and the risk that a conventional war might escalate into a nuclear or chemical one as a result of the deliberate or inadvertent bombing of nuclear power plants.

TECHNOLOGY AND ENVIRONMENT (Budget line 27)

Energy (Budget subline 271)

188. During 1988, the major development in the energy sector was the growing concern that climate change induced by increasing concentrations of greenhouse gases may be taking place. At present, the most important greenhouse gas seems to be carbon dioxide, resulting from the combustion of fossil fuels and biomass, and a number of others are also related to the production and final use of energy. Energy policy will therefore have a very important influence on the rate at which future climate change takes place.

189. In responding to this and anticipating the areas where a leading role needs to be taken, UNEP has consolidated its threefold strategy of providing information on the environmental impacts of energy systems, assistance in the incorporation of environmental factors into energy planning and policy-making, and support to projects in the field to demonstrate the environmentally sound development of energy sources. The objective is to make UNEP a source of comprehensive information on the environmental impacts of energy systems and management options. In-depth scientific studies, on such matters as the role of energy policy in slowing down climate change, are continuing to form the basis on which outputs designed specifically for different users—professionals, decision-makers and the public—will be produced.

190. During 1988 UNEP began developing a mailing list of close to 1,500 addresses of energy, environment and other government ministries, energy information and research centres, development institutions, NGOs and individuals around the world with an interest in energy and environment. The list was used in the distribution of publications from the Energy Report Series produced under earlier projects, including "Energy conservation in developing countries", "Assessment of tools and methods for incorporating the environmental factor into energy planning and decision-making" and "Energy storage systems in developing countries". The list will be continuously updated and in addition preparations have begun for the development of an inventory of experts in this area.

191. In addition to a number of technical studies already produced on the environmental impacts of energy systems, new efforts have been made to develop a data base related to the studies that could be made available in both computerized and printed form. A study on biomass energy being carried out with the Beijer Institute of Stockholm is nearing completion, and work on a popular version is well under way.

192. Preparatory work was carried out in 1988 on a project which will enhance the existing computerized energy planning system popularly known as LEAP (Less Developed Country Energy Alternatives Planning System), by allowing for the tracking of environmental impacts of different energy policies generated in the planning system. Preparations were also made for a project to apply the results of impact studies to assess and manage the health and environmental risks of energy and other complex industrial systems.

193. Arrangements were made during 1988 to assist with the entry of the AMCEN network on energy into its operational phase. The first meeting of the network was held in February 1988 in Dakar, Senegal, the location of the network's regional co-ordination unit, to discuss the objectives and immediate priorities of the network. UNEP is providing support to the unit and for the initial activities of the network.

Industry and transportation (including working environment) (Budget subline 272)

194. It is becoming increasingly accepted that industrial development and environmental quality must be pursued simultaneously if national development is to be sustainable. This dual objective requires an increasing level of co-operation between all sectors, and all participants, often involving innovative approaches in the way projects are pursued. National policy and regulatory instruments provide the framework within which each sector maximizes its own objectives, while paying due regard to other public interests. UNEP is in a unique position to provide guidance and assistance in this task of combining industrial and environmental objectives so as to achieve the higher goal of permanently improving the quality of life of the world's people. The UNEP contribution is required at many levels: from awareness-building and information exchange for those who still hold the traditional belief that pollution is the necessary price of progress, to practical technical co-operation for those who desire to take action but lack the means.

195. UNEP's contribution to the achievement of environmentally sustainable industrial development can be grouped into four broad areas: technical guidelines and reviews across the entire industrial sector; information transfer to and between national and industry focal points; technical co-operation on a range of specific subjects; and training initiatives aimed at both government and industry personnel.

196. Technical reviews and guides contain the information needed by industry managers and government personnel to plan for and control safer and cleaner means of production. Technical guides continue to be developed for environmentally important industry sectors, such as metals and mining, oil-related operations and smaller-scale activities such as metal-finishing, wood preservation and tanning. Guides on oil terminals, nickel mining and hazardous waste management were finalized and published during the year, while drafts were issued on metal-finishing, storage of chemicals and tanneries.

197. During 1988, UNEP continued its activities in promoting the transfer of information. Through the query-response service of the Industry and Environment Office, in which INFOTERRA and IRPTC also participated, over 130 queries received from all parts of the world were responded to in detail. Industry organizations frequently contributed information or contacts. The quarterly *Industry and Environment* review continues to reach an audience of around 6,000 readers in 160 countries. Subjects dealt with in 1988 were hazardous waste management, technological accidents and environmental auditing. A survey of centres of expertise world-wide in the area of industrial accidents was carried out with the objective of improving the exchange of information on the subject. Work continued

on promoting the networking of existing data bases on low-waste and non-waste technologies held by other organizations around the world.

198. Technical co-operation activities help to transfer information, skills and technologies to those who do not have adequate access through their own internal sources. UNEP sponsored several diagnostic missions of experts on industry and environment issues in Africa and Asia, arranged *in situ* training programmes for industrial managers in advanced installations, and organized study tours for government and industry specialists to upgrade their skills in pollution prevention and pollution control. Activities such as these are provided to any country that requests them, provided appropriate arrangements can be made with sponsoring institutions.

199. In addition to the improvement of skills which takes place through technical co-operation initiatives, UNEP has also pursued a number of more specific training activities directly. Workshops on hazardous waste management policies and techniques held in Malaysia and Mexico were attended by over 80 personnel from both environmental and industry-related institutions. ILO and UNEP have continued training activities for employers in conjunction with employers' associations: seminars were held in Barbados, Jamaica and Trinidad and Tobago. A workshop on clean technologies was held in Cairo in March 1988 with the co-operation of the Governments of France and Egypt.

200. A significant and important part of UNEP's work is to stimulate and support environmental initiatives within other organizations. In this perspective, it has worked closely with industry associations such as the International Petroleum Industry Environmental Conservation (IPIECA), the Chemical Manufacturer's Association (CMA), the Conseil européen des fédérations de l'industrie chimique (CEFIC), the International Group of National Pesticide Manufacturer's Associations (GIFAP), the International Iron and Steel Institute (IISI), the International Primary Aluminium Institute (IPAI) and others. IPIECA, in particular, held a seminar to consider questions of sustainable development. An annual meeting with trade associations allowed for a further useful exchange of ideas. UNEP has also been involved with other international organizations, and co-operative activities are taking place with UNIDO, ILO, the World Bank, WHO, OECD, EEC and ECLAC. UNEP contributed presentations to a number of international conferences concerned with pollution, hazardous waste and industrial accidents, and more generally industry and environment issues.

201. During the year UNEP made a major contribution to the most important issue of technological accidents. A handbook on community awareness and preparedness for industrial accidents at local level was prepared and released at a high-level conference in Paris in December 1988. The recommendations in the handbook are already being used in several countries. A questionnaire survey of centres of expertise was launched. UNEP's work on accidents was widely publicized at conferences and in newsletters, with the result that many more people in industry throughout the world are now aware of the importance of this issue.

202. In keeping with UNEP's role in improving the working environment, occupational safety recommendations are included in the technical guidelines issued and training programmes organized in all sectors of industry. A special issue of *Industry and Environment* dealt with the working environment.

Human settlements (Budget subline 273)

203. As the 1980s draw to a close, the urban challenge remains largely unmet. Cities have continued to grow at speeds without precedent. Megacities (i.e. cities with populations in excess of 8 million inhabitants), a rare phenomenon in the past, have become quite common. By the year 2000, there will be 20 such cities in the developing regions—13 in Asia, 4 in Latin America and 3 in Africa. The environment of most urban centres, but notably that of the megacities, has continued to deteriorate—and most Governments have found the task of building symbiosis between urbanization and environmental protection a daunting one.

204. Against this background at the end of the year, on the prompting of the Commission on Human Settlements, the General Assembly adopted a Global Strategy for Shelter to the Year 2000. The Strategy was issued on the completion of the International Year of Shelter for the Homeless at the end of 1987, and represents a logical follow-up to the Year. The central theme of the Global Strategy is a fundamental policy change from direct governmental provision of shelter to an “enabling” approach, whereby the full potential and resources of all the actors in the shelter production and improvement process are mobilized. The Global Strategy and its principle of enablement is closely related to the concept of sustainable development, which was endorsed by the General Assembly in 1987 in resolution 42/187.

205. During 1988, UNEP and UNCHS completed the demonstration project in Democratic Yemen initiated in 1985 to provide a model for the planning and building of human settlements taking the environment specially into account. In addition to the demonstration housing units and other infrastructure (water supply, sanitation, electrification, etc.) completed at the project site, the project also produced a technical report and video film. These will be used as training tools and guidance material for similar projects expected to be initiated under the Government’s sponsorship.

Natural disasters (Budget subline 274)

206. In 1988 the Executive Director continued to exercise maximum restraint in allocating resources to this area, in accordance with Governing Council decision 11/7. As a consequence, no new activities were undertaken.

SUPPORT

SUPPORT MEASURES (Budget line 31)

Environmental education and training (Budget subline 311)

Environmental education

207. In recent years there has been a gradual build-up of awareness, both world-wide and within States and organizations, of the role played by education in understanding, preventing and solving environmental problems. We know now that the key to these problems lies, to a large extent, in social, economic and cultural factors, and that they cannot be prevented or solved by purely technological means.

208. The major single policy milestone of 1988 was the publication of the International Strategy for Action in the Field of Environmental Education and Training for the 1990s. This document replaces the Tbilisi Declaration of 1977, which provided guiding principles

for environmental education for 10 years. The nine major areas of action defined by the Strategy are: access to environmental information; research and experimentation; development of programmes and teaching materials; training of personnel; incorporation of an environmental dimension into technical and vocational education; its incorporation into general university education; educating and informing the public; provision of specialist environmental training; and development of international and regional co-operation. The principles set out in the Strategy are or will be reflected in phase VI of the UNEP/Unesco International Environmental Education Programme, which remains the major international vehicle for the promotion of environmental education.

209. Actual implementation of the Programme by Unesco was rather slow during the first half of 1988, but gathered momentum during the second half. A joint Unesco-UNEP Steering Committee set up to provide overall guidance for the Programme—a good example of inter-secretariat collaboration—met in Paris in December 1987 to finalize phase VI and again in Bangkok in November 1988 to review environmental education in Asia and the Pacific and assess the results of the second major evaluation of the Programme and the recommendations for future orientation. UNEP continued to play its new, active role in the implementation of the Programme, in addition to its standard role of design, monitoring and evaluation. For example, it contributed to the design and printing of the Moscow Strategy, advised the Government of the Congo on environmental education policy, organized a workshop for the co-ordination of environmental education activities in Uganda, and prepared and presented a proposal for a primary environmental science curriculum for 16 Pacific island States. Other major activities during the year included national training workshops in Egypt and Sri Lanka, a subregional training seminar for the Caribbean and a regional seminar in Senegal.

210. Among various case-studies undertaken, one on “Environmental education in vocational agriculture teacher education” is currently being distributed world-wide. Earlier documents in the same series are now being adapted to local conditions in Kenya, Senegal and Togo.

Environmental training

211. UNEP's policy and activities in the area of environmental training are designed to promote acceptance of the concept of sustainable development. The broad aim of this training is to enhance the ability of all countries, and particularly those in the developing world, to tackle the environmental issues they face, and in pursuing this aim UNEP includes a training component in all its projects.

212. Environmental training takes two basic forms: general and specialized. General training attempts to build awareness of the environment and to develop individual or corporate capabilities to deal with environmental concerns. The target group for general environmental training continues to include policy makers and planners, engineers, architects, industrialists, trade unionists and agriculturalists. Specialized training seeks to perfect the problem-solving skills of professionals whose work directly or indirectly affects the environment, to enable them to work on environmental issues specific to their profession. The target group for specialized training included biologists, ecologists, soil scientists, agronomists, foresters, oceanographers, geneticists, conservationists and others. Descriptions of such training activities appear elsewhere in this Report under the appropriate budget lines.

213. During 1988, UNEP directly supported the establishment of Environmental Training Networks in Africa, in Asia and the Pacific and in West Asia similar to the one established in

1983 in Latin America and the Caribbean. To date, the networks in Africa and Asia and the Pacific have produced, as important outputs, regional directories of tertiary-level environmental training institutions, programmes and resource persons. Several centres of excellence were also identified in each region to catalyse network activities. At the same time, UNEP continued to provide support to the Latin American and Caribbean network, which has to date trained more than 800 professionals in different environmental fields.

214. A second awareness-building workshop for 40 key personnel from ministries of planning, environment and education in French-speaking African countries was held in Rabat, Morocco in November. The week-long workshop, similar to one conducted in 1987 for key personnel from English-speaking Africa, was aimed primarily at heightening the participants' awareness of the need to promote sustainable development as well as the means to achieve this through rational environmental planning and action.

215. Under a joint project, Unesco, UNEP and the Government of the USSR organized a two-week International Training Course on Geological Aspects of Environmental Protection for 15 participants from seven developing countries. The main aim of this course was to promote the sound utilization of mineral and ground-water resources.

216. As in the past, the annual post-graduate course on the ecological aspects of resource development, land management and impact assessment was held at the Technical University of Dresden in the German Democratic Republic. The curriculum for the 1988/1989 course has been reviewed and updated following joint meetings between UNEP and the Government of the German Democratic Republic.

Public information (Budget subline 312)

217. 1988 saw a remarkable surge of public and press interest in environmental events and issues, as well as renewed interest in the role of the UN in world affairs in general.

218. The success of events staged by UNEP on 5 June to mark World Environment Day confirmed this trend. The principal ceremonies were held, for the first time, in Asia, under the general theme of "Environmental protection, sustainable development and public participation", with special emphasis on the role of women. The venue was Bangkok, where such events as exhibitions, award presentations and the world's first environmental song festival were boosted by outstanding support from the media, commerce, non-governmental groups and the Government of Thailand. Statements and messages from the Pope, the UN Secretary-General and other public figures were released in Bangkok and distributed world-wide.

219. In 1988 the "Global 500" awards for outstanding environmental achievement went to 94 individuals and groups in 59 countries. Twenty award winners received their certificates from the Queen of Thailand at the Bangkok ceremony. A live television broadcast brought the ceremony and accompanying song festival to an estimated 40 million viewers.

220. UNEP regional offices marked World Environment Day with exhibitions, competitions and other activities. At headquarters, the role of women was emphasized by a concert featuring Kenyan women rock musicians, and in a nationally distributed poster/calendar.

221. Media relations in general were stepped up, particularly in Europe, and UNEP information materials on a wide range of topics were used by the media. UNEP collaborated with Unesco on a training course in Mauritius for journalists from five African countries, and issued daily and monthly bulletins on press coverage of environmental issues and developments for in-house circulation.

222. Efforts were concentrated on joint publications requiring minimal funding, such as the UNEP/IUCN three-volume directory of *Coral Reefs of the World*. The promotional booklet *UNEP Profile* appeared in Chinese and Japanese. The popular Environment Briefs continued to attract strong interest, and the series is being expanded.

223. Community relations initiatives under the general category of "Outreach" were continued in several directions, special attention being given to women's and youth interest groups with an established or developing position on environmental matters. A section on outreach appears in chapter II above.

224. UNEP maintained fruitful links with the Environment Liaison Centre (ELC) and the African NGOs Environment Network (ANEN). ELC materials which attract UNEP support, such as *Ecoforum* magazine, reached over 6,000 NGOs world-wide, while ANEN's recently launched *Eco-Africa* magazine now serves to record and influence the activities of more than 280 African environmental NGOs in 29 countries. The magazine *African Journalist*, issued by the Union of African Journalists with UNEP support, continued to stimulate more and better media coverage on the environment in 30 African countries. A similar project in the hands of the Arab Office for Youth and Environment saw to it that the Arab region was well provided for.

225. At the 31st World Scout Conference, held in Melbourne, Australia, in January, a resolution was passed calling for close collaboration with UNEP. Activities stemming from this resolution include the co-production of "how-to" manuals on environmental protection for Scouts. Similar collaboration with Girl Guides and Girl Scouts groups is under way, following the initial contact made at the 1987 World Conference of Girl Guides and Girl Scouts.

226. A network of 12 UNEP Regional Youth Focal Points was established early in 1988, and a framework for their activities (based on the Youth Environment Agenda of 1986) was agreed at a meeting held at UNEP headquarters in January, and attended by representatives of 36 major voluntary youth organizations. Individuals selected as Focal Points have since attended several major UNEP-related international meetings.

Television Trust for the Environment (TVE)

227. During the year under review UNEP continued to make use of the editorially independent TVE to secure coverage of priority UNEP issues. The Trust was set up in 1984 to catalyse programme-making on environmental topics. To date it has mobilized close to \$15 million for its projects. In all TVE has arranged nearly 60 international television co-productions that have been seen at least once by an audience of many millions in over 80 nations.

228. In 1988 TVE distributed over 200 programmes free of charge to television stations in 22 developing countries. Brazil and Kenya established regular environmental series based on programmes supplied by TVE. With major funding from the EEC, UNICEF and the Swiss Ministry of Foreign Affairs. TVE also started a quarterly bulletin in English and French with news on latest productions coming out world-wide. IBM donated computer equipment to enable TVE to establish the world's first environment and development TV programme data base, now accessible through the "Green-net" computer link-up. In all 5,000 television stations, development agencies and NGOs subscribe to the service, which operates under the generic title Moving Pictures. (Free subscriptions are available: write to TVE, 46 Charlotte Street, London W1P 1LX.)

Environmental law and machinery (Budget subline 313)

229. UNEP's environmental law activities in 1988 displayed a more rapid pace than in the banner year of 1987. The Vienna Convention for the Protection of the Ozone Layer entered into force on 22 September 1988, the result of extensive efforts on the part of the secretariat urging Governments to ratify this important agreement. By the end of the year the Convention had been ratified, accepted, approved or acceded to by 37 countries and the EEC, with indications from a number of other countries that their ratification was in process. The Montreal Protocol on Substances that Deplete the Ozone Layer, adopted by Governments under UNEP auspices in September 1987 as a protocol to the Vienna Convention, entered into force on 1 January 1989—the earliest possible date for its entry into force—having received 30 ratifications by the end of the year, from countries representing over 84 per cent of estimated global consumption. The strong support globally for these instruments demonstrates the commitment of governments to tackling a serious global environmental problem before it turns into an irreversible crisis.

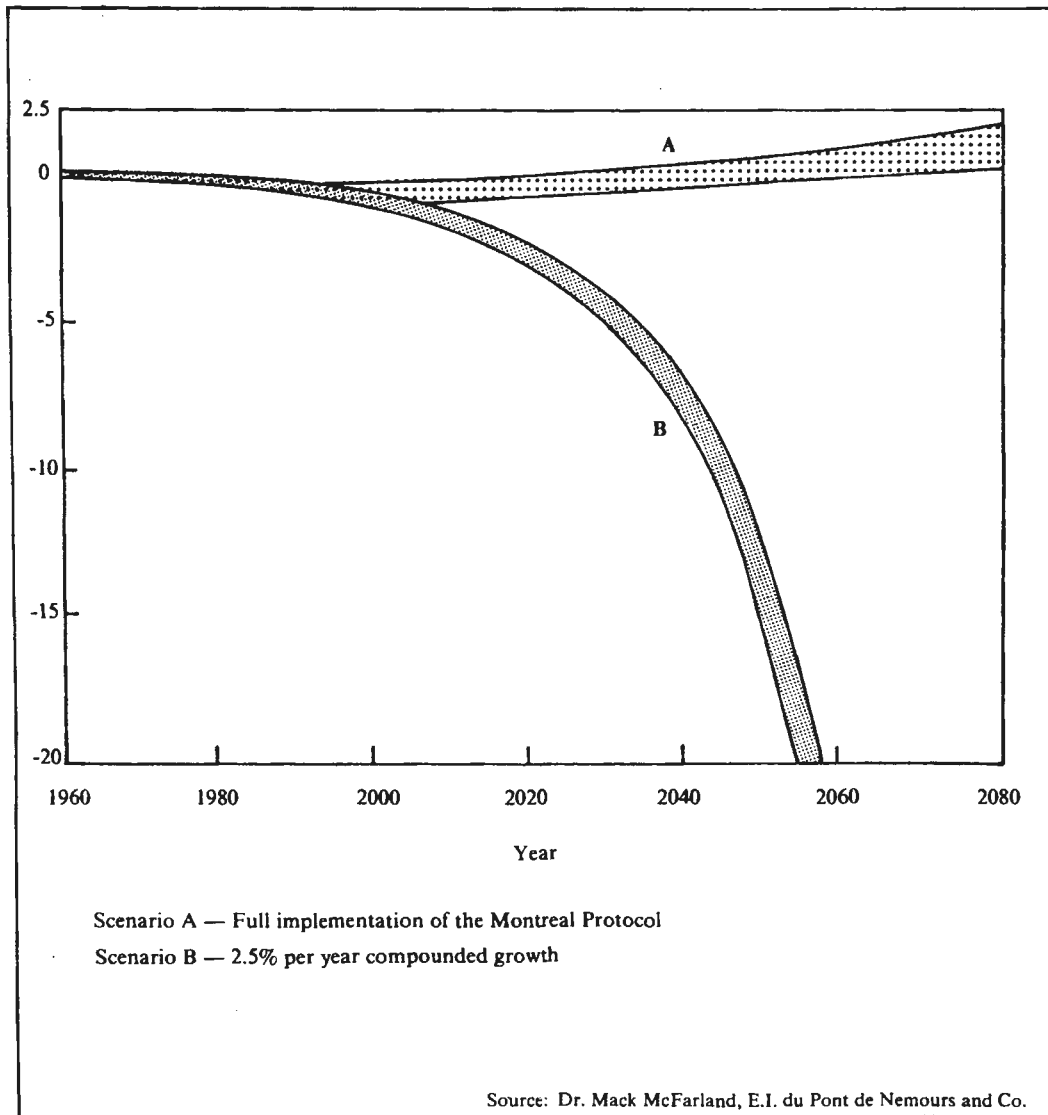
230. During 1988 the *Ad Hoc* Working Group of Legal and Technical Experts met twice, in March and October, to harmonize data on production, imports and exports of ozone-depleting substances. The experts also considered the possible clarification of the Montreal Protocol as regards confidentiality, data reporting and the transfer of information and technology to developing countries. They also endorsed a proposal, made by a meeting of scientists held under UNEP auspices in The Hague in October, for speeding up the review of the Protocol's control mechanism, and set up panels to evaluate the economic, environmental and technical aspects of ozone depletion. Figure 7 indicates the evolution of total global ozone assuming continued growth in emissions of ozone-depleting substances, compared with full application of the provision of the Protocol.

231. UNEP also made significant progress in the development of a global convention on the environmentally sound management of hazardous wastes, and in particular on the control of their transboundary movements. A working group of legal and technical experts met in Geneva in February, in Caracas in June and in Geneva in November, and continued its consideration of the draft convention and clarified many of the issues involved. In the latter part of the year UNEP embarked on preparations for the holding of a conference of plenipotentiaries in 1989 at which the convention is to be signed.

232. A preliminary report drafted by the UNEP secretariat in a response to General Assembly resolution 42/183, calling for a comprehensive report on illegal traffic in toxic and dangerous products and wastes (1987 *Annual Report*, chap. IV, para. 45), was presented by the Secretary-General to the Economic and Social Council in July 1988. The issues received extensive discussion and were the subject of a resolution adopted by the Council, which is reported on elsewhere (see chap. IV). Subsequently, the question of the responsibility of States for the protection of the environment and prevention of environmental pollution as a result of the accumulation of toxic and radioactive wastes, and strengthening of international co-operation for the purpose of resolving the problem, was discussed by the General Assembly at the request of the Government of Romania. The discussions and the resolution adopted by the General Assembly will guide the secretariat not only in the preparation of the comprehensive report on illegal traffic, but also in the further development of the global convention.

233. In addition to promoting the development and adoption of new binding legal instruments, UNEP was active in 1988 in developing further the London Guidelines for the

Figure 7
Calculated changes in total global ozone under two scenarios



Exchange of Information on Chemicals in International Trade. These were adopted by the Governing Council by decision 14/27 of 17 June 1987, with a request to the Executive Director to convene a working group to develop modalities of prior informed consent and other approaches which could usefully supplement the London Guidelines. At its first session, held in Dakar in September 1988, the working group reached agreement on a proposed modality of prior informed consent, and at its next session is due to review and approve the language by means of which this modality will be incorporated into the London Guidelines (see also the report under subline 121 above).

234. In the area of preservation of biological diversity, the first meeting of a working group to analyse whether a global convention is needed in this field was held in Geneva in November. Details of the meeting may be found under "Wildlife and protected areas" above.

235. In accordance with Governing Council decision 14/25, the attention of all States and relevant organizations, notably multilateral development banks, was drawn to the Goals and Principles of Environment Impact Assessment. Moreover, their views were sought on measures to further international co-operation and agreement in this field, including the application of environmental impact assessment to development projects with possible transboundary effects.

236. In view of the commitment to environmental impact assessment expressed in the responses received, UNEP plans to continue to seek views on how to promote international co-operation in this field, *inter alia* through the development of a global convention on development activities with possible transboundary effects.

237. A report was compiled concerning the comments of Governments and organizations on their progress in implementing the 1985 Montreal Guidelines for the Protection of the Marine Environment Against Pollution from Land-based Sources. A report was also compiled concerning the use made by Governments and organizations of the principles of conduct in the field of the environment for the guidance of States in the conservation and harmonious utilization of natural resources shared by two or more States, and of the conclusions of the study of the legal aspects concerning the environment related to offshore mining and drilling within the limits of national jurisdiction. Progress in the area of regional seas conventions and protocols is reported on above under budget line 21 (Oceans and coastal areas).

238. In co-operation with the Inter-Parliamentary Union (IPU), UNEP continues to publish the newsletter *Environmental Notes for Parliamentarians*. Readership remains strong for this publication.

239. Other efforts by UNEP in the field of environmental law in 1988 involved assisting States, and in particular developing countries, in devising national environmental legislation and machinery, and collating and disseminating current information about the global status of environmental law. To begin to meet the many requests for assistance, UNEP has developed a programme for the provision of both policy and legislative assistance, which is implemented jointly by the Environmental Law and Machinery Unit and the Clearing-house. UNEP has received support from some Governments of developed countries for this effort.

Environmental aspects of development planning and co-operation (Budget subline 314)

240. Since the General Assembly adopted its important resolutions on the Environmental Perspective to the Year 2000 and Beyond and on the report of the World Commission on Environment and Development, many Governments and international development institutions have made a special effort to define strategies of environmentally sound and sustainable development. Links between environmental issues and policies and patterns of social and economic development are recognized more clearly, and so is the need to deal with the root causes of environmental problems. Several Governments and international development institutions have initiated studies with a view to organizational, procedural, policy and methodological reforms, and some have begun introducing the changes need to ensure greater harmony between environmental, social and economic goals of development.

241. A number of policy declarations reflecting a commitment to sustainable development were made at the international and national levels during 1988. The World Bank and UNDP introduced organizational and policy changes to ensure that greater account was taken of environmental considerations in their programmes. Following a ministerial session in May, the World Food Council recommended that environmentally sound agricultural management practices should form an integral part of national food strategies, and that environmental concerns should be integrated in economic development policies and programmes. The recommendations of an IFAD international consultation on "Environment, sustainable development and the role of the small farmer" in October included conducting environmental impact assessments of all IFAD projects, allocating greater IFAD resources to environmental rehabilitation and management of natural resources, and examining the possibility of opening a revolving facility for sustainable agricultural development. The first Euro-African Ministerial Conference on Environment and Development was held in Dakar in January 1988, within the context of the European Year of the Environment, and agreed to a policy framework to better integrate the protection of the environment and natural resources in economic and social development. UNEP participated in and contributed to these initiatives.

242. During 1988 national workshops were held in Lesotho, Mauritius and Nigeria on preparing national programmes on environmental management and sustainable development, with the involvement of the World Bank and UNDP as well as UNEP. The aim was to set in motion processes of policy, organizational and procedural reform to respond better to environmental objectives as part of socio-economic development. The Government of Indonesia prepared, in collaboration with the World Bank and UNDP, a series of sectoral, methodological, policy and organizational reviews with a view to strengthening Government capacities for integrating environmental objectives in national development planning.

243. The principles of environmental impact assessment, social benefit-cost analysis and integrated physical planning are fairly well developed. Case-study applications of these methods in various development situations are increasing, but are not readily accessible, and details of appraisals of development projects carried out by planning or aid institutions are often considered to be classified information. Yet there is a growing body of published reports on project appraisals involving environmental analysis. UNEP has begun to establish a computerized data base to meet the information needs of countries and development institutions in this field.

244. On environmental accounting, a relatively unexplored tool of particular significance for macro-economic planning, UNEP, in collaboration with the World Bank, prepared in 1988 a compendium of analytical papers to provide guidance on potential use. A joint

UNEP/World Bank Expert Group Meeting was held to discuss a draft framework for linking environmental satellite accounting to the System of National Accounts (SNA). The framework was prepared by the United Nations Statistical Office. Agreement was reached on a number of conceptual and technical issues and areas on which further work was required were identified. The discussions also enabled the organizations concerned to determine their future actions in promoting the considerations of environmental accounting in the current revision of SNA. UNEP's Regional Office for Asia and the Pacific made available a booklet on basic procedures for environmental impact assessment in developing countries, and held a workshop in Sri Lanka for senior planners on the application of environmental impact assessment in development planning. In collaboration with the Government of India, UNDP and UNIDO, UNEP co-sponsored an international conference on environmental impact assessment for developing countries in New Delhi in November, with emphasis on the exchange of information on application of the technique in developing countries.

245. UNEP's concern to make available information on case-study application of analytical techniques for decision-making for environmentally sound development is reflected in a number of other activities. In collaboration with the East-West Center, work on a case-study reader on the application of economic analysis to environmental appraisal of dryland rehabilitation projects has been completed for publication, along with a technical guide. Similarly, following upon the four volumes on "Environmental management for local and regional development" published in 1987, UNCRD in co-operation with ILEC and UNEP launched a project on "River/lake basin approaches to water resources management", with an emphasis on applied methodology. In collaboration with the Government of Jamaica and UNDP, UNEP is attempting to show how the methods of environmental impact assessment and social benefit-cost analysis may be used for selecting optimal soil conservation and water management techniques in the Hope River basin. Because of various organizational difficulties, however, progress in this area has been meagre.

246. Emphasis was also placed on improving human resource capabilities in developing countries in the use of analytical techniques in environmental decision-making. In collaboration with the Institute of Ecology of Padjadjaran University, Bandung, Indonesia, UNEP held a training workshop in May-June on the application of environmental impact assessment in the appraisal of development projects. One of the main objectives of the workshop was to strengthen, in collaboration with Governments and UNDP, regional and subregional institutional capabilities to train developing country personnel. Another was to make use of expertise and case-study applications from the developing countries as much as possible. The workshop was successful, and UNEP should be able to draw on it to improve the form and content of training in this field so that it meets the needs of developing countries better.

247. Another workshop, organized in August in collaboration with the Soviet Government and with the participation of experts from developing countries, was designed to draw lessons from the experience of centrally planned economies in the methods and procedures of planning for environmentally sound development. A number of technical studies were prepared for the workshop, which also included two sessions devoted to the policy instruments and methods used in market economies for integrating environmental objectives in the process of economic development. It is expected that this component of the workshop will be further enhanced in the follow-up training activities to facilitate East-West and North-South co-operation in this field.

248. In order to apply available methodological knowledge to the design and pilot implementation of projects which simultaneously meet economic, social and environmental objectives, UNEP, in collaboration with ECLAC, began a programme of elaboration of pilot projects, case-study analyses and assistance to Governments as part of a priority programme on environment and development planning in Latin America and the Caribbean. This is intended to be an extension of the previous work done by the ECLAC secretariat with UNEP support in the field of environment and development. Regrettably, no clear evidence has yet emerged of mobilization of finance, or of further elaboration and implementation of the field project designs which had been prepared by ECLAC during the previous phase of the project. Nor has the project so far provided clear indications of increased technical co-operation among the countries of the region in environmental planning and management.

249. UNEP provides the secretariat for the Committee of International Development Institutions on the Environment (CIDIE), which held its ninth session at World Bank headquarters in Washington in June. One of the review papers considered dealt with ways and means of providing for environmental planning and management in the advice given to developing countries on structural adjustment and economic reform. The paper was published and distributed. More details of the Committee's work are given in chapter II above.

250. Following the General Assembly resolutions on sustainable development, specialized agencies and bodies of the United Nations system can expect to be called upon increasingly to provide guidance and assistance to countries for planning for sustainable development. While individual agencies and bodies will respond directly to such requests, there is a need for a methodology and mechanism for better co-ordination, consultation and exchange of information. Accordingly, in 1988 UNEP, in collaboration with the World Bank, UNDP, IFAD, FAO, ILO, WHO, WMO, UNFPA and Unesco launched a joint project on "Planning for environmentally sound and sustainable development: System-wide action at the country level". Under the project three countries will be assisted on a pilot basis in adjusting their existing development plans or preparing new ones to respond systematically to their environmental objectives and concerns. Emphasis will be placed on co-ordinated sectoral planning for sustainable development. Lessons drawn from this exercise will be made widely available to countries and development institutions.

251. In view of the growth in requests from Governments for small-scale assistance in policy adjustment, establishment of methodologies, incentives and procedures, the Development Planning and Co-operation Unit has embarked on a joint effort with the Clearing-house and the UNEP regional offices to respond. Experience in meeting such requests is in itself likely to provide insights of value to countries and donor institutions, and should therefore help to develop the programme so as to better meet the needs of countries in this field.

TECHNICAL AND REGIONAL CO-OPERATION (Budget line 32)

252. Much of the work carried out by UNEP's regional offices has been reported on in chapter II above. However, it is important to note that in addition to their other duties the regional offices undertake important tasks on behalf of the Programme. As pointed out in the *1987 Annual Report*, priorities at these offices differ from one region to the other. In one region mobilizing funds for projects under the Clearing-house mechanism might take precedence over providing grants and fellowships for training courses, while in others there would be more emphasis on the provision of grants and on public awareness campaigns.

Africa

253. The Regional Office for Africa (ROA) continued to promote closer co-operation with sub-regional organizations. ROA participated in the Council of Ministers meeting (Arusha, January 1988) and the consultative conference (Angola, January 1989) of the Southern Africa Development Co-ordination Conference (SADCC). Through support provided by ROA, the Southern Africa Sub-regional Environment Group (SASREG) made progress on a strategy for natural resources management in Southern Africa. SASREG whose members are the directors of the Environment of the SADCC countries, provides a forum for discussing major environmental issues. It met in Swaziland in May 1988 with ROA's assistance. Representatives of ROA and SADCC continued co-operation towards implementation of the integrated development plan of the Zambezi River Basin.
254. Support was also given by ROA to the Lake Chad Basin Commission and a draft feasibility study for the preparation of a Plan of Action for the environmentally sound development of the Lake Chad Basin was prepared.
255. Co-operation was maintained with subregional bodies including the Intergovernmental Authority on Drought and Development (IGADD) and the Dakar Conference on Desertification (COMIDES). Through the AMCEN ROA assisted in reports on ecological rehabilitation in the South Saharan Zone and the "Green Belt".
256. As the Secretariat of AMCEN, ROA in co-operation with relevant UN bodies continued to co-ordinate regional projects aimed to achieve food and energy self-sufficiency.
257. ROA continued to assist AMCEN to organize eight regional technical co-operation networks and to support four Committees dealing with Deserts and Arid Lands, River and Lake Basin, Seas, Forests and Woodlands.
258. In 1988 ROA continued support to the African NGO community, mainly through the African NGO Environment Network (ANEN). ROA co-operated with ANEN in a workshop in Nairobi (November 1988) on improving African NGO collaboration with Governments, aid agencies, and the UN system.
259. ROA continued work with UN bodies on initiatives for addressing the African crisis. These included the Cairo Programme of Action, the UN Plan to Combat Desertification, UN/PAAERD, and implementation of the recommendations of the World Commission and the Environmental Perspective. Through ROA's co-ordination a UN Inter-Agency Working Group meeting was arranged for February 1989 in Ghana to review implementation of the Cairo Plan. In co-operation with the ECA, UNDP and Unesco, ROA participated in preparations for a regional conference on environment and development (Senegal, June 1988), within the framework of AMCEN, ROA convened a donor's meeting in Nairobi (March 1988) attended by representatives of 19 African countries and 13 donor countries, and officials of eight UN bodies and a representative of the OAU. The African Governments presented a number of projects within the context of the Cairo Plan.
260. During the reporting period, UNEP through its Regional Office for Africa and its other relevant sections, provided assistance to several African countries in national environmental legislation, institutional strengthening or establishment of appropriate machineries, as well as environmental awareness building.
261. Through its Regional offices' advisory services, UNEP's environmental law programme and also its Clearing-house mechanism, ROA intensified its efforts in assisting African Governments to adopt coherent environmental policies and laws as well as reinforcing the relevant institutions dealing with environmental management.

262. UNEP, through the services of its Regional Office for Africa and the Environmental Education and Training Unit convened an environmental awareness building workshop (Morocco, November 1988) for key personnel respectively of Ministers of Planning, Environment and Education of French-speaking African countries. The workshop was a follow-up to one earlier organized (Nairobi, October 1987) for English-speaking countries.

263. The Regional Office for Africa continued to provide assistance to Governments through consultancies, missions by ROA staff, sponsorship of participants to meetings, organization and mounting of national and regional workshops on environmental problems and issues.

Asia and the Pacific

264. In Asia and the Pacific the Regional Office placed special emphasis on enhancing environmental awareness among decision-makers and policy formulators in government and industry, academia, NGOs and the media. Efforts were also made to catalyse the provision of additional outside resources for specific projects of immediate benefit and relevance to the countries of the region.

265. A number of examples of support to and co-operation with regional organizations in Asia and the Pacific have already been given in chapter II. Selective assistance was also provided to NGOs, for instance in the establishment of a Foundation for the Promotion of Nature Conservation and Environmental Protection and the commemoration of World Environment Day in Bangkok with outstanding participation by the public and NGOs from draft and presented "Global 500" certificates to 15 Laureates from 13 countries.

266. Activities continued in the field of environmental education and training. To respond to the increasing awareness and concern regarding hazardous wastes, and the need for specific in-depth training in this area, a Workshop on Landfill Design and Operations for Hazardous Wastes was organized in Kuala Lumpur. The workshop was hosted by the Government of Malaysia with financial and in-kind support from the Carl Duisberg Gesellschaft, the Federal German Government (through the Clearing-house) and other organizations.

Europe

267. During 1988, the UNEP Regional Office continued its close contacts and co-operation with major European organizations such as ECE, OECD and CMEA. Details may be found in chapter II above.

268. In co-operation with the Government of the Netherlands, the Regional Office initiated a technical co-operation project for the creation of an environmental inspectorate in Portugal to oversee the application of environmental legislation and regulations. The State Health Inspectorate of the Netherlands assisted the Government of Portugal in drawing up terms of reference and a programme of activities for the environmental inspectorate based in Portugal's major environmental priorities (industry, energy, water quality and waste disposal). It also assisted the Government in selecting the first group of inspectors and formulating a training programme to be executed with the assistance of UNEP and the Government of the Netherlands in 1989.

Latin America and the Caribbean

269. A major task undertaken by the Regional Office during 1988 concerned preparations for the Sixth Intergovernmental Regional Meeting on the Environment to be held in 1989.

These included the finalization of a report on the state of the environment in the region and the convening of two preparatory meetings. As a follow-up to previous regional meetings, the Regional Office, in co-operation with Governments and appropriate regional bodies, continued to implement a number of regional programmes (*1987 Annual Report*, chap. III, para. 310), and co-ordinated the principal umbrella projects under these programmes.

270. In the field of environmental education, the Regional Office complemented activities under joint UNEP/Unesco projects by assisting in the organization of seminars and training courses. During 1988 a total of 36 grants and fellowships were awarded to applicants from 18 countries in the region to attend various environmentally related seminars, workshops, meetings and conferences. The Office also funded a number of consultancies to assist Governments to further integrate environmental considerations into the development process.

271. The Regional Office played an active role in promoting public awareness by producing information bulletins, news releases and graphic information material for wide distribution in the region among Governments and NGOs.

272. It assisted in the promotion of national exhibitions and children's painting contests on the World Environment Day theme in 13 countries. Jointly with Channel 11 in Mexico City, five special television programmes were produced on the atmosphere, desertification, forests, hazardous wastes and water. Two Latin American festivals of films and television documentaries about the environment were organized, in Argentina and Colombia.

West Asia

273. One of the important achievements in 1988 was the first meeting of the Council of Arab Ministers responsible for the Environment, which was held in Tunis in October. This meeting was preceded by a meeting of the Executive Bureau of the Council, to which the Regional Office and the Tunis Liaison Office to the Arab League and ALECSO had extended significant assistance in formulating project documents on desertification control, the control of industrial pollution, and environmental education and awareness in the Arab world. The Council approved these three projects for immediate implementation.

274. The Regional Office sponsored participation by two candidates, one from Bahrain and one from Yemen, in the Ninth International Seminar on Environmental Impact Assessment held in Aberdeen in the United Kingdom, and by one candidate from Bahrain and one from Jordan in an International Seminar on Environmental Toxicology held in Bangkok. A candidate from Iraq was sent to Tucson, Arizona to attend an international seminar on national parks and protected areas in arid and semi-arid lands, while a candidate from Kuwait attended an international seminar on environmental impact assessment in New Delhi.

275. On World Environment Day 1988, the Executive Director's message was transmitted on television. Other activities included television interviews, radio talks and quizzes, and the distribution of an Arabic media kit, posters and stickers. A painting and essay competition was also arranged for this event.

276. UNEP's Liaison Office in Tunis continued to support the work of the Regional Office by maintaining constant contacts with the Arab League, the Arab League Educational, Cultural and Scientific Organization (ALECSO) and various Arab specialized organizations.

North America

277. In North America, in addition to managing relations and maintaining contact with United Nations Headquarters and UN agencies, the New York Liaison Office continued to be active in the promotion and dissemination of information on UNEP's programme and global environmental issues in general through its bi-monthly newsletter, the press releases on UNEP events and, increasingly, numerous contacts with the local media, non-governmental organizations, industry and academic institutions. UNEP participated, for example, in the national teachers' conference, the World Congress on Philanthropy, the North American Recycling Conference in Canada and the Conference on Restoration and Sustainability in the United States.

278. The major undertaking in the region was the launching of the Environment Sabbath on the occasion of World Environment Day. This effort involved the preparation of more than 5,000 information kits for distribution among religious groups throughout the United States and Canada. The kits, containing material on major environmental problems and suggestions for community-level action to alleviate them, were reproduced by many groups and used to organize a wide-ranging series of events to engage the public in environmental action and raise awareness about the spiritual and ethical dimensions of Earth care.

Chapter IV

INTERGOVERNMENTAL LEGISLATION OF RELEVANCE TO UNEP

**UNEP Governing Council
Economic and Social Council
General Assembly**

INTERGOVERNMENTAL LEGISLATION OF RELEVANCE TO UNEP

1. This chapter describes briefly the decisions relevant to the work of UNEP, adopted during 1988 by the intergovernmental bodies that monitor and guide the work of the UNEP secretariat—the Governing Council of UNEP, the Economic and Social Council and the General Assembly.

UNEP GOVERNING COUNCIL

2. For UNEP 1988 was unique in that it witnessed the first special session of the Governing Council. At the session, held at UNEP headquarters, Nairobi, from 14 to 18 March, the Council considered three major documents: the second system-wide medium-term environment programme for the period 1990-1995; UNEP's own medium-term plan, which spans the same six years; and proposed revisions to the global programme on environment of the extended United Nations medium-term plan for the period 1984-1989, which now covers the years 1990 and 1991 as well. The Council adopted seven decisions, all of them by consensus.

3. The first of these decisions, SS.I/1, addresses programme policy and implementation. The Council resolved to exercise fully the role expected of it, first, with respect to environmental activities within the UN system; second, with respect to the follow-up of the Environmental Perspective to the Year 2000 and Beyond; third, with respect to the report of the World Commission on Environment and Development; and fourth, with respect to the system-wide medium-term environment programme for the period 1990-1995.

4. The Council also decided to discuss at its fifteenth regular session in 1989 the follow-up of the resolutions of the General Assembly at its forty-second and forty-third sessions which have a bearing on UNEP's work. In this connection, the Executive Director was requested to provide the Council with reports by the governing bodies of the organizations of the UN system on progress made by those organizations towards sustainable development, as well as a report by the Secretary-General on efforts by the organizations of the UN system to pursue sustainable development. Further, the Executive Director was requested to submit a report containing proposed comments by the Council on the reports prepared by the various bodies of the UN system and the Secretary-General, and on any other matters that fall within the Council's mandate.

5. Finally, the Council emphasized its view that sustainable and environmentally sound development should be one of the main objectives of the fourth International Development Strategy, taking into account the Environmental Perspective to the Year 2000 and Beyond and also the analysis and recommendations of the World Commission on Environment and Development. To this end, the Council invited the Executive Director to contribute fully and actively in the formulation of the strategy and to keep the Council and its Committee of Permanent Representatives informed of developments.

6. By its decision SS.I/2, the Council decided that the topic of the state-of-the-environment report for 1990 should be "Children and the environment", and requested the

Executive Director to prepare the report in close co-operation with UNICEF and to submit a detailed outline of the report to the Council at its fifteenth session.

7. Decision SS.I/3 deals with the system-wide medium-term environment programme for the period 1990-1995 (UNEP/GCSS.I/2 and Corr. I and 2). Having expressed appreciation to the Administrative Committee on Co-ordination (ACC) for its efforts in formulating the programme, the Council approved an amended text. It also decided that at its fifteenth session, it would provide ACC with its views as policy guidance for a revision of the programme, which it requested ACC to prepare for the Council's consideration at its sixteenth session. The purpose of the policy guidance would be to reflect more closely the structure and recommendations of the Environmental Perspective and the report of the World Commission in the light of General Assembly resolutions 42/186 and 42/187, and also to identify cross-references between sources of environmental problems and subject-matter environmental sectors. Accordingly, the Council requested the Executive Director to seek during 1988 the views of Governments on revisions to be made to the programme, and to report to it at its fifteenth session on those views. It therefore decided to modify the provisional agenda of its fifteenth session as adopted at its fourteenth session by adding to the present item 6 a new sub-item (c) to be entitled "Guidelines for the revision of the system-wide medium-term environment programme for the period 1990-1995".

8. By the same decision, the Council also brought the programme to the attention of the General Assembly, and requested the Executive Director to bring it to the attention of all Governments and relevant intergovernmental and non-governmental organizations, calling upon them to give their full support and co-operation to programme implementation.

9. The Council decided to recommend to ACC that it should arrange for an evaluation of the first system-wide medium-term environment programme (1984-1989) and submit this evaluation to the Council at its sixteenth session in the light of the preparatory work for a revision of the second system-wide programme. The Council noted the decision of ACC that the Designated Officials for Environmental Matters (DOEM) should have responsibility for conducting a qualitative evaluation of the programme, and endorsed the need expressed by ACC to develop suitable monitoring procedures. The Council also expressed its concern to the General Assembly about the need to maintain maximum possible co-ordination between the UN medium-term plan and the system-wide programme.

10. The Council took note of the proposed goals presented by ACC that could be achieved by Governments by 1995 with the support of the UN system (UNEP/GCSS.I/2/Add.1), invited the governing bodies in the UN system to take the relevant aspects of the system-wide programme fully into account in their objectives, plans and programme budgets, and urged the organizations of the UN system to co-operate closely in the implementation of the programme, giving priority to developing countries in the implementation of the strategies in each of the programme areas.

11. Finally, the Council requested the Executive Director to continue to pursue active consultations with the executive heads of the organizations of the UN system to ensure the further development and effective implementation of the system-wide programme, and also requested him to report to it at its regular sessions on progress in the implementation of the programme.

12. Decision SS.I/4 concerns regional and subregional programmes in Latin America and the Caribbean. Taking into account the results of the 1987 intergovernmental meetings on the South Pacific and the South-east Pacific, and bearing in mind the provisions of the UNEP medium-term plan and the system-wide programme regarding the marine environment, the Council expressed its appreciation to UNEP for its involvement with and support for the Action Plan for the Protection of the Marine Environment and Coastal Areas of the

South-east Pacific and the Action Plan for the Caribbean Environment Programme, and decided that in developing the UNEP medium-term plan, priority should continue to be given, within the oceans and coastal areas programme, to both those Action Plans. To this end, the Council requested the Executive Director to continue providing technical and financial support, within available resources, for activities under the two Action Plans.

13. Support for the Cairo Programme for African Co-operation is the subject of decision SS.I/5. Recalling its decision 14/15 C on the need to mobilize funding for the effective implementation of the Cairo Programme and the UN Programme of Action for African Economic Recovery and Development 1986-1990, and noting that the ultimate goal of both programmes was the achievement of sustainable development, the Council urged the governing bodies in the UN system to give priority to providing financial and technical assistance for the effective implementation of each of the programme areas of the Cairo Programme. It also noted with appreciation UNEP's involvement in and support for the Cairo Programme, and urged the Executive Director to continue to give priority to the implementation of the Cairo Programme.

14. Decision SS.I/6 deals with the UNEP medium-term plan for the period 1990-1995. The Council approved an amended version of the proposed plan (UNEP/GCSS.I/7/Add.2), which it requested the Executive Director to use as a guide for formulating the next three UNEP programme budgets. At the same time, it requested the Executive Director to ensure that future programme budgets and the system-wide medium-term programme (following its mid-term review in 1992) reflected more thoroughly the recommendations contained in the Environmental Perspective and the views expressed in the report of the World Commission, in the light of General Assembly resolutions 42/186 and 42/187. The Executive Director was also invited to revise the UNEP medium-term plan in parallel with the revision of the system-wide programme for consideration by the Council at its sixteenth session. He was further requested to prepare for the information of the Council at its fifteenth session an explanatory note indicating the cross-references between the "problems addressed" and the "strategies" of the UNEP medium-term plan and the proposed targets for UNEP (UNEP/GCSS.I/3/Add.1). Finally, the Council stated that it considered the targets proposed for UNEP for 1995 to be management guidelines for monitoring the performance of the UNEP secretariat.

15. In its decision SS.I/7, the Council addressed the proposed revisions to the global programme on the environment of the extended UN medium-term plan for the period 1984-1989, (which now covers 1990-1991 as well) (UNEP/GCSS.I/4). Having taken note of the proposed revisions, the Council considered that the principles and objectives of the UNEP medium-term plan for the period 1990-1995 constituted the Council's comments on the revisions. The Executive Director was requested to forward the Council's comments, as well as the views expressed by delegations during the Council's deliberations on the proposed revisions, through the Committee on Programme and Co-ordination to the General Assembly at its forty-third session. Lastly, the Council recommended to the General Assembly that the global programme on environment of the UN medium-term plan beginning in 1992 should be structured along the lines of the system-wide medium-term environment programme to ensure uniformity of content and facilitate co-ordination of the environmental activities being undertaken by the UN system in the light of General Assembly resolutions 42/186 and 42/187.

ECONOMIC AND SOCIAL COUNCIL

16. Environmental issues were a major theme of the deliberations at the second regular session of the Economic and Social Council in 1988. Four resolutions and two decisions were adopted by consensus on 28 July 1988.

17. The first of these, resolution 1988/69, deals with international co-operation on the environment. Reiterating the need to keep under review the problem of additional costs that might be incurred by developing countries in the implementation of environmental programmes and projects, and reaffirming the need for additional financial resources from donor countries and organizations to assist developing countries in dealing with environmental problems in accordance with their national development plans, priorities and objectives, the Council requested the Executive Director of UNEP, in co-operation with the competent organizations, to carry out an up-to-date review of the problem of providing additional financial resources on terms compatible with the economic situation of recipient developing countries, and to report thereon through the Council to the General Assembly at its forty-fourth session in 1989. In addition, it called upon all Governments to request their central economic and sectoral agencies to ensure that their policies, programmes and budgets encourage sustainable development and to strengthen the role of their environmental and natural resource agencies in advising and assisting the central and sectoral agencies in that task. Lastly, the Council requested the organizations of the UN system concerned to include in their reports to the General Assembly at its forty-fourth session an account of the measures they have taken to give effect to the provisions of General Assembly resolutions 42/184 and 42/187 calling on them to provide additional resources to developing countries.

18. Resolution 1968/70 concentrates on traffic in toxic and dangerous products and wastes. Stressing the increasing gravity of the problem and its implications, notably for developing countries, in which toxic wastes tend to be dumped, the Council requested the Secretary-General, in preparing his report to the General Assembly at its forty-fourth session, to draw on information provided by UNEP and other organizations of the UN system, in line with internationally accepted guidelines and principles, and to focus on two subjects: first, a quantitative and geographical assessment, by region of origin and of destination, of the illegal traffic in toxic and dangerous products and wastes; and, second, a classification of types of toxic and dangerous products and wastes according to their nature, their potential toxicity and the probability of their being traded or dumped. The Secretary-General was also requested to submit conclusions and recommendations on different mechanisms that can be devised to monitor and control the illegal traffic in toxic and dangerous products and wastes. Finally, the Council requested him to increase his efforts to obtain information on illegal traffic in toxic and dangerous wastes and on steps taken to eliminate or reduce such traffic.

19. In resolution 1988/71 the Council turned its attention to the question of a global convention on the control of transboundary movements of hazardous wastes. Noting the work of the *Ad Hoc* Working Group of Legal and Technical Experts with a Mandate to Prepare a Global Convention on the Control of Transboundary Movements of Hazardous Wastes, convened by the Executive Director of UNEP, as well as the fact that the draft convention is to be submitted to a diplomatic conference for adoption by Governments in Basel, Switzerland, in early 1989, the Council stressed the importance of the active participation of all Governments in the preparatory work for the convention, with a view to its speedy and successful completion. It also requested the Secretary-General to report to the General Assembly at its forty-fourth session on developments with regard to the convention.

20. Resolution 1988/72 is entitled "International co-operation on the environment: the Environment Fund". Expressing its concern at the almost complete stagnation in nominal terms of the resources available to the Environment Fund, at a time when the challenges in the field of the environment and in the achievement of sustained, environmentally sound and socially just development continued to multiply and assume critical importance, and considering that a 50 per cent increase in real terms in the resources of the Environment

Fund was desirable, the Council took note of the report of UNEP's Governing Council on the work of its first special session and recognized the resolve of the Governing Council to exercise fully the role expected of it in accordance with its mandate. The Economic and Social Council also welcomed the Governing Council's request to the governing bodies of the organizations of the UN system to give priority to providing financial and technical assistance for the effective implementation of each of the programme areas of the Cairo Programme, and expressed its appreciation to Governments that had substantially increased their contributions to the Fund.

21. Considering it essential to increase the resources of the Fund substantially, the Council called upon the Governments of developed countries that had not contributed in the past to do so at a level commensurate with that of other developed countries, so as to give the Fund a much wider base, and encouraged those Governments that were contributing to the Fund to continue to do so and, if possible, to increase their contributions in accordance with their capacity to do so.

Decisions

22. In its decision 1988/174 entitled "International co-operation on the environment", the Council requested the Secretary-General, in co-operation with the Director-General of IAEA, to submit, within existing resources, a report to the General Assembly at its forty-fourth session, through UNEP's Governing Council, on the effects on the environment of the dumping of nuclear wastes.

23. In its last decision concerning the environment, 1988/175, the Council took note of the Secretary-General's progress report on the implementation of General Assembly resolution 42/187, relating to the report of the World Commission on Environment and Development.

GENERAL ASSEMBLY

24. Normally, in accordance with General Assembly resolution 39/217 of 18 December 1984, the Assembly discusses the environment as an item of its agenda only in odd-numbered years, taking up the reports of the UNEP Governing Council at its regular sessions after these are considered by the Economic and Social Council during even-numbered years. However, by its resolution 42/187 of 11 December 1987 on the report of the World Commission on Environment and Development, the Assembly decided to include in the agenda of its forty-third session a sub-item entitled "A long-term strategy for sustainable and environmentally sound development" under an item discussed each year, "Development and international co-operation". Consequently, during its forty-third session, the Assembly discussed environmental issues in this context as well as in others, leading to the adoption of four resolutions concerning environmental questions, including its first initiative on climate change, as well as three decisions.

25. In addition, on 5 December 1988, the Assembly unanimously re-elected Mostafa K. Tolba as Executive Director of UNEP for a fourth four-year term.

Resolution 43/53—Protection of global climate for present and future generations of mankind

26. Under a new item entitled "Conservation of climate as part of the common heritage of mankind", the General Assembly recognized climate change as a common concern of

mankind and determined that necessary and timely action should be taken to deal with this phenomenon within a global framework. It therefore urged Governments, intergovernmental and non-governmental organizations and scientific institutions to treat climate change as a priority issue; to undertake specific, co-operative, action-oriented programmes and research, so as to increase understanding on all sources and causes of climate change, including its regional aspects and specific time-frames, as well as the cause-and-effect relationship of human activities and climate; and to contribute, as appropriate, with human and financial resources to efforts to protect the global climate. It also called upon Governments and intergovernmental organizations to collaborate in making every effort to prevent detrimental effects on climate and other activities affecting the ecological balance, and called on NGOs, industry and other productive sectors to play their due role. In addition, the Assembly encouraged the convening of conferences on climate change, particularly global warming, at the national, regional and global levels in order to make the international community better aware of the importance of dealing effectively and in a timely manner with all aspects of climate change resulting from certain human activities.

27. The Assembly also reaffirmed its resolution 42/184, in which, *inter alia*, it had agreed with the Governing Council that UNEP should attach importance to the problem of global climate change and that the Executive Director should ensure that UNEP co-operates closely with WMO and ICSU and maintains an active influential role in the World Climate Programme. It considered, too, that activities in support of the World Climate Programme, approved by the Congress and Secretary-General of WMO and elaborated in the system-wide medium-term environment programme for the period 1990-1995, should be accorded high priority by the relevant organs and programmes of the UN system. Endorsing the joint action of WMO and UNEP in establishing an Intergovernmental Panel on Climate Change (see chap. III, below), the Assembly expressed its appreciation for the work already initiated by the Panel and called upon all relevant organizations and programmes of the UN system to support the Panel's work. Moreover, it requested the Secretary-General of WMO and the Executive Director of UNEP, utilizing the Panel, immediately to initiate action leading, as soon as possible, to a comprehensive review and recommendations with respect to: (a) the state of knowledge of the science of climate and climatic change; (b) programmes and studies on the social and economic impact of climate change, including global warming; (c) possible response strategies to delay, limit or mitigate the impact of adverse climate change; (d) the identification and possible strengthening of relevant existing international legal instruments having a bearing on climate; and (e) elements for inclusion in a possible future international convention on climate.

28. The Assembly requested the Secretary-General to bring the resolution on global climate to the attention of all Governments, as well as intergovernmental organizations, NGOs in consultative status with the Economic and Social Council and well-established scientific institutions with expertise in matters concerning climate, and to report to the Assembly at its forty-fourth session on the resolution's impact. Finally, the Assembly decided to include the question of global climate in the provisional agenda of its forty-fourth session, without prejudice to the application of the principle of biennialization.

Resolution 43/55—Effects of atomic radiation

29. In this resolution, the Assembly commended the UN Scientific Committee on the Effects of Atomic Radiation for its work during the last 33 years and noted with satisfaction the continued and growing scientific co-operation between the Committee and UNEP. The Assembly requested the Committee to continue its work, including its important co-ordinating activities, to increase knowledge of the levels, effects and risks of ionizing radiation from all sources. Endorsing the Committee's intentions and plans for its future

activities of scientific review and assessment, the Assembly also requested the Committee to continue at its next session the review of the important problems in the field of radiation and to report thereon to it at its forty-fourth session. Further, the Assembly requested UNEP to continue providing support for the effective conduct of the Committee's work and for the dissemination of its findings to the Assembly, the scientific community and the public. It expressed its appreciation for the assistance rendered to the Committee by Member States, the specialized agencies, IAEA and NGOs and invited them to increase their co-operation in this field. Finally, the Assembly invited Member States, the organizations of the UN system and NGOs concerned to provide further relevant data about doses, effects and risks from various sources of radiation, which would greatly help in the preparation of the Committee's future reports to the Assembly.

Resolution 43/196—A United Nations conference on environment and development

30. In this resolution, the Assembly recalled its resolution 42/186 on the Environmental Perspective to the Year 2000 and Beyond, as well as its resolution 42/187 on the report of the World Commission on Environment and Development, and noted that the UN Conference on the Human Environment, held in Stockholm in 1972, had recommended that the Assembly should convene another such conference. Expressing the belief that it would be highly desirable for a UN conference on environment and development to be convened no later than 1992, the Assembly considered that the conference could, *inter alia*: (a) review trends in policies and action taken by all countries and international organizations to protect and enhance the environment and to examine how environmental concerns have been incorporated in economic and social policies since the Stockholm Conference; (b) assess major environmental problems, risks and opportunities associated with economic activities in all countries; and (c) make recommendations for further strengthened international co-operative action within a set of priorities to be established by the conference, define the research and development effort required to implement such recommendations, and indicate financial requirements for their implementation, together with a definition of possible sources for such financing.

31. Accordingly, the Assembly decided to consider at its forty-fourth session the question of convening such a conference no later than 1992, with a view to taking an appropriate decision at that session on the exact scope, title, venue and date of such a conference and the modalities and financial implications of holding it. To this end, the Assembly requested the Secretary-General to carry out a number of tasks with the assistance of the Executive Director of UNEP. First, he was urgently to obtain the views of Governments on the objectives, content, title and scope of the conference, appropriate ways of preparing for it, and a suitable time and place and other modalities. Second, he was requested to obtain the views of appropriate organs, organizations and programmes of the UN system, as well as those of relevant intergovernmental and non-governmental organizations, on the objectives, content and scope of the conference. Third, he was asked to prepare a statement of the financial implications of preparing and convening the conference. All this information is to be submitted to the Assembly at its forty-fourth session, through the Economic and Social Council, and also to be made available to the Governing Council at its fifteenth session.

32. Finally, the Assembly invited the Governing Council to consider all these documents and to submit its views on all the matters contained therein—notably the objectives, content and scope of the conference—through the Economic and Social Council, to the Assembly at its forty-fourth session.

Resolution 43/212—Responsibility of States for the protection of the environment: prevention of the illegal international traffic in, and the dumping and resulting accumulation of, toxic and dangerous products and wastes affecting the developing countries in particular

33. Recalling its resolution 42/183 on traffic in toxic and dangerous products and wastes, and stressing the obligation of all States, in accordance with their responsibilities, to protect the environment, the Assembly urged all States, bearing in mind their respective responsibilities, to take the necessary legal and technical measures to halt and prevent the illegal international traffic in, and the dumping and resulting accumulation of, toxic and dangerous products and wastes. In addition, the Assembly urged all States to prohibit all transboundary movement of toxic and dangerous wastes carried out without the prior consent of the competent authorities of the importing country or without full recognition of the sovereign rights of transit countries. In this connection, the Assembly also urged all States to prohibit such movement without prior notification in writing of the competent authorities of all countries concerned, including transit countries, as well as to provide all information required to ensure the proper management of the wastes and full disclosure of the nature of the substances to be received or transported. All States generating toxic and dangerous wastes were urged to make every effort to treat and dispose of them in the country of origin to the maximum extent possible consistent with environmentally sound disposal.

34. The Assembly also requested the UNEP *Ad Hoc* Working Group of Legal and Technical Experts on hazardous wastes to give due consideration to the resolution and to take into account the various views expressed in the Assembly on the respective responsibilities for preventing such illegal traffic and its consequences. Finally, the Assembly called on the international community, in particular the developed countries, to strengthen its scientific and technical co-operation with the developing countries and to provide appropriate assistance to them in their efforts to eliminate the adverse consequences of toxic and dangerous wastes for human health and the environment.

Decision 43/406—Transitional arrangements for a change in the term of office of members of the Governing Council of UNEP

35. As part of the transitional arrangements for extending the term of office from three to four years, the Assembly decided to elect to the Council 10 members for a one-year term and 29 members for a three-year term beginning on 1 January 1989. At its forty-fourth session, the Assembly will elect 29 members for a four-year term beginning on 1 January 1990 and, thereafter, every other year, half the total of the Council's 58 members. (Lists indicating the membership of the Council in 1988 and 1989 are contained in annex I.)

Decision 43/440—International co-operation in the monitoring, assessment and anticipation of environmental threats

36. On the question of ecological security, the Assembly again took a procedural decision, deferring consideration of the draft resolution entitled "International co-operation in the monitoring, assessment and anticipation of environmental threats" to its forty-fourth session under the agenda item "Environment".

Decision 43/441—Convention on Early Notification of a Nuclear Accident and Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency

37. In another procedural decision, the Assembly, having taken note of the report of the Secretary-General on accession by the UN to the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, both of which were adopted on 26 September 1986, deferred further consideration of the report and a decision to its forty-fourth session.

Chapter V

FINANCIAL AND ADMINISTRATIVE AFFAIRS

Environment Fund

Administrative matters

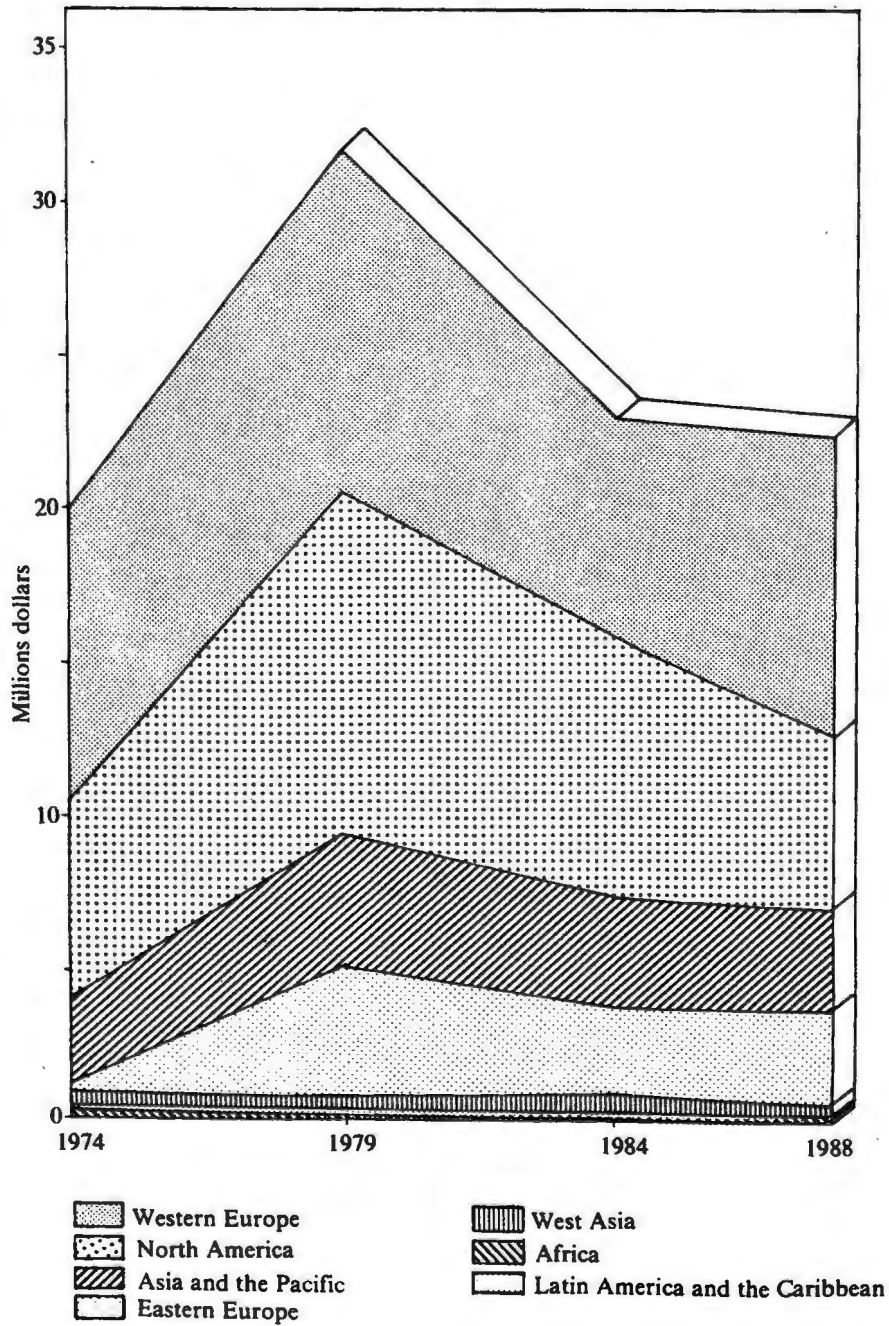
Computerization of the Secretariat

FINANCIAL AND ADMINISTRATIVE AFFAIRS

I. ENVIRONMENT FUND

1. The financial position of the Environment Fund improved during 1988. Its cash position was sound and contributions in nominal terms exceeded those of 1980, hitherto the year in which contributions were highest. As at 31 December 1988, \$34.47 million had either been paid or pledged to the Fund, an encouraging sign, as is the continued early payment of contributions. A further sum of approximately one half million dollars is also expected in contributions which had not been formally pledged at the time this report was prepared. During the first quarter of 1988, over 30 per cent of total estimated contributions were received, as compared with 19 per cent during the same period in 1987. However, one troublesome feature was the continuation of a downward trend in the number of contributors. In 1988, only 65 countries contributed or pledged a contribution, as compared with 79 in 1987, 86 in 1986 and 90 in 1985.
2. It should be recalled that the Economic and Social Council, in its resolution 1988/72 on "International co-operation on the environment: The Environment Fund", considered that 50 per cent increase in the real terms on the resources of the Environment Fund was desirable. As a follow-up to ECOSOC resolution 1988/72, the secretariat contacted all Governments, urging them to increase their contributions by 50 per cent.
3. Figure 1 shows how when contributions are expressed in real terms (1979 dollars assuming average inflation of 5 per cent per annum) total 1988 contributions are lower than in 1979 and all regions contributed less in 1988 than they did in 1979. The Executive Director understands that, given the state of the world economy during the early 1980s, financial retrenchments were to be expected. However, the fact that, in real terms, contributions to UNEP have continued to decline steadily is difficult to understand in the light of government claims that they assign a high priority to environmental matters.
4. On the basis of the estimate of resources available to him for 1988, the Executive Director allocated \$32.7 million for Fund programme and Fund programme reserve activities. Table 1 sets out the breakdown of this allocation by budget line, as well as the commitments incurred against these allocations.
5. Commitments in 1988 accounted for only 84 per cent of these allocations. There were two reasons why this figure was not higher. Firstly, there was difficulty in committing funds provided in non-convertible currencies which, on the basis of all the resources available to the Fund, amounted to approximately 25 per cent of the total. In terms of convertible currencies, 91 per cent of allocations were committed. Secondly, it was necessary in some programmes to hold back resources in order to provide for essential commitments in 1989, since the allocations for that year are lower because the total appropriation approved by Governing Council for Fund programme and Fund programme reserve activities was limited to \$62 million.
6. Commitments are entered into through projects implemented by United Nations agencies (co-operating agencies), Governments, government institutions and non-govern-

Figure 1.
Total contributions and contributions received by region
(expressed in 1979 dollars at a 5 per cent inflation rate per annum)



mental organizations (supporting organizations), as well as by UNEP directly, either as projects supporting programme activity centres such as GEMS, IRPTC, INFOTERRA or as other internal projects. The largest share of Fund project commitments in 1988 was implemented by UNEP directly and amounted to 53 per cent of the total. The Executive Director would like to see UNEP's share reduced, so that co-operating agencies, supporting organizations and UNEP each account for approximately one third of total commitments during the 1990-1991 biennium.

Table 1
1988 allocations and project commitments

Budget line	Allocation	Commitment
Monitoring and assessment	4 233 000	3 541 070
Information exchange	3 156 000	2 582 824
Oceans	3 519 000	3 108 699
Water	1 632 000	1 394 107
Terrestrial ecosystems management	3 213 000	2 424 267
Desertification control	3 660 000	3 581 517
Environmental health	1 071 000	709 008
Peace, arms race and environment	180 000	176 452
Technology and environment	2 499 000	1 689 470
Support measures	5 736 000	5 243 533
Technical and regional co-operation	2 601 000	1 929 629
Total Fund programme activities	31 500 000	26 380 577
Fund programme reserve	1 200 000	1 145 094
GRAND TOTAL	32 700 000	27 525 671

Table 2
Geographical distribution of 1988 Fund commitments

	Commitments (United States dollars)	Percentage of total commitments
<i>Regional projects:</i>		
Africa	3 460 663	12.6
Asia	2 347 146	8.5
Latin America	1 931 105	7.0
North America	30 000	0.1
Europe	237 100	0.9
Sub-total	8 006 014	29.1
— Interregional projects	1 541 677	5.6
Global projects	17 977 980	65.3
GRAND TOTAL	27 525 671	100.0

7. Table 2 sets out the geographical distribution of 1988 Fund commitments in both absolute and percentage terms.

8. The Executive Director allocated \$11.91 million to the programme and programme support costs budget in 1988 and provisional estimates indicate that some \$11.6 million will be spent. If this is the case, these expenditures would represent 33.2 per cent of the estimated contributions for 1988. This is slightly higher than the target of 33 per cent set by the Governing Council, but the Executive Director had indicated that it was unlikely that he would be able to achieve that target on the basis of the contributions then projected.

II. ADMINISTRATIVE MATTERS

A. Personnel

9. As in previous years, the secretariat was financed in 1988 mainly from the United Nations regular budget and from voluntary contributions to the Environment Fund. The Environment Fund finances staff both through the programme and programme support costs budget (PPSC) and through project budgets. As at 31 December 1988, 78 per cent of the occupied Professional posts were financed from these two major sources of funding, as compared with 82 per cent in 1987 and 86 per cent in 1986. This reflects a continuing increase in the use of trust funds and counterpart funds, the two other significant funding sources, to finance the secretariat. These latter two sources of funding are provided mainly by Governments, but are earmarked for specific projects or purposes. In 1988, an increase in Junior Professional Officers (JPOs) and senior staff financed directly by Governments was a notable feature.

10. The secretariat is composed of staff in the Professional and General Service categories. The Professional posts approved and occupied on 31 December 1988 are shown in table 3 with corresponding figures for 1987. A similar breakdown for general service staff is provided in table 4.

11. The proportion of UNEP Professional posts funded under the regular budget has continued to decline. In addition, in 1990, UNEP will suffer cuts of an additional eight Professional posts under this source of funding. Furthermore, with two exceptions, the Executive Director was not permitted to fill vacant Professional posts under the regular budget in 1988. It is therefore clear that the rationale for the funding of the UNEP secretariat established after Stockholm is no longer valid. Greater reliance will have to be placed on financing the secretariat through the PPSC budget or through direct government assistance.

12. Of the professional posts financed by PPSC, 29 per cent were vacant as at 31 December 1988, as were 10 per cent of the General Service posts financed by the same source. These high vacancy rates are maintained by the Executive Director in order to restrict PPSC expenditures as closely as possible to 33 per cent of expected contributions. However, whether the increasing impetus of the programme can be maintained when so many established posts are held vacant is a serious question.

13. In order to bridge the staff shortage, at least in part, the Executive Director has encouraged Governments to support the Junior Professional Officer (JPO) programme. As at 31 December 1988, there were 16 JPOs on the UNEP staff, as compared with 12 at the end of 1987. Two more JPOs are being recruited and an additional eight JPO positions remain to be filled. Job descriptions have been circulated to the Governments participating in the JPO programme so that they may identify suitable candidates. The Executive Director is also

Table 3
Source of financing for Professional posts

	Number of posts			
	1987 Approved	1987 Occupied	1988 Approved	1988 Occupied
Environment Fund:				
(a) PPSC	101 ^a	69 ^a	101 ^a	72 ^a
(b) Projects:				
(i) PACs	27	20	30	18
(ii) Others	27	24	27	23
Sub-total	155	113	158	113
Regular budget	51 ^b	43 ^b	51 ^b	42 ^b
Trust fund projects	13	13	15	13
JPO agreements (trust funds)	13	10	16	16
Senior professional officers financed by Governments	2	2	5	5
Special account for support to trust funds (SASTF)	7	7	8	6
Activities financed from counterpart contributions	2	2	3	3
GRAND TOTAL	243	190	256	198

^a Including one post on loan to UNCHS.

^b Including five Field Service posts in the Cable Unit serving all the Organizations in the United Nations Office at Nairobi and UNDP.

using five senior professionals financed by Governments, as well as seven United Nations Volunteers. While JPOs and volunteers are of great benefit to the secretariat, they cannot be expected to replace fully experienced senior officers. Consequently, the Executive Director is concerned that he is being called upon to undertake more and more activities without additional staff of the type and calibre necessary to executive the programme.

14. The functions of the Professional staff reflect the broad mandate of UNEP and the administrative support that the organization requires. Table 5 provides an overview of the distribution of the functions of the 198 Professional staff members in post as at 31 December 1988. Annex II presents a distribution of UNEP Professional staff by nationality, and it should be noted that of the total of 197 posts occupied (excluding the one post on loan to UNCHS) 49 posts or 25 per cent were occupied by women.

15. The number of approved General Service posts increased from 376 in 1987 to 388 in 1988. This large increase was due in part to the conversion of 10 temporary assistance posts to established posts in 1988. Nonetheless, the number of posts occupied increased by only four, from 333 at the end of 1987 to 337 at the end of 1988. Of the 388 approved posts, 51 were vacant as at 31 December 1988, resulting in a vacancy rate of 13 per cent. At the end of 1987, 11 per cent of General Service posts were vacant. Once again, the reason for these vacancies was the need to maintain the strictest economy in the use of resources.

Table 4
Source of financing for General Service posts^a

	Number of posts			
	1987 Approved	1987 Occupied	1988 Approved	1988 Occupied
Environment Fund:				
(a) PPSC	211	195	211	190
(b) Projects:				
(i) PACs	31	28	35	29
(ii) Others	44	33	41	33
Sub-total	286	256	287	252
Regular budget	60	52	60	47
Special account for support to trust funds	13	11	22	21
Trust Fund projects	6	6	9	8
Activities financed from counterpart contributions	11	8	10	9
GRAND TOTAL	376	333	388	337

^a These figures do not include staff members employed against temporary assistance funds. As at 31 December 1988 there were 22 General Service staff on temporary assistance posts on the UNEP payroll: nine financed by the regular budget, nine by programme and programme support costs, four by Environment Fund projects and two by trust funds. This compares with 38 General Service staff members employed against temporary assistance funds as at 31 December 1987, seven of whom were financed by the regular budget, ten by programme and programme support costs, eleven by projects and 10 by trust funds.

Table 5
Distribution of Professional staff by function and source of funding (as at 31 December 1988)

	Regular budget	PPSC budget	JPO trust funds	SPO trust funds	SASTF	Environ- ment Fund projects	Trust fund projects	Activities financed from counterpart contributions	Total
1. Senior management	3	1	—	—	—	—	—	—	4
2. Regional offices and external relations	5	16	1	—	—	1	—	—	23
3. Development of programmes	11	15	8	2	1	9	6	—	52
4. Projects: —PAC ^a	—	2	—	—	—	9	—	—	11
5. Projects — Others	—	—	2	3	—	12	7	3	27
6. Fund management and Clearing-house	1	13	4	—	4	2	—	—	24
7. Information	1	5	—	—	—	5	—	—	11
8. Conference services	9	5	—	—	—	1	—	—	15
9. Administration	12	14	1	—	1	2	—	—	30
10. Post on loan to UNCHS	—	1	—	—	—	—	—	—	1
Total	42	72	16	5	6	41	13	3	198

^a PAC staff largely concerned with the development of programmes are included in line 3.

16. Table 6 shows occupied General Service posts by broad occupational group.

Table 6
General Service staff by occupational grouping

	1985	1986	1987	1988
Administrative, finance, personnel and research assistants	117	124	118	113
Secretaries and typists	145	142	133	134
Clerks	45	47	48	51
Telex/computer operators	8	10	9	12
Drivers	15	14	12	12
Messengers	8	12	13	15
Total	338	349	333	337

III. COMPUTERIZATION OF THE SECRETARIAT

17. The Executive Director recognizes that if the secretariat is to increase its efficiency, maximum use must be made of modern office technology. Accordingly, during 1988, UNEP continued its programme of upgrading and expanding its office information systems. Many Professional staff now have access to a personal computer, most of which are networked and linked to UNEP's mainframe computer.

18. Given this large investment in new computer technology, the Executive Director accords high priority to full use of the equipment. A two-pronged approach has been adopted to achieve this. Firstly, selected staff members are encouraged, through the provision of training courses, to develop their own computer applications. Secondly, "on-line" management information systems are being developed using the mainframe computer. Staff can retrieve information from these systems and new data is entered at source wherever possible to avoid duplication of work.

19. As new data bases become operational, there is a greater demand for computer time. The Executive Director therefore expects to have to upgrade computing capabilities in the near future.

ANNEX I

MEMBER STATES OF THE UNEP GOVERNING COUNCIL FOR THE YEAR 1988

Argentina	Malta
Australia	Mauritania
Barbados	Mexico
Botswana	Netherlands
Brazil	Niger
Bulgaria	Nigeria
Burundi	Oman
Canada	Panama
Chile	Papua New Guinea
China	Poland
Colombia	Republic of Korea
Congo	Senegal
Czechoslovakia	Sri Lanka
Denmark	Swaziland
Dominican Republic	Sweden
France	Switzerland
Gabon	Syrian Arab Republic
Germany, Federal Republic of	Thailand
Ghana	Tunisia
Greece	Turkey
India	Uganda
Indonesia	Ukrainian Soviet Socialist Republic
Iran (Islamic Republic of)	Union of Soviet Socialist Republics
Iraq	United Kingdom of Great Britain and Northern Ireland
Jamaica	United States of America
Japan	Venezuela
Jordan	Yugoslavia
Kenya	Zaire
Libyan Arab Jamahiriya	Zambia

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MEMBER STATES OF THE UNEP GOVERNING COUNCIL FOR THE YEAR 1989

Argentina	Libyan Arab Jamahiriya
Australia	Malta
Bangladesh	Mauritania
Barbados	Mauritius
Botswana	Mexico
Brazil	Netherlands
Bulgaria	Oman
Burundi	Pakistan
Canada	Poland
Chile	Republic of Korea
China	Rwanda
Colombia	Saudi Arabia
Costa Rica	Senegal
Côte d'Ivoire	Sri Lanka
Czechoslovakia	Sudan
Dominican Republic	Sweden
Finland	Switzerland
France	Togo
Gabon	Turkey
Germany, Federal Republic of	Uganda
Greece	Ukrainian Soviet Socialist Republic
Guyana	Union of Soviet Socialist Republics
India	United Kingdom of Great Britain and Northern Ireland
Indonesia	United States of America
Iran (Islamic Republic of)	Venezuela
Iraq	Yugoslavia
Japan	Zaire
Jordan	Zimbabwe
Kenya	
Lesotho	

Annex II

DISTRIBUTION OF UNEP STAFF IN THE PROFESSIONAL CATEGORY AND ABOVE BY REGION, NATIONALITY AND LEVEL AS AT 31 DECEMBER 1988^a

Region and country of nationality	Occupied posts subject to geographical distribution	Number	Occupied posts not subject to geographical distribution ^b	Number	Total
<i>African States</i>					
Algeria	—	—	1 P-2	1	1
Egypt	1 USG, 1 P-5	2	1 P-5, 2 P-4	3	5
Ethiopia	1 FS-4*	1	1 D-1, 1 P-1	2	3
Gambia	—	—	1 P-4	1	1
Kenya	1 D-2, 1 D-1	2	4 P-3, 3 P-2	7	9
Libyan Arab Jamahiriya	1 D-1	1	1 P-4, 1 P-3	2	3
Mali	—	—	1 D-1, 1 P-4	2	2
Mauritius	—	—	1 P-5	1	1
Morocco	—	—	1 P-3	1	1
Mozambique	—	—	1 P-3	1	1
Rwanda	—	—	1 P-4	1	1
Seychelles	—	—	1 D-1	1	1
Somalia	—	—	1 P-5	1	1
Sudan	1 P-2	1	1 D-2, 1 P-5, 1 P-3	3	4
Swaziland	1 P-5	1	—	—	1
Uganda	1 P-4	1	1 P-3	1	2
Zimbabwe	—	—	1 P-3	1	1
Subtotal		9		29	38

^a The breakdown by region in this annex does not correspond to that of the United Nations. As membership in the Governing Council is distributed among the five regions listed in General Assembly resolution 2997 (XXVII), it seemed appropriate to present this list in terms of the same regional groupings.

^b Including staff on Fund posts and all language staff.

^c Not including post on loan to UNCHS.

* Field service staff.

Region and country of nationality	Occupied posts subject to geographical distribution	Number	Occupied posts not subject to geographical distribution ^b	Number	Total
<i>Asian States</i>					
Afghanistan	—	—	1 P-4	1	1
Burma	—	—	1 D-1	1	1
China	1 P-3	1	1 D-1, 1 P-3,	2	3
India	1 D-2, 1 P-5	2	2 P-4	2	4
Iran (Islamic Republic of)	—	—	1 P-4, 1 P-2	2	2
Japan	1 P-1	1	1 D-1, 2 P-5, 1 P-3, 9 P-2	13	14
Kuwait	—	—	1 P-5	1	1
Lebanon	1 P-3	1	—	—	1
Nepal	—	—	1 P-2	1	1
Pakistan	—	—	1 P-3	1	1
Philippines	1 FS-5	1	1 P-4	1	2
Singapore	—	—	1 P-4	1	1
Syrian Arab Republic	—	—	1 P-5	1	1
Turkey	—	—	1 P-4, 1 P-3	2	2
Viet Nam	—	—	1 P-2	1	1
Yemen Arab Republic	—	—	1 D-1	1	1
Subtotal		6		31	37

Eastern European States

Czechoslovakia	—	—	1 P-5	1	1
Hungary	—	—	1 P-3	1	1
Poland	—	—	1 P-4	1	1
USSR	1 ASG, 2 P-4, 1 P-3	4	2 P-5, 3 P-4, 1 P-3	6	10
Yugoslavia	—	—	1 D-2, 1 P-5	2	2
Subtotal		4		11	15

Region and country of nationality	Occupied posts subject to geographical distribution	Number	Occupied posts not subject to geographical distribution ^b	Number	Total
<i>Western European and other States</i>					
Australia	1 P-4	1	1 P-5, 1 P-4 1 P-3	3	4
Austria	—	—	1 P-4, 1 P-3	2	2
Canada	1 FS-4*	1	2 P-5, 1 P-4 1 P-3	4	5
Denmark	2 P-4	2	1 P-5, 4 P-2	5	7
Finland	—	—	1 D-1, 1 P-5, 1 P-4	3	3
France	2 P-4	2	1 D-1, 1 P-5, 2 P-3, 1 P-2, 1 P-1	6	8
Germany, Federal Republic of	1 P-5	1	4 P-3, 4 P-2	8	9
Greece	1 P-5, 1 FS-6*	2	—	—	2
Iceland	—	—	1 P-4	1	1
Ireland	1 FS-5*	1	2 P-3, 1 P-2	3	4
Italy	—	—	1 D-2, 1 P-5, 1 P-4, 1 P-3	4	4
Netherlands	—	—	1 D-2, 1 P-2	2	2
New Zealand	—	—	1 D-1	1	1
Norway	—	—	1 P-5, 2 P-2	3	3
Spain	—	—	1 P-3, 1 P-2	2	2
Sweden	—	—	1 P-5, 1 P-4, 1 P-3, 1 P-2	4	4
Switzerland	—	—	1 P-4, 1 P-2	2	2
United Kingdom	1 P-5, 1 P-2	2	1 D-2, 1 D-1, 1 P-5, 2 P-4, 1 P-3, 1 P-2	7	9
United States	1 ASG, 1 D-1, 1 P-5, 1 P-3	4	2 D-1, 5 P-5, 1 P-4, 2 P-3, 1 P-2	11	15
Subtotal		16		71	87

Region and country of nationality	Occupied posts subject to geographical distribution	Number	Occupied posts not subject to geographical distribution ^b	Number	Total
<i>Latin American States</i>					
Argentina	—	—	1 P-4, 1 P-3	2	2
Chile	—	—	2 P-5, 1 P-4	3	3
Colombia	—	—	1 P-3	1	1
Ecuador	—	—	1 P-2	1	1
Guyana	—	—	1 P-4	1	1
Haiti	1 P-3	1	—	—	1
Jamaica	1 D-2	1	1 P-5, 3 P-2	4	5
Mexico	—	—	1 P-2	1	1
Peru	—	—	1 D-2, 1 P-4	2	2
Uruguay	—	—	1 P-3	1	1
Venezuela	—	—	1 D-1, 1 P-5,	2	2
Subtotal		2		18	20
Total		37		160	197



United Nations Environment Programme

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