



United Nations Environment Programme

Evolving Environmental Perceptions

From Stockholm to Nairobi

Edited By **Mostafa Kamal Tolba**

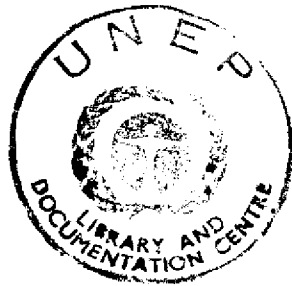


Butterworths

Evolving Environmental Perceptions
From Stockholm to Nairobi

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Mostafa Kamal Tolba



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Preface

The United Nations Conference on the Human Environment, convened in Stockholm in June 1972, was undoubtedly a milestone in the history of the environment. For the first time in history, environmental decision makers from the highest level from different countries got together to discuss various environmental issues facing humankind which have to be properly managed.

There was much reference to environment–development interlinkages during the debate at Stockholm. It was pointed out that for nearly two-thirds of the world's population, the human environment is dominated by poverty, malnutrition, illiteracy and sheer misery. Accordingly, the priority for developing countries has to be more accelerated development. Until such development takes place, and the gap between rich and poor nations is substantially reduced, there can be only limited progress in improving the human environment. In essence, poverty is the worst form of pollution. However, there appeared to be general agreement between the developing countries that environmental considerations should be integrally linked to national development strategies. Such interlinkages, it was felt, will help the countries to avoid the mistakes made by developed countries during their development process, make the utilization of both human and natural resources more efficient and ultimately enhance the quality of life of their citizens. There was a general agreement that the concept of 'no growth' is totally unacceptable, but there was a feeling that it is necessary to rethink the traditional concepts of growth. Many countries, both developing and developed, argued that a mindless pursuit of Gross National Product as the only indicator of growth, without other considerations, can only produce conditions that are an affront to the dignity of man. The requirements of clean air, unpolluted water and land, shelter and health are undeniable rights of man.

The Conference agreed on a Declaration and an Action Plan. The Declaration consisted of a Proclamation and 26 principles. It also agreed on 109 recommendations. It established an international machinery – the United Nations Environment Programme – as the environmental conscience of the United Nations system to look after the events following the Conference.

Because of the seminal nature of the Stockholm Conference, the General Assembly of the United Nations resolved in 1980 that a Session of Special Character of the Governing Council of the United Nations Environment Programme be held to commemorate its 10th anniversary. This commemorative session was held at the UNEP headquarters in Nairobi in May 1982.

In course of the preparation for this Session of Special Character, UNEP analysed, through a large number of senior advisers, changes in environmental trends in the decade 1972 to 1982. It was soon evident that much of the required documentation was not readily available.

Because of the historic importance of the Stockholm Conference, Dr Asit K. Biswas, who has been my Senior Scientific Adviser since 1974, and I made a determined attempt to trace all the statements made by various countries and organizations at the Conference, to get a clear idea of the environmental concerns and perceptions prevailing at that time and to compare them with their views in 1982 and later. This volume includes edited versions of the statements made at the

Stockholm and the Nairobi Conferences. In terms of editing, the statements naturally have not been changed; what has been done is to delete sentences or paragraphs of transitory nature.

The book also includes the Stockholm and Nairobi Declarations, as well as the Resolution on common environmental perceptions from the UNEP Governing Council and the General Assembly meeting of 1987. It thus shows how environmental perceptions have changed over the 15-year period of 1972–1987.

Nairobi, Kenya

Mostafa Kamal Tolba

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This book would not have been possible without the assistance given to me by my colleagues, both past and present. I would like especially to express my appreciation to Mr A. Diamantidis for arranging the translations of some of the statements. For the generous assistance and cooperation of all of them, I am truly grateful.

I would also like especially to express my deep gratitude and thanks to my colleague and friend, Dr Asit K. Biswas, President of the International Society for Ecological Modelling, Oxford, England, who has been one of my Senior Scientific Advisers since the early days of UNEP, for helping me with the long and arduous task of tracing all the Stockholm documents as well as assisting me to edit the statements.

Part 1:
Declarations and Resolutions

Stockholm Declaration, 1972

The United Nations Conference on the Human Environment,

Having met at Stockholm from 5 to 16 June 1972,

Having considered the need for a common outlook and for common principles to inspire and guide the peoples of the world in the preservation and enhancement of the human environment,

I.

Proclaims that:

1. Man is both creature and moulder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth. In the long and tortuous evolution of the human race on this planet a stage has been reached when, through the rapid acceleration of science and technology, man has acquired the power to transform his environment in countless ways and on an unprecedented scale. Both aspects of man's environment, the natural and the man-made, are essential to his well-being and to the enjoyment of basic human rights – even the right to life itself.
2. The protection and improvement of the human environment is a major issue which affects the well-being of peoples and economic development throughout the world; it is the urgent desire of the peoples of the whole world and the duty of all Governments.
3. Man has constantly to sum up experience and go on discovering, inventing, creating and advancing. In our time man's capability to transform his surroundings, if used wisely, can bring to all peoples the benefits of development and the opportunity to enhance the quality of life. Wrongly or heedlessly applied, the same power can do incalculable harm to human beings and the human environment. We see around us growing evidence of man-made harm in many regions of the earth: dangerous levels of pollution in water, air, earth and living beings; major and undesirable disturbances to the ecological balance of the biosphere; destruction and depletion of irreplaceable resources; and gross deficiencies, harmful to the physical, mental and social health of man, in the man-made environment, particularly in the living and working environment.
4. In the developing countries most of the environmental problems are caused by under-development. Millions continue to live far below the minimum levels required for a decent human existence, deprived of adequate food and clothing, shelter and education, health and sanitation. Therefore, the developing countries must direct their efforts to development, bearing in mind their priorities and the need to safeguard and improve the environment. For the same purpose, the industrialized countries should make efforts to reduce the gap between themselves and the developing countries. In the industrialized countries, environmental problems are generally related to industrialization and technological development.
5. The natural growth of population continuously presents problems for the

preservation of the environment, and adequate policies and measures should be adopted, as appropriate, to face these problems. Of all things in the world, people are the most precious. It is the people that propel social progress, create social wealth, develop science and technology and, through their hard work, continuously transform the human environment. Along with social progress and the advance of production, science and technology, the capability of man to improve the environment increases with each passing day.

6. A point has been reached in history when we must shape our actions throughout the world with a more prudent care for their environmental consequences. Through ignorance or indifference we can do massive and irreversible harm to the earthly environment on which our life and well-being depend. Conversely, through fuller knowledge and wiser action, we can achieve for ourselves and our posterity a better life in an environment more in keeping with human needs and hopes. There are broad vistas for the enhancement of environmental quality and the creation of good life. What is needed is an enthusiastic but calm state of mind and intense but orderly work. For the purpose of attaining freedom in the world of nature, man must use knowledge to build, in collaboration with nature, a better environment. To defend and improve the human environment for present and future generations has become an imperative goal for mankind – a goal to be pursued together with, and in harmony with, the established and fundamental goals of peace and of world-wide economic and social development.

7. To achieve this environmental goal will demand the acceptance of responsibility by citizens and communities and by enterprises and institutions at every level, all sharing equitably in common efforts. Individuals in all walks of life as well as organizations in many fields, by their values and the sum of their actions, will shape the world environment of the future. Local and national governments will bear the greatest burden for large-scale environmental policy and action within their jurisdictions. International co-operation is also needed in order to raise resources to support the developing countries in carrying out their responsibilities in this field. A growing class of environmental problems, because they are regional or global in extent or because they affect the common international realm, will require extensive co-operation among nations and action by international organizations in the common interest. The Conference calls upon Governments and peoples to exert common efforts for the preservation and improvement of the human environment, for the benefit of all the people and for their posterity.

II. Principles

States the common conviction that:

Principle 1

Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations. In this respect, policies promoting or perpetuating apartheid, racial segregation, discrimination, colonial and other forms of oppression and foreign domination stand condemned and must be eliminated.

Principle 2

The natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural ecosystems, must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate.

Principle 3

The capacity of the earth to produce vital renewable resources must be maintained and, wherever practicable, restored or improved.

Principle 4

Man has a special responsibility to safeguard and wisely manage the heritage of wildlife and its habitat, which are now gravely imperilled by a combination of adverse factors. Nature conservation, including wildlife, must therefore receive importance in planning for economic development.

Principle 5

The non-renewable resources of the earth must be employed in such a way as to guard against the danger of their future exhaustion and to ensure that benefits from such employment are shared by all mankind.

Principle 6

The discharge of toxic substances or of other substances and the release of heat, in such quantities or concentrations as to exceed the capacity of the environment to render them harmless, must be halted in order to ensure that serious or irreversible damage is not inflicted upon ecosystems. The just struggle of the peoples of all countries against pollution should be supported.

Principle 7

States shall take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

Principle 8

Economic and social development is essential for ensuring a favourable living and working environment for man and for creating conditions on earth that are necessary for the improvement of the quality of life.

Principle 9

Environmental deficiencies generated by the conditions of under-development and natural disasters pose grave problems and can best be remedied by accelerated development through the transfer of substantial quantities of financial and technological assistance as a supplement to the domestic effort of the developing countries and such timely assistance as may be required.

Principle 10

For the developing countries, stability of prices and adequate earnings for primary commodities and raw materials are essential to environmental management since economic factors as well as ecological processes must be taken into account.

Principle 11

The environmental policies of all States should enhance and not adversely affect the present or future development potential of developing countries, nor should they hamper the attainment of better living conditions for all, and appropriate steps should be taken by States and international organizations with a view to reaching agreement on meeting the possible national and international economic consequences resulting from the application of environmental measures.

Principle 12

Resources should be made available to preserve and improve the environment, taking into account the circumstances and particular requirements of developing countries and any costs which may emanate from their incorporating environmental safeguards into their development planning and the need for making available to them, upon their request, additional international technical and financial assistance for this purpose.

Principle 13

In order to achieve a more rational management of resources and thus to improve the environment, States should adopt an integrated and co-ordinated approach to their development planning so as to ensure that development is compatible with the need to protect and improve environment for the benefit of their population.

Principle 14

Rational planning constitutes an essential tool for reconciling any conflict between the needs of development and the need to protect and improve the environment.

Principle 15

Planning must be applied to human settlements and urbanization with a view to avoiding adverse effects on the environment and obtaining maximum social, economic and environmental benefits for all. In this respect, projects which are designed for colonialist and racist domination must be abandoned.

Principle 16

Demographic policies which are without prejudice to basic human rights and which are deemed appropriate by Governments concerned should be applied in those regions where the rate of population growth or excessive population concentrations are likely to have adverse effects on the environment of the human environment and impede development.

Principle 17

Appropriate national institutions must be entrusted with the task of planning, managing or controlling the environmental resources of States with a view to enhancing environmental quality.

Principle 18

Science and technology, as part of their contribution to economic and social development, must be applied to the identification, avoidance and control of environmental risks and the solution of environmental problems and for the common good of mankind.

Principle 19

Education in environmental matters, for the younger generation as well as adults, giving due consideration to the underprivileged, is essential in order to broaden the basis for an enlightened opinion and responsible conduct by individuals, enterprises and communities in protecting and improving the environment in its full human dimension. It is also essential that mass media of communications avoid contributing to the deterioration of the environment, but, on the contrary, disseminate information of an educational nature on the need to protect and improve the environment in order to enable man to develop in every respect.

Principle 20

Scientific research and development in the context of environmental problems, both national and multi-national, must be promoted in all countries, especially the developing countries. In this connexion, the free flow of up-to-date scientific information and transfer of experience must be supported and assisted, to facilitate the solution of environmental problems; environmental technologies should be made available to developing countries on terms which would encourage their wide dissemination without constituting an economic burden on the developing countries.

Principle 21

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Principle 22

States shall co-operate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such States to areas beyond their jurisdiction.

Principle 23

Without prejudice to such criteria as may be agreed upon by the international community, or to standards which will have to be determined nationally, it will be essential in all cases to consider the systems of values prevailing in each country, and the extent of the applicability of standards which are valid for the most advanced countries but which may be inappropriate and of unwarranted social cost for the developing countries.

Principle 24

International matters concerning the protection and improvement of the environment should be handled in a co-operative spirit by all countries, big and small, on an equal footing. Co-operation through multilateral or bilateral arrangements or other appropriate means is essential to effectively control, prevent, reduce and eliminate adverse environmental effects resulting from activities conducted in all spheres, in such a way that due account is taken of the sovereignty and interests of all States.

Principle 25

States shall ensure that international organizations play a co-ordinated, efficient and dynamic role for the protection and improvement of the environment.

Principle 26

Man and his environment must be spared the effects of nuclear weapons and all other means of mass destruction. States must strive to reach prompt agreement, in the relevant international organs, on the elimination and complete destruction of such weapons.

Nairobi Declaration, 1982

The world community of States, assembled in Nairobi from 10 to 18 May 1982 to commemorate the tenth anniversary of the United Nations Conference on the Human Environment, held in Stockholm, having reviewed the measures taken to implement the Declaration and Action Plan adopted at that Conference, solemnly requests Governments and peoples to build on the progress so far achieved, but expresses its serious concern about the present state of the environment worldwide, and recognizes the urgent necessity of intensifying the efforts at the global, regional and national levels to protect and improve it.

1. The Stockholm Conference was a powerful force in increasing public awareness and understanding of the fragility of the human environment. The years since then have witnessed significant progress in environmental sciences; education, information dissemination and training have expanded considerably; in nearly all countries, environmental legislation has been adopted, and a significant number of countries have incorporated within their constitutions provisions for the protection of the environment. Apart from the United Nations Environment Programme, additional governmental and non-governmental organizations have been established at all levels, and a number of important international agreements in respect of environmental co-operation have been concluded. The principles of the Stockholm Declaration are as valid today as they were in 1972. They provide a basic code of environmental conduct for the years to come.

2. However, the Action Plan has only been partially implemented, and the results cannot be considered as satisfactory, due mainly to inadequate foresight and understanding of the long-term benefits of environmental protection, to inadequate co-ordination of approaches and efforts, and to unavailability and inequitable distribution of resources. For these reasons, the Action Plan has not had sufficient impact on the international community as a whole. Some uncontrolled or unplanned activities of man have increasingly caused environmental deterioration. Deforestation, soil and water degradation and desertification are reaching alarming proportions, and seriously endanger the living conditions in large parts of the world. Diseases associated with adverse environmental conditions continue to cause human misery. Changes in the atmosphere – such as those in the ozone layer, the increasing concentration of carbon dioxide, and acid rain – pollution of the seas and inland waters, careless use and disposal of hazardous substances and the extinction of animal and plant species constitute further grave threats to the human environment.

3. During the last decade, new perceptions have emerged: the need for environmental management and assessment, the intimate and complex interrelationship between environment, development, population and resources and the strain on the environment generated, particularly in urban areas, by increasing population have become widely recognized. A comprehensive and regionally integrated approach that emphasizes this interrelationship can lead to environmentally sound and sustainable socio-economic development.

4. Threats to the environment are aggravated by poverty as well as by wasteful

consumption patterns: both can lead people to over-exploit their environment. The International Development Strategy for the Third United Nations Development Decade and the establishment of a new international economic order are thus among the major instruments in the global effort to reverse environmental degradation. Combination of market and planning mechanisms can also favour sound development and rational environmental and resource management.

5. The human environment would greatly benefit from an international atmosphere of peace and security, free from the threats of any war, especially nuclear war, and the waste of intellectual and natural resources on armaments, as well as from *apartheid*, racial segregation and all forms of discrimination, colonial and other forms of oppression and foreign domination.

6. Many environmental problems transcend national boundaries and should, when appropriate, be resolved for the benefit of all through consultations amongst States and concerted international action. Thus, States should promote the progressive development of environmental law, including conventions and agreements, and expand co-operation in scientific research and environmental management.

7. Environmental deficiencies generated by conditions of underdevelopment including external factors beyond the control of the countries concerned, pose grave problems which can be combated by a more equitable distribution of technical and economic resources within and among States. Developed countries, and other countries in a position to do so, should assist developing countries, affected by environmental disruption in their domestic efforts to deal with their most serious environmental problems. Utilization of appropriate technologies, particularly from other developing countries, could make economic and social progress compatible with conservation of natural resources.

8. Further efforts are needed to develop environmentally sound management and methods for the exploitation and utilization of natural resources and to modernize traditional pastoral systems. Particular attention should be paid to the role of technical innovation in promoting resource substitution, recycling and conservation. The rapid depletion of traditional and conventional energy sources poses new and demanding challenges for the effective management and conservation of energy and the environment. Rational energy planning among nations or groups of nations could be beneficial. Measures such as the development of new and renewable sources of energy will have a highly beneficial impact on the environment.

9. Prevention of damage to the environment is preferable to the burdensome and expensive repair of damage already done. Preventive action should include proper planning of all activities that have an impact on the environment. It is also important to increase public and political awareness of the importance of the environment through information, education and training. Responsible individual behaviour and involvement are essential in furthering the cause of the environment. Non-governmental organizations have a particularly important and often inspirational role to play in this sphere. All enterprises, including multinational corporations, should take account of their environmental responsibilities when adopting industrial production methods or technologies, or when exporting them to other countries. Timely and adequate legislative action is important in this regard.

10. The world community of States solemnly reaffirms its commitment to the

Stockholm Declaration and Action Plan, as well as to the further strengthening and expansion of national efforts and international co-operation in the field of environmental protection. It also reaffirms its support for strengthening the United Nations Environment Programme as the major catalytic instrument for global environmental co-operation, and calls for increased resources to be made available, in particular through the Environment Fund, to address the problems of the environment. It urges all Governments and peoples of the world to discharge their historical responsibility, collectively and individually, to ensure that our small planet is passed over to future generations in a condition which guarantees a life in human dignity for all.

Environmental Perspective, 1987

General Assembly Resolution 42/186

The Environmental Perspective to the Year 2000 and Beyond

The General Assembly,

Recalling its resolution 38/161 of 19 December 1983 on the process of preparation of the Environmental Perspective to the Year 2000 and Beyond, by which it, *inter alia*, welcomed the desire of the Governing Council of the United Nations Environment Programme to develop the Environmental Perspective and transmit it to the General Assembly for adoption, benefiting in carrying out that function from its consideration of the relevant proposals made by a special commission, which adopted the name World Commission on Environment and Development,

Welcoming the Environmental Perspective to the Year 2000 and Beyond, prepared by the Intergovernmental Inter-sessional Preparatory Committee of the United Nations Environment Programme, referred to in General Assembly resolution 38/161, and further considered and adopted by the Governing Council of the United Nations Environment Programme at its fourteenth session, by its decision 14/13 of 19 June 1987, as a basis for the further elaboration of its programme and operations, while acknowledging that different views exist on some aspects,

Appreciating that concepts, ideas and recommendations contained in the report of the World Commission on Environment and Development have been incorporated into the Environmental Perspective,

1. *Expresses its appreciation* of the efforts of the Governing Council of the United Nations Environment Programme and its Intergovernmental Inter-sessional Preparatory Committee in the preparation of the Environmental Perspective to the Year 2000 and Beyond;
2. *Adopts* the Environmental Perspective to the Year 2000 and Beyond, as annexed to this resolution, as a broad framework to guide national action and international co-operation on policies and programmes aimed at achieving environmentally sound development, and specifically as a guide to the preparation of further system-wide medium-term environment programmes and the medium-term programmes of the organizations and bodies of the United Nations system, in the light of Governing Council decision 14/13;
3. *Notes* that the perceptions shared by Governments of the nature of environmental problems, and their interrelations with other international problems, and of the efforts to deal with them include the following:
 - (a) An international atmosphere of peace, security and co-operation, free from the presence and the threat of wars of all types, especially nuclear war, and from the waste of intellectual and natural resources on armaments by any nation, would greatly enhance environmentally sound development;
 - (b) The imbalance of present world economic conditions makes it extremely difficult to bring about sustained improvement in the world's environmental situation. Accelerated and balanced world development and lasting improve-

ments in the global environment require improved world economic conditions, especially for the developing countries;

- (c) Since mass poverty is often at the root of environmental degradation, its elimination and ensuring equitable access of people to environmental resources are essential for sustained environmental improvements;
- (d) The environment provides constraints as well as opportunities for economic growth and social well-being. Environmental degradation, in its various forms, has assumed such proportions as can cause irreversible changes in ecosystems which threaten to undermine human well-being. Environmental constraints, however, are generally relative to the state of technology and socio-economic conditions, which can and should be improved and managed to achieve sustained world economic growth;
- (e) Environmental issues are closely intertwined with development policies and practices. Consequently, environmental goals and actions need to be defined in relation to development objectives and policies;
- (f) Although it is important to tackle immediate environmental problems, anticipatory and preventive policies are the most effective and economical in achieving environmentally sound development;
- (g) The environmental impacts of actions in one sector are often felt in other sectors; and so internalization of environmental conditions in sectoral policies and programmes and their co-ordination are essential to achieve sustainable development;
- (h) Since conflicts of interest among population groups, or among countries, are often inherent in the nature of environmental problems, participation of the concerned parties is essential to determine effective environmental management practices;
- (i) Environmental degradation can be controlled and reversed only by ensuring that the parties causing the damage will be accountable for their action, and that they will participate, on the basis of full access to available knowledge, in improving environmental conditions;
- (j) Renewable resources, as part of complex and interlinked ecosystems, can have sustainable yields only if used taking into account system-wide effects of exploitation;
- (k) Safeguarding of species is a moral obligation of humankind, and should improve and sustain human well-being;
- (l) Building awareness at various levels of environmental conditions and management, through the provision of information, education and training, is essential for environmental protection and improvement;
- (m) Strategies to deal with environmental challenges have to be flexible and should allow for adjustments to emerging problems and evolving environmental management technology;
- (n) The growing number and variety of international environmental disputes need to be resolved by peaceful means;

4. *Welcomes* as the overall aspirational goal for the world community the achievement of sustainable development on the basis of prudent management of available global resources and environmental capacities and the rehabilitation of the environment previously subjected to degradation and misuse, and the aspirational goals to the year 2000 and beyond as set out in Environmental Perspective, namely:

- (a) Achievement over time of such a balance between population and environmental capacities as would make possible sustainable development, keeping in view the links among population levels, consumption patterns, poverty and the natural resource base;
- (b) Achievement of food security without resource depletion or environmental degradation, and restoration of the resource base where environmental damage has been occurring;
- (c) Provision of sufficient energy at reasonable cost, notably by increasing access to energy substantially in the developing countries, to meet current and expanding needs in ways which minimize environmental degradation and risks, conserve non-renewable sources of energy, and realize the full potential of renewable sources of energy;
- (d) Sustained improvements in levels of living in all countries, especially the developing countries, through industrial development that prevents or minimizes environmental damage and risks;
- (e) Provision of improved shelter with access to essential amenities in a clean and secure setting conducive to health and to the prevention of environment-related diseases, while alleviating serious environmental degradation;
- (f) Establishment of an equitable system of international economic relations aimed at achieving continuing economic advancement for all States based on principles recognized by the international community in order to stimulate and sustain environmentally sound development, especially in developing countries;

5. *Agrees* that the recommendations for action contained in the Environmental Perspective should be implemented, as appropriate, through national and international action by Governments, intergovernmental and non-governmental organizations and scientific bodies;

6. *Requests* the Governing Council of the United Nations Environment Programme to keep under review the extent to which the long-term environmental actions recommended in the Environmental Perspective have been implemented and to identify any new environmental concerns that may arise;

7. *Calls* special attention to section IV of the Environmental Perspective, which spells out 'instruments of environmental action', to be used as support in addressing, as appropriate, problems dealt with in previous sections of the Environmental Perspective;

8. *Stresses* the essential role of the United Nations Environment Programme within the United Nations system in catalysing environmentally sound and sustainable development and agrees with the Governing Council that this role should be strengthened and that the resources of the Environment Fund should be substantially increased with greater participation;

9. *Endorses* the priorities and functions for the United Nations Environment Programme stated in paragraph 117 of the Environmental Perspective;

10. *Decides* to transmit the Environmental Perspective to all Governments and the governing bodies of the organs and organizations of the United Nations system as a broad framework to guide national action and international co-operation on policies and programmes aimed at achieving environmentally sound and sustainable development;

11. *Calls upon* the governing bodies of the organs and organizations of the United Nations system to consider the Environmental Perspective and take it into account in the development of their own medium-term plans and Programmes as relevant to their own mandates;
12. *Requests* the governing bodies of relevant United Nations organizations to report regularly to the General Assembly on the progress made in achieving the objectives of environmentally sound and sustainable development in line with paragraph 114 of the Environmental Perspective;
13. *Invites* the Governing Council of the United Nations Environment Programme to report on the implementation of this resolution and the relevant aspects of the Environmental Perspective to the General Assembly at its forty-fourth session.

Annex

Environmental Perspective to the Year 2000 and Beyond

I. Introduction

1. Awareness of environmental issues has been growing during the past decade. This awareness has emerged among and within the Governments as they have addressed environmental problems singly, bilaterally, regionally and globally. The establishment of ministries for environmental conservation and enhancement is but one sign of this growth of common concern. Much of this concern has been crystallized in the decisions of the Governing Council of the United Nations Environment Programme (UNEP). Despite these noteworthy developments, and the appearance in the world community of many shared perceptions regarding environmental problems and actions, environmental degradation has continued unabated, threatening human well-being and, in some instances, the very survival of life on our planet.
2. To meet this challenge, the overall aspirational goal must be sustainable development on the basis of: (a) prudent management of available global resources and environmental capacities; and (b) the rehabilitation of the environment previously subjected to degradation and misuse. Development is sustainable when it meets the needs of the present without compromising the ability of future generations to meet theirs.
3. The following are some shared perceptions of Governments of the nature of environmental issues and their interrelations with other international problems and the efforts to deal with them:
 - An international atmosphere of peace, security and co-operation, free from the presence and the threat of wars of all types, especially nuclear war, and the waste of intellectual and natural resources on armaments by any nation, would greatly enhance environmentally sound development;
 - The imbalance of present world economic conditions makes it extremely difficult to bring about sustained improvement in the world's environmental situation. Accelerated and balanced world development and lasting improvements in the global environment require improved world economic conditions, especially in the developing countries;

- Since mass poverty is often at the root of environmental degradation, its elimination and ensuring equitable access of people to environmental resources, are essential for sustained environmental improvements;
- The environment provides constraints as well as opportunities for economic growth and social well-being. Environmental degradation, in its various forms, has assumed such proportions as can cause irreversible changes in ecosystems which threaten to undermine human well-being. Environmental constraints, however, are generally relative to the state of technology and socio-economic conditions which can and should be improved and managed to achieve world economic growth;
- Environmental issues are closely intertwined with development policies and practices. Consequently, environmental goals and actions need to be defined in relation to development objectives and policies;
- Although it is important to tackle immediate environmental problems, anticipatory and preventive policies are the most effective and economical in achieving environmentally sound development;
- Environmental impact of actions in one sector are often felt in other sectors; so internalization of environmental considerations in sectoral policies and programmes and their co-ordination are essential to achieve sustainable development;
- Since conflicts of interest among population groups, or among countries, are often inherent in the nature of environmental problems, participation of the concerned parties is essential to determine effective environmental management practices;
- Environmental degradation can be controlled and reversed only by ensuring that the parties causing the damage will be accountable for their action, and that they will participate, on the basis of full access to available knowledge, in improving environmental conditions;
- Renewable resources, as part of complex and interlinked ecosystems, can have sustainable yields only if used taking into account system-wide effects of exploitation;
- Safeguarding of species is a moral obligation of humankind, and should improve and sustain human well-being;
- Building awareness at various levels, of environmental conditions and management through the provision of information, education and training, is essential for environmental protection and improvement;
- Strategies to deal with environmental challenges have to be flexible and should allow for adjustments to emerging problems and evolving environmental management technology;
- The growing number and variety of international environmental disputes need to be resolved by peaceful means.

4. Environmental problems cut across a range of policy issues and are mostly rooted in inappropriate development patterns. Consequently, environmental issues, goals and actions cannot be framed in isolation from the development and policy sectors in which they emanate. Against this background, and in the light of the General Assembly Resolution 38/161, this document reflects an intergovernmental consensus on growing environmental challenges to the year 2000 and beyond, in respect of six main sectors. In addition, the document discusses briefly other issues of global concern which do not fit easily under the sectoral headings;

and considers instruments for environmental action, including the role of institutions for dealing with environmental issues. Throughout the Perspective, an attempt has been made to reflect consistently the interdependent and integrated nature of environmental issues. Under each sectoral heading the report covers: the issue; the outlook; the goal to be aspired to in dealing with the issue; and recommended action. While drawing upon the report of the World Commission on Environment and Development, the Perspective has sought to delineate, in an organized manner, the elements of shared perceptions, environmental issues, aspirational goals and agenda for action envisaged for the Perspective by the Governing Council and the General Assembly.

II. Sectoral issues

A. Population

A.1 Issue and Outlook

5. *Issue:* The optimum contribution of human resources to achieve sustainable development has not been realized. Yet, population levels, growth and distribution will continue to overload the capacities of the environment in many countries. Rapid population growth, among other factors, has exacerbated poverty. The negative interaction between population and environment has tended to create social tensions.

6. *Outlook:* People are the most valuable asset anywhere for the betterment of economic and social conditions and the quality of life. Yet, in a number of countries, the momentum of population growth today, coupled with poverty, environmental degradation and an unfavourable economic situation, has tended to create serious disequilibria between population and environment and to aggravate the problem of 'environmental refugees'. Traditions and social attitudes, especially in rural areas, have been a major impediment to population planning.

7. World population may exceed 6 billion by the year 2000. Several countries have achieved population equilibrium as defined by low birth and death rates and high life expectancies. But, for a large part of the developing world, this has not happened, because of unfavourable economic conditions. Over ninety per cent of the net addition to the world's population between now and the year 2025, when the world population might exceed 8 billion, will occur in the developing countries. Many of them already suffer from desertification, fuelwood deficits, and loss of forests. Population planning would assist but is not sufficient to achieve equilibrium between population and environmental capacities. Countries have not yet related population planning to development planning nor have they linked population and environmental action for mutually reinforcing improvements. Equally, there is the need for more concern for human progress and social justice as factors influencing human resources development and environmental improvement.

A.2. Goal and Recommended Action

8. *Goal:* Achievement over time of such a balance between population and

environmental capacities as would make possible sustainable development, keeping in view the links among population levels, consumption patterns, poverty and the natural resource base.

9. *Recommended Action:*

- (a) Development planning which takes into account environmental considerations should be an important instrument in achieving population goals. Countries should identify rural and urban areas with acute population pressures on the environment. Environmental problems of large cities in developing countries should receive special attention. Since poverty increases, and economic development decreases, population growth rates, development plans should give special attention to population-related programmes aimed at improving environmental conditions at local levels;
- (b) Significant changes in natural resources should be monitored and anticipated. This information should be fed back into sub-national and national development plans and related to the planning of spatial distribution of population;
- (c) Land and water use and spatial planning should bring about a balanced distribution of population through, for example, incentives for industrial location, for resettlement and development of intermediate-sized towns, keeping in view the capacities of the environment;
- (d) Public works including food-for-work programmes should be designed and implemented in areas of environmental stress and population pressures, with a view to providing employment and simultaneously improving the environment;
- (e) Governments and voluntary organizations should increase public understanding, through formal and non-formal education, of the significance of population planning for environmental improvement and the important role of local action. The role of women in improving the environment and in population planning should receive special attention, as social changes that raise the status of women can have a profound effect in bringing down population growth rates;
- (f) Private enterprise, and industry in particular, should participate actively in governmental and NGO work aimed at ameliorating population and environmental stress;
- (g) Education should be geared towards making people more capable of dealing with problems of excessive population densities. Such education should help people acquire practical and vocational skills to enable them to become more self-reliant and enhance their participation in improvement of the environment at the local level;
- (h) International agencies, notably, UNFPA, UNICEF, ILO, WHO and WFP, should give priority attention to the geographical areas experiencing acute population pressures on the environment. They should reflect sensitivity to environmental improvement in the design and implementation of their population-related programmes. Multilateral and bilateral development assistance should be increased to finance innovative projects to make population programmes more effective by relating them to environmental improvement;
- (i) Population policies must have a broader focus than controlling numbers. Governments should work on several fronts: to achieve and maintain population equilibrium; to expand the carrying capacity of the environment and improve health and sanitation at local levels; to develop human resources

through education and training, and ensure equitable distribution of the benefits of economic growth.

B. Food and Agriculture

B.1. Issue and Outlook

10. *Issue:* Shortage of food in many developing countries creates insecurity and environmental threats. The quest to meet rapidly growing food needs, combined with insufficient attention to the new environmental impact of agricultural policies and practices, has been causing great environmental damage. This includes: degradation and depletion in the form of loss of soil and forests; drought and desertification; loss and deterioration of quality of surface and ground water; reduction in genetic diversity and of fish stocks; damage to the sea floor, waterlogging, salinization, and siltation; and soil, water and air pollution and eutrophication caused by improper use of fertilizers and pesticides and by industrial effluents.

11. *Outlook:* While food production capabilities have increased greatly over the last three decades, self-reliance in food production has not been achieved in many countries. In the absence of proper environmental management, conversion of forests and grassland into cropland will increase land degradation. For example, in sub-Saharan Africa a major issue is desertification and frequent droughts causing large scale migration from rural areas. In most developing countries the pressure on the natural resources, including those in the public domain, is a serious concern. In some developed countries loss of land productivity from excessive use of chemicals and loss of prime quality land to urbanization are major concerns.

12. Soil erosion has increased in all regions: increased intensity of land use has resulted in reduced fallowing which, in turn, has undermined soil conservation, management of moisture and control of weeds and diseases in smallholder agriculture. The main causes have been deforestation, overgrazing and overworking of farmland. Inappropriate patterns of land use and inadequate access to land have been other factors at work. Some off-site impacts have been flooding, reduction in hydro-electric capacity, reduced life of irrigation systems and declines in fish catches. The world's rivers may be carrying 24 billion tons of sediment to the seas annually. Technologies which make optimal use of natural resources, minimum tillage, fallowing and drought-pest and disease-resistant varieties, combined with mixed cropping, crop rotation, terracing and agro-forestry, have kept erosion under control in some places.

13. Nearly one third of all land is at risk from desertification. Over the last quarter century population in arid lands increased by more than 80 per cent. Since the adoption in 1977 of the Plan of Action to Combat Desertification, awareness of the problem has grown and so have organizational efforts to deal with it. But the basic elements of the action needed, namely, to stop the process, to rehabilitate degraded lands, and to ensure their effective management, do not yet receive the attention they urgently need. Although long-term economic returns to investments in controlling dry land degradation are high, insufficient resources are being devoted to that end.

14. Forests cover approximately one third of all land. Tropical forests occupy over 1.9 billion hectares of which 1.2 billion hectares are closed forests, and the

remaining open tree formations. Although the rate of tree plantations in the tropics has accelerated recently (about 1.1 million hectares annually) it amounts to only about one-tenth of the rate of deforestation. Use of forest land for agriculture through shifting or sedentary cultivation, increasing demand for fuelwood, unmanaged clearance and logging, burning and conversion for pastoral purposes, are the main factors behind tropical deforestation. In semi-humid and dry climates fire can be a significant cause as well. Widespread deforestation has brought about far-reaching changes in tropical forest ecosystems which no longer can perform well their essential functions of water retention, climate control, soil conservation and provision of livelihood.

15. Timber, an increasingly scarce commodity, has become the subject of extensive international negotiations. The International Tropical Timber Agreement (ITTA) ratified in 1985 aims at promoting international trade in industrial wood and the environmental management of tropical forests. The Tropical Forests Action Plan, prepared under FAO auspices, puts forward five priority areas aimed at: forestry land use planning, forestry-based industrial development, fuelwood and energy planning, conservation of tropical forest ecosystems and institutional support for better forestry management.

16. There have been significant changes in weather patterns partly as a result of loss of forests and vegetation cover. This has reduced river flows and lake levels and also lowered agricultural productivity. Irrigation has greatly improved arability in many areas of uncertain, or inadequate, rainfall. It has also been playing a vital role in the Green Revolution. Inappropriate irrigation, however, has wasted water, washed out nutrients and through salinization and alkalinization, damaged the productivity of millions of hectares. Globally, salinization alone may be removing as much land from production as the land being irrigated, and about half of the land under surface irrigation may be saline or waterlogged. Excessive use of ground water for irrigation has resulted in lowered water tables and semi-arid conditions.

17. Fisheries potential has not yet been tapped sufficiently, and in such ways as to ensure sustainable yields, particularly in the developing coastal States, which do not possess the necessary infrastructure, technology or trained manpower to develop and manage fisheries in their Exclusive Economic Zones (EEZ). Excessive fishing activities have led to over-exploitation of several important fish stocks and the collapse of some. By the year 2000 annual fish supplies may fall short of demand by about 10-15 million tons. Regional agreements on co-ordination of national fishing policies for licensing procedures, catch reporting, monitoring and surveillance have begun to consider sustainability of yields and use of appropriate technology. The World Conference on Fisheries Management and Development (1984) established a framework and action programmes for fisheries management.

18. Freshwater fish farming and aquaculture now produce annually about 8 million tons of fish. In Europe and South and Southeast Asia, aquaculture has made important strides. Whether as part of a traditional way of supplementing farm incomes and protein intake, or as an industry, carefully practised aquaculture holds great promise for integrated environmental management and rural development in many countries.

19. The use of high-yielding seed varieties has multiplied agricultural output but has led to a reduction in genetic diversity of crops and an increase in their vulnerability to diseases and pests. The emerging technology of direct gene

transfer, or transfer of the symbiotic nitrogen-fixing capacity of leguminous crops to cereals, can greatly increase production and reduce costs. Also the spread of gene banks through the International Board for Plant Genetic Resources, and the work of the International Centre for Genetic Engineering and Biotechnology should improve the prospects for genetic diversity, and thereby enhance agricultural productivity.

20. Overuse of pesticides has polluted water and soil, damaging the ecology of agriculture and has created hazards for human health and animals. Pesticides have to be used to increase agricultural production. But their indiscriminate use has destroyed natural predators and other non-target species, and increased resistance in target pests. More than 400 insect species are believed to be resistant to pesticides and their number is increasing.

21. Use of chemical fertilizers *per capita* has increased five-fold between 1950 and 1983. In some countries excessive use of fertilizers, along with household and industrial effluents, has caused eutrophication of lakes, canals and irrigation reservoirs, and even coastal seas through run-offs of nitrogen compounds and phosphates. Ground water has also been polluted by nitrates in many places, and nitrate levels in rivers have risen steadily over the last two decades. Degradation of the quality of surface and ground water, caused by chemicals including nitrates, has been a significant problem in developed and developing countries alike.

22. In North America, Western Europe and some other areas, food surpluses have accumulated partly as a result of farm price subsidization. The push to produce more in response to incentives coupled with excessive use of fertilizers and pesticides have led to degradation and soil erosion in some countries. Similarly, export subsidization of food grains by some countries has undermined agricultural exports of some others and also led to environmental neglect of farmland. In some countries, however, there is a trend towards reducing the scale of farming, encouraging organic farming, restoring the natural beauty of the countryside, and diversifying the rural economy.

23. In the developing countries, farmers receive too little for their produce and production is thereby discouraged. City dwellers often buy food at subsidized prices and peasants may receive only a fraction of the market price. In countries where farmers have begun to receive better prices for their produce, agricultural production has increased, and soil and water management improved. When equitable agricultural prices are accompanied by technical assistance for environmental management of farming they can help improve the quality of life in the countryside as well as in cities, partly by stemming the flow of rural-urban migration. Upward adjustment of food prices is, however, a politically sensitive issue, especially in situations of low resource productivity, low incomes, large-scale unemployment and slow economic growth.

B.2 Goal and Recommended Action

24. *Goal:* Achievement of food security without resource depletion or environmental degradation, and restoration of the resources base where environmental damage has been occurring.

25. *Recommended Action:*

- (a) Policies of Governments for using agricultural land, forests and water resources

- should keep in view degradation trends as well as evaluation of potentials. Agricultural policies should vary from region to region to reflect different regional needs, encouraging farmers to adopt practices that are ecologically sustainable in their own areas and promote national food security. Local communities should be involved in the design and implementation of such policies;
- (b) Policy distortions which have caused undue pressures on marginal lands, or taken away prime farmland for urbanization, or led to environmental neglect of natural resources, have to be identified and eliminated;
 - (c) Governments should design and implement regulatory measures as well as taxation and price policies and incentives aimed at ensuring that the right of owning agricultural land carries an obligation to sustain its productivity. Long term agricultural credits should require farmers to undertake soil conservation practices, including keeping a portion of land fallow, where appropriate;
 - (d) Governments should promote equity in means for food production and in distribution. Governments should design and implement comprehensive agrarian reforms to improve the levels of living of farm workers who lack land. Governments should take decisive action to turn the 'terms of trade' in favour of farmers through pricing policy and government expenditure reallocation;
 - (e) Governments should ascertain direct and indirect environmental impacts of alternative crop, forestry and land-use patterns. Fiscal and trade policies should be based on such environmental assessments. Governments should give priority to establishing a national policy and to creating or strengthening institutions to restore areas where natural factors and land-use practices have reduced productivity;
 - (f) In the national development plans and agricultural programmes of countries experiencing desertification, dryland rehabilitation and management have to figure prominently. Better systems of early warning against droughts and other dryland disasters have to be developed with WMO, FAO, UNEP and relevant regional organizations playing appropriate roles;
 - (g) Sound forest policies should be based on an analysis of the capacity of the forests and the land under them to perform various functions. Programmes to conserve forest resources should start with the local people. Contracts covering forest use will have to be negotiated or renegotiated to ensure sustainability. Clear-cutting of large forest areas should be avoided and replanting of logged forestry areas should be required. Portions of forests should be designated as protected areas to conserve soil, water, wildlife and genetic resources in their natural habitat;
 - (h) Social and economic costs of deforestation, including clear-cutting, have to be estimated and reported on in relation to the periodic national reporting on the economic performance of forestry. Similarly, the damage costs of waterlogging and salinization have to be reported in conjunction with the reporting on irrigation and agricultural production. Loss of land to deserts, and its consequences for food production, trade, employment and incomes have to be made part of the annual reporting on economic growth. Economic policies and planning have to reflect such environmental accounting;
 - (i) Economic and other incentives should be introduced in areas experiencing deforestation and lack of forest resources to manage forests and woody vegetation, from an environmental standpoint, and to promote tree nurseries,

- tree farming and fuelwood plantations. Local communities should be encouraged to take major responsibility for such undertakings;
- (j) Projects should be designed and implemented to promote afforestation, agroforestry systems, water management, soil conservation measures, (e.g. land contour-levelling and terracing) in areas of environmental stress. Such projects should respond to the needs of the local people for food, fodder and fuel, while increasing the long-term productivity of natural resources. Environmental improvement schemes should become a regular part of national relief, rural employment and income-support schemes to sustain development in drought-prone or other stressful regions;
 - (k) Within the framework of a national water policy which should facilitate an intersectoral and integrated approach to water development and use, technical, economic and organizational means have to be geared to improving efficiency of water use in farming and animal husbandry. Emphasis on ground water storage in drylands should improve assurance of water availability. Improvements in water application techniques to minimize wastage, co-ordination of farming patterns with water supply, and such pricing of water as would cover the cost of its collection, storage and supply, should be introduced to conserve water in scarcity areas;
 - (l) Choice of technology and the scale of irrigation should take into account environmental costs and benefits. Decentralized and small-scale irrigation have to receive special attention. Proper drainage to prevent salinization and waterlogging has to accompany irrigation. Development assistance has to play a vital role in improving productivity of existing irrigation, reducing its environmental damage, and adapting it to the needs of small-scale, diversified agriculture;
 - (m) The traditional rights of subsistence farmers, particularly shifting cultivators, pastoralists, and nomads must be protected from encroachment. Provision of infrastructure, services and information should help modernize nomadic life styles without damaging their traditionally harmonious relationships with ecosystems. Programmes of land clearance and resettlement should be based on an assessment of their environmental, along with their social and economic, impacts. Agro-industry, mining and schemes of geographical dispersal of settlements should also aim at improving environmental conditions in rural areas;
 - (n) Public education, information campaigns, technical assistance, training, legislation, standards setting, and incentives should be oriented to encourage the use of organic matter in agriculture. The use of fertilizers and pesticides has to be guided, *inter alia*, through training, awareness building and appropriate price policies, so as to establish integrated nutrient supply systems responsive to environmental impacts. Similarly, subsidies, which have led to the overuse or abuse of chemical fertilizers and pesticides, have to be phased out;
 - (o) Decentralized storage facilities, with the upgrading of traditional methods to ensure protection of stored grains, should receive attention in the planning of support services for rural and agricultural development;
 - (p) Where the agricultural frontier has extended in an uncontrolled manner, Governments should make special efforts to expand the area under woodland and nature reserves;
 - (q) Satellite imagery, aerial photography and geographical information systems of assessing and monitoring should be deployed to establish natural resource data

bases. Such data should be made available, freely or with a nominal charge, to the countries in need. UNEP should co-ordinate international programmes in this field. Such data collection and their socio-economic analyses should facilitate the design and implementation of land-use and natural resource development plans, and improve international co-operation in the environmental management of transboundary natural resources;

- (r) International co-operation should give priority to schemes aimed at strengthening skills and institutional capabilities in the developing countries in fields such as applied genetics, agro-forestry, organic recycling, integrated pest management, crop rotation, drainage, soil-conserving ploughing, sand-dune stabilization, small-scale irrigation, and environmentally sound management of fresh-water systems;
- (s) Biotechnology, including tissue culture, conversion of biomass into useful produce, micro-electronics, and information technology should be deployed after assessing carefully their environmental impacts and cost effectiveness with a view to promoting environmental management of agriculture. Governments should enhance the access of farmers to such technologies through national policies and international co-operation. Research should be intensified on new technologies urgently needed in regions which have unreliable rainfall, uneven topography, and poor soils. Governments should also set up targets to develop cadres of professionals specializing in environmental management of soil, water and forests and in biotechnology with a multi-disciplinary and integrated outlook;
- (t) Aquaculture should be developed to the fullest, where possible in conjunction with farming, using low-cost, simple, labour-intensive technology. Co-operation for environmental management of marine living resources and fisheries should be intensified, through technical assistance as well as conventions and agreements;
- (u) Because of women's important role in agriculture in many developing countries, they should be provided with adequate education and training opportunities. They should also have the necessary power to take decisions regarding agriculture and forestry programmes;
- (v) Distortions in the structure of the world food market should be minimized and the focus of production should be shifted to food deficit countries. In developed countries incentive systems should be changed to discourage overproduction and foster improved soil and water management. Governments must recognize that all parties lose through protectionist barriers, and redesign trade and tax policies using environmental and economic criteria;
- (w) International agreements should be concluded in respect of agricultural price policies with a view to minimising waste and mismanagement of food and natural resources in agriculture. Such agreements should aim at bringing about an international division of labour in agriculture in conformity with the long term capabilities of countries in agricultural production. In this context, consideration should be given to strengthening the work of the World Food Programme through the establishment of a World Food Bank from which countries could draw food supplies in emergency situations;
- (x) Special attention should be given to protection and careful development of wetlands, particularly in view of their long term economic value;
- (y) Sustainable exploitation of living wild resources should receive special consideration in light of its contribution to achieving food security.

C. Energy

C.1 Issue and Outlook

26. *Issue:* There are vast disparities in the patterns of energy consumption. The needs of accelerated economic growth and growing populations require a rapid expansion in energy production and consumption. Major problems in this regard include: depleting supplies of, and inadequate access to, fuelwood; environmental impacts of fossil energy production, transmission and use, e.g. acidification of the environment, accumulation of greenhouse gases and consequent climatic change. Although energy is crucial to the development process, there has been little concerted action for balancing environmental imperatives and energy demands.

27. *Outlook:* About three-fourths of the world's energy consumption is in the form of fossil fuels (oil, coal, and natural gas). The remainder is supplied mainly by biomass, hydropower and nuclear power. The main problems caused by fossil fuel use are: air pollution, acidification of soil, fresh-water and forests, and climatic change, especially warming of the atmosphere. The costs of controlling these problems and of dealing with their environmental and health impacts have been enormous. New and renewable sources of energy, including solar, wind, ocean and geothermal, are being developed but are unlikely to make a significant contribution during the rest of this century.

28. International oil prices are fluctuating. The immediate economic impact of lower prices has been significant. Yet the momentum of efforts to improve energy efficiency and to develop alternatives for fossil fuels, which began in the wake of high oil prices, may decline.

29. Though developing countries account for about one-third of the world's energy consumption, many of them do not have adequate access to energy. Most of them depend on oil imports and on biomass and animal energy. Wood, which provides energy to about half of the world's people, is becoming scarce, and over-cutting has devastated the environment. Some countries have made progress in developing biogas while improving the environment, but the potential of biogas remains largely untapped. Given the needs of industrialization and the trends of population growth, energy needs will increase tremendously during the coming decades. If energy efficiency measures are not put in place, it will not be possible to meet those needs.

30. Many countries have made efforts to control air pollution by setting standards and introducing appropriate equipment in factories as well as automobiles, and developing clean technologies for cooking, space heating, industrial processes and power generation. But attempts to deal with urban and industrial air pollution have often effectively transported the problem, e.g. in the form of acid deposition, to other areas and countries. At least 5-6 per cent of the European forests may have already died because of acidification. As a first step some European countries have agreed on a technical co-operation programme to monitor and control long-range transmission of some air pollutants. Reducing emissions of sulphur dioxide and nitrogen oxides, however, is rather costly though effective reduction technologies have been introduced in some countries. On the other hand no effective technologies exist to control carbon dioxide accumulation which can markedly change climate. Moreover, available technology is not being fully utilized. The difficulty is to determine up to what level the damage costs of

polluting fossil fuels should be accepted and how much to invest in scientific research to develop clean technologies.

31. Energy is often used in wasteful ways. Costs of this waste are being borne by all, but most severely by the poor. Moreover, part of these costs are being transferred to children, future generations and other countries. Several countries have experimented successfully over the last decade with conservation of energy for domestic use, improved efficiency of energy in industry and agriculture, and adoption of energy mixes to minimize environmental damage. In some countries the nature of industrial growth has been changing in ways which economize energy use, e.g. rapid growth of electronic, recreation and service industries. Consequently, there has been a noticeable delinking of economic growth from increase in energy consumption. Energy savings, renewable sources and new technologies can reduce energy consumption while maintaining the momentum of economic growth.

32. While oil exploration and coal mining have received great attention, the potential of natural gas has not been realized. Considerable quantities are being wasted in the absence of necessary infrastructure and investment. The world also has a relatively untapped capacity to develop hydropower. In the past environmental planning has not received adequate attention in hydropower development. Decentralized small-scale hydropower schemes are not yet used on a significant scale, although they may be capable of providing economical efficient and environmentally sound sources of energy.

33. Nuclear energy is widely used as a source of electricity and the IAEA has formulated guidelines to ensure that it is developed and used safely. The problems associated with it include risk of accidental contamination, which can spread quickly over long distances, and the safe handling and disposal of radioactive wastes, including decommissioned nuclear reactors.

C.2 Goal and Recommended Action

34. *Goal:* Provision of sufficient energy at reasonable cost, notably increasing access to energy substantially in the developing countries, to meet current and expanding needs in ways which minimize environmental degradation and risks, conserve non-renewables, and realise the full potential of renewable energy sources.

35. *Recommended Action:*

- (a) Governments' energy plans should systematically encompass environmental requirements. Energy efficiency policies coupled with environmentally sound energy production and appropriate energy mixes should be pursued to achieve sustainable energy consumption patterns. National efforts should be supported by international co-operation, especially scientific research, establishment of standards, transfer of technology and information;
- (b) Energy pricing, taxation, trade and other policies should take account of the environmental costs of all forms of energy. Subsidies for fossil fuels should be progressively phased out. Private enterprise, consumers and government institutions should be provided with economic incentives to make greater use of renewable sources of energy. Where needed, international co-operation

- should facilitate the exploration and environmentally sound production of energy;
- (c) Information should be made available on the harmful environmental impacts of intensive use of fossil fuels. Urban and industrial air pollution, accumulation of greenhouse gases and the attendant climatic change and transfrontier transport of air pollutants in all regions must receive urgent attention including monitoring by appropriate methods. Standards must be set and enforced within and among countries and conventions and agreements should be concluded to deal with these problems. In this context, 'The Polluter Pays Principle' should be accepted. Governments should ensure that clean technologies are put into practice on a wider scale than in the past at the local level. The United Nations system, in conjunction with other intergovernmental bodies, should improve access to information on renewables and on efficient energy use;
 - (d) In view of the significance of fuelwood, national programmes of afforestation and of environmental management of woodlands should receive increased resources. Agro-forestry programmes, tree plantations and village wood-lots should receive special encouragement in countries experiencing fuelwood deficit. Commercial cutting of fuelwood should be subjected to rigorous scrutiny and control, in view of its environmental costs. Application of fuel-efficient stoves and charcoal should be encouraged. Pricing of fuelwood should be guided by the consideration of sustaining supplies consistent with needs;
 - (e) As biogas can be an important source of energy, the existing technology for the use of agricultural, animal and human wastes should be applied more widely by means of incentives and guidance. Technical co-operation among developing countries should play a vital part in this process, bearing in mind its sanitation and agricultural benefits;
 - (f) Decisions on large-scale hydropower projects should be guided by analysis of social costs and benefits in the light of likely environmental impacts. Small-scale hydropower schemes, should receive particular attention since they could facilitate simultaneous attainment of environmental, economic and social objectives;
 - (g) Renewable energy sources should receive high priority and should be applied on a wider scale than in the past, giving full consideration to their environmental impacts. Technologies to develop renewable sources of energy such as wind, geothermal and especially solar, should receive particular attention. International co-operation should facilitate this process;
 - (h) International co-operation should aim at the creation of a regime for the safe production and use of nuclear energy as well as the safe handling of radioactive waste, taking into account – through appropriate mechanisms including prior consultations – the interests and concerns of countries which have decided not to produce nuclear energy, in particular, concerns regarding the siting of nuclear plants close to their borders. This regime should extend globally to encompass observance of comparable standards and procedures on management of reactors and the sharing of information and technology for nuclear safety. The Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency should be complemented by bilateral and sub-regional agreements and also lead to technical co-operation among countries on environmental management of nuclear energy.

D. Industry

D.1 Issue and Outlook

36. *Issue:* Industrial development brings obvious benefits, but it frequently entails damage to the environment and to human health. The main negative impacts are: wasteful use and depletion of scarce natural resources; air, water and soil pollution; congestion, noise and squalor; accumulation of hazardous wastes; and accidents with significant environmental consequences. Industrialization patterns and the consequent exploitation of natural resources and environmental degradation have been markedly unbalanced. The prospects for accelerated, yet environmentally sound world industrial development, are slim in the absence of concerted international action.

37. *Outlook:* Although some efforts to deal with environmental problems of industry have been made, negative impacts will grow in magnitude if not addressed methodically now. A promising trend is the steadily growing awareness of industrial environmental risks throughout the world. While this awareness increasingly informs and influences public policy, environmental knowledge remains as yet markedly uneven. In the absence of mechanisms for its unhindered sharing. Governments and industry may import hazardous materials and allow establishment of processes discarded elsewhere. Inadequate knowledge at the grassroots level of changes in the environment, and of their causes as well as economic implications, impedes participation of the concerned people in decision-making on siting of industrial plants and choice of industrial technology.

38. Natural resources have been used wastefully in industry. Recently, a number of countries have made significant progress in developing and adopting low-waste and clean industrial technologies and in recovering as well as recycling scarce industrial raw materials. New materials and processing technologies have been able to save raw materials and energy resources, and reduce environmental stress. Nevertheless, in many countries resource-intensive processes persist in the absence of suitable policies and access to proper technology.

39. Uncontrolled industrial practices have led to unacceptably high levels of harmful or toxic substances in the air, pollution of rivers, lakes, coastal waters and soil, destruction of forests, and accumulation of carbon dioxide and other greenhouse gases which threaten to cause climatic changes, including a global warming of the atmosphere. Sea levels may rise considerably as a result. Industrial production and emission of chlorofluorocarbons threaten a significant depletion of the ozone layer, leading to increased ultraviolet radiation.

40. Recently, there has been an increase in the seriousness of industrial accidents, particularly in the chemicals industry. Even in the developed countries the preparedness to meet such contingencies has been inadequate. Also, frameworks for international co-operation in such situations have been lacking. A crucial problem has been the lack of timely warning and of full sharing of information on the nature and magnitude of the hazards at local and regional levels.

41. With industrial growth and spread, the transport, storage and disposal of chemical, toxic and radioactive wastes will pose an increasingly serious challenge. The 'Polluter Pays Principle' has been applied with good results in some countries; but in many others it is still not applied at all, so that the source of environmental damage is often unaccountable for the harm caused. In the pursuit of rapid

industrialization, some polluting industries may be relocated from other countries. As many developing countries do not possess technical or institutional capability to analyse or monitor environmental implications of industrial processes, products or wastes, they are vulnerable to industrial environmental damage.

42. Many developed countries have successfully applied technology, policies and institutional and legislative frameworks to deal with industrial pollution. Several have succeeded in innovating or applying low-waste or clean technologies. The UNEP Industry and Environment Office has produced publications with extensive and detailed information on environmentally-sound technologies in specific industries. Thus, although environmental hazards of industrial processes, products and wastes, persist, there is available considerable experience, expertise and technology to prevent industrial accidents and to implement environmentally responsible practices.

43. Technical innovation has opened up promising opportunities for achieving mutually supportive economic and environmental objectives. Properly-guided technology can transform patterns of industrialization and improve the international division of labour. Innovation in micro-electronics and opto-electronics has revolutionized information and communications industries and can lead to geographical dispersal of industry. These innovations hold promise for developing countries suffering from the twin problems of excessive industrial concentration in urban areas and relative neglect of rural areas.

44. In the decades ahead, the developing countries will depend considerably more on industry, including processing of their own raw materials, for incomes and employment. In contrast, in some developed countries, the pattern of industry is changing in the direction of knowledge-intensive, energy-saving, and materials-saving activities. Moreover, leisure and service industries have begun to play a significant part in this change.

45. Countries have been coming together to forge agreements on preventive measures to contain global, regional and transfrontier environmental impacts of industrial products and processes. Examples of this encouraging trend include: conventions and protocols for the control of land-based sources of marine pollution in frameworks of various Regional Seas Programmes; Vienna Convention to Protect the Ozone Layer and the evolving international consensus on the control of emission of chlorofluorocarbons; the 1979 Convention on Long-Range Transboundary Air Pollution and its Co-operative Programme for the Monitoring and Evaluation of Long-range Transmission of Air Pollutants in Europe (EMEP); and the UNEP-sponsored 1985 Cairo Guidelines and Principles for the Environmentally Sound Management of Hazardous Wastes. Such international co-operation can extend in many areas of industrial environmental management and geographical regions. Moreover, industry itself, following the 1985 World Industry Conference on Environmental Management convened by UNEP is becoming increasingly ready to undertake environmental responsibilities.

D.2 Goal and Recommended Action

46. *Goal:* Sustained improvements in levels of living in all countries, especially

the developing ones, through industrial development which prevents or minimizes environmental damage and risks.

47. *Recommended Action*

- (a) Governments should implement policies to assist the transition of economies from wasteful use of natural resources and raw materials, and dependence on their exports, to environmentally sound industrial development. National efforts in planning and implementing environmentally sound industrial policies should be intensified. Governments should introduce incentive schemes to help establish facilities for recovery and recycling of scarce raw materials. The transfer of industrial technology and skills from developed to developing countries to arrest environmental degradation associated with industry should be internationally supported. UNDF, UNEP, ECE and UNIDO should intensify efforts in this direction;
- (b) Governments should introduce programmes to monitor (i) air, soil, fresh water and coastal pollution from industrial emissions and effluents, and (ii) hazardous industrial activities, where such programmes do not already exist;
- (c) Governments should provide for environmental standards, and their enforcement, and fiscal and other incentives to industry for the retro-fitting of equipment for pollution control. They should also ensure penalties for non-compliance, in conformity with the 'Polluter Pays Principle'. International organizations should co-operate with governments in establishing global or regional standards;
- (d) Governments should require periodic reports by industries on measures implemented to protect and improve the environment, especially those industries involving high environmental and health risks;
- (e) Industrial enterprises should carry out environmental impact and social cost-benefit analyses prior to the siting and design of industrial plants. Governments should ensure that such analyses are carried out and made public. Governmental policies should facilitate location of industries to relieve urban congestion and encourage rural development. Industries which use each others' products and wastes should be located near each other;
- (f) Governments and industrial enterprises should be receptive to the views of citizen groups, community associations, labour organizations and professional and scientific bodies in arriving at, and implementing, the decisions on industrial siting, design and technologies to meet the environmental, economic and social needs of the people;
- (g) Chambers of commerce and federations of industry should collaborate actively in implementing emission standards and pollution control measures. They should establish mechanisms to bridge the gap in environmental management knowledge and capabilities among their members. Such co-operation should also be encouraged among small-scale producers;
- (h) Transnational corporations (TNCs) should comply with the host country's environmental legislation, while respecting similar legislation of the home country. Legislation could include requirements for public environmental audits of the activities of TNCs and local enterprises. In accordance with proposed international codes of conduct, the TNCs should establish progressively in the host countries the skills and technological capabilities needed for environmentally sound management of industry, even in the absence of legislation on desirable environmental standards;

- (i) International industrial collaboration should be subjected to environmental impact assessments just like national industry;
- (j) Countries, especially developing countries, should, as a matter of urgency, design and implement research, training and manpower-planning programmes to strengthen the management of hazardous industrial processes and wastes;
- (k) International organizations, including UNDP, UNIDO, WHO, FAO, WMO and ILO, and intergovernmental organizations such as the OECD and the CMEA should ensure that their programmes will progressively strengthen the capacities of the developing countries in designing and implementing industrial operations along environmentally sound lines. They should also assist in establishing or strengthening information services on environmental and health implications of industrial processes, products and wastes. In addition access of the developing countries to information and data on environmentally-benign technologies should be promoted, including risk management techniques;
- (l) International co-operation for the monitoring of the accumulation of carbon dioxide and other 'greenhouse' gases and of their impacts on climate and sea levels must be strengthened to encompass both the conclusion of international agreements and the formulation of industrial strategies to mitigate the environmental, economic, and social impacts of potential changes. Intergovernmental negotiations, following upon the Framework Convention on the Ozone Layer should lead to agreements on the reduction of ozone-depleting substances;
- (m) Existing legal and technical activities of United Nations organizations, especially UNEP, in closer co-operation with regional organizations, should progressively establish agreements and monitoring mechanisms: (i) to deal with spills and other industrial accidents, particularly chemical; (ii) to control the transportation, storage, management and disposal of hazardous industrial wastes; and (iii) to settle disputes involving damages and claims for compensation. United Nations and regional organizations should encourage Governments to extend the 'Polluter Pays Principle' to transboundary problems;
- (n) UNEP'S International Register for Potentially Toxic Chemicals (IRPTC) programme should maintain and improve its assistance to governments in assessing whether producing, marketing, distributing or disposing of any industrial substances, including chemicals and wastes, are potentially damaging to health and environment.

E. Health and Human Settlements

E.1 Issue and Outlook

48. *Issue:* Despite considerable advances in dealing with problems of health and human settlements, the environmental basis for further improving the situation is deteriorating. Inadequate shelter and basic amenities, rural underdevelopment, over-crowded cities and urban decay, lack of access to clean water, poor sanitation and other environmental deficiencies continue to cause widespread disease and death, ill-health and intolerable living conditions in many parts of the world. Poverty, malnutrition, and ignorance compound these problems.

49. *Outlook:* Human ability to prevent disease has grown greatly over the last few decades mainly owing to scientific achievements and better access to sanitation,

clean water and safe waste disposal. In many developed countries better living conditions have helped prevent disease and enhanced average life expectations. In the developing countries, however, achievements have lagged behind what is technically feasible.

50. More than 4 million children under five die of diarrhoea in the developing countries. Even when it does not cause death, diarrhoea saps vitality and stops physical and mental growth. Malaria is another water-borne disease which infects about 100 million annually. Typhoid and cholera are similarly endemic in the developing countries. Bilharzia and river blindness are other common diseases caused by mismanagement of water. Sleeping sickness caused by the tsetse fly effectively denies the use of vast tracts of land in Africa for pastoral or settlements development. The burning of coal, oil, wood, dung and agricultural wastes builds up dangerous concentrations of toxic gases in houses and factories: chronic heart and lung diseases, bronchitis, emphysema, asthma are the result.

51. In warm, humid countries, where storage is inadequate aflatoxins in food cause liver cancer. On the other hand, over-use of fertilizer has caused excessive nitrate levels in ground water endangering children's health, and nitrate run-offs have led to eutrophication of surface waters and contamination of shellfish. Phosphates in fertilizer have caused high intakes of cadmium in food. Further, pesticides, herbicides and fungicides pose a direct threat to health in the rural areas, when their use is not properly guided. Overuse of pesticides has also led to their high residues in food.

52. About a billion people do not have adequate shelter and millions practically live on the streets. By the year 2000 about 2 billion people, or 40 per cent of the developing countries' populations, will live in cities and towns, thereby putting pressure on city planners and governments. Most developing countries already do not have the resources required to provide housing and services to the people who need them. The influx of refugees in some developing countries has exacerbated health, shelter and environmental conditions. Also, where rural settlements are widely dispersed, health, housing and infrastructural services become practically unattainable.

53. About one-third of all city and town dwellers in the developing countries live in slums and shanties with no help or infrastructural support whatever, and often under adverse conditions. The inexorable trend towards urbanization will ensure that by the year 2000, 15 of the world's largest 20 urban metropolitan areas will be in the developing countries. Simultaneously, rural environmental degradation reinforces migration to urban areas even when people are unable to earn incomes high enough to ensure decent housing and there is no prospect of meeting their infrastructural needs.

54. There are three main environmental aspects of urbanization including: characteristics of the dwelling (e.g. living space, ventilation, sanitation, water supply, waste disposal, recreation space, domestic energy); ambient environmental situation (e.g. air pollution, water pollution, environmental risks and hazards, noise, stress and crime); and environment of the area surrounding the urban centres (e.g. deforestation, soil erosion, changes in micro-climate). Between a quarter and a half of all urban residents in the developing countries live in unhealthy and degraded dwellings. Consequently, diarrhoea, dysentery, and typhoid are common, and there are periodic outbreaks of cholera and hepatitis.

Tuberculosis and other respiratory diseases spread easily in ill-ventilated, damp and crowded surroundings.

55. Excessive concentrations of industry and commerce in a few urban centres often reflect a dualistic development pattern implying a relative neglect of rural and agricultural development. Concentrations of people, settlements and income and employment opportunities often become mutually reinforcing in such a situation. People continue to migrate to the urban areas even if their expected incomes are not high enough to ensure decent housing, or there is no prospect of their infrastructural needs being met. Thus the problems of safe disposal of toxic and hazardous wastes, control of air and water pollution, collection and disposal of domestic wastes, provision of clean drinking water assume gigantic proportions, requiring enormous finance and great organizational and technical capabilities. Photochemical smog, oxides of nitrogen and sulphur, hydrocarbons, lead, mercury, cadmium poisoning, carbon monoxide, polychlorinated biphenyls, asbestos and other particulate matter along with the respiratory and gastroenteric diseases and malnutrition, cause serious damage to public health. The consequent stress of living in such conditions contributes to social tensions and outbreaks of violence and unrest. When industrial accidents or natural disasters occur loss of life and human suffering follow on a large scale because of the congestion, lack of organizational and technical capacities and vulnerability.

56. Heavy urban concentrations have also placed excessive demands on natural resources and polluted and degraded surrounding areas. High land prices have caused good agricultural land to be used for construction and speculation. Urban firewood demand has led to widespread deforestation, soil erosion and even changes in micro-climate.

57. Settlements congestion near factories multiplies the health risks of chemicals production in the developing countries. Toxic wastes accumulation and their inappropriate disposal similarly endanger the health of millions. Awareness of the risk to human health posed by environmental contamination has increased greatly. Such risks arise partly through an absence of environmental regulation and management capability. Most developed countries have succeeded in reducing environmental pollution, risks and impacts. International co-operation has also progressed on several fronts: national programmes launched under the International Drinking Water Supply and Sanitation Decade, the WHO/UNICEF Programme on Primary Health Care, the Onchocerciasis Control Programme in Africa in the Volta River basin, the UNEP/WHO/ILO International Programme on Chemical Safety, dissemination of information on chemicals of environmental concern through UNEP's International Register on Potentially Toxic Chemicals, FAO's International Code of Conduct on the distribution and use of Pesticides and its accompanying technical guidelines, FAO/UNEP Panel of Experts on Integrated Pest Control, UNDP/World Bank/WHO Special Programme on Research and Training in Tropical Diseases, the WHO/FAO/UNEP Panel of Experts on Environmental Management of vector control (PEEM), specification of radiation dose limits by the International Commission on Radiological Protection, and the two recent international conventions adopted under IAEA auspices on exchange of information and assistance in the event of a nuclear accident, are some examples.

E.2 Goal and Recommended Action

58. *Goal:* Provision of improved shelter with access to essential amenities in a

clean and secure setting conducive to health and to the prevention of environment-related diseases while alleviating serious environmental degradation.

59. *Recommended Action:*

- (a) Governments should make health and settlements development an integral part of environmental management of natural resources and geographically-balanced development. They should address systematically the issue of equity in development to ensure provision of basic health, housing and amenities for their people;
- (b) International co-operation should intensify scientific research to deal with the environmental conditions underlying tropical diseases;
- (c) Rural development including natural resources management and provision of drinking water and sanitation should receive systematic attention in public policies. Governments should design and implement, with the participation of the communities concerned, integrated programmes to improve water supply and management, sanitation and waste disposal;
- (d) Governments should set targets at national, provincial and district levels for such priority areas as housing, access to clean water and sanitation, and control of air pollution in urban areas;
- (e) To reduce adverse environmental impacts of transportation especially in highly populated areas, Governments should give priority to facilitating commuting of people between residential and working areas, enforcing emission standards for vehicles, encouraging fuel efficiency, and improving traffic management policies and urban planning;
- (f) Intermediate-sized towns should receive particular attention in programmes of industrial and settlement development;
- (g) Governments should create an 'enabling environment' in which the creativity and resources of people are mobilized to improve the health conditions, shelter, and environmental information at local levels. This should include, collection and disposal of domestic, agricultural and human wastes, land-use planning, area development, and self-help construction. Efforts should be made to encourage the participation of the private sector and NGOs;
- (h) Industrial, agricultural, energy, irrigation and land development and resettlement projects should include a component of environmental and health impacts including risk assessment, which, in turn, should be influential in guiding the projects' location, scale and choice of technology. Regulations should be established to prevent settlements development in high environmental-risk areas such as those proximate to chemical or nuclear plants. Responsibility for enforcing such regulations should be shared with the private sector;
- (i) Primary and occupational education should encompass information on the environment. The mass media should regularly make available information and know-how to enable people to improve sanitation, waste disposal and drinking water quality. Deterrents and incentives should be introduced at local levels to encourage people to keep their immediate environment healthy;
- (j) Scientific research should address the immediate improvement of the health and environmental situation of degraded settlements. Technologies for the safe disposal of wastes with minimum use of water in arid and semi-arid areas, improving water quality, reuse of waste water, and harvesting of rain should be developed. UNCHS, WHO and UNICEF should intensify efforts to promote application of such technologies in the developing countries;

- (k) Urban planning should receive priority attention together with the rational management of natural resources. Staffing, finance and organizational effort should reflect such high priority. Urban centres should systematically provide areas to meet the needs of various income categories, for industry, business, recreation and open spaces. Technical co-operation in this field has to expand greatly under the leadership of the UNCHS;
- (k) Countries hosting large numbers of refugees should receive more international assistance through the UNHCR and other bodies to improve environmental conditions of refugee settlements.

F. International Economic Relations

F.1 Issue and Outlook

60. *Issue:* Inequalities in international economic relations, coupled with inappropriate economic policies in many developed and developing countries alike, continue to affect adversely sustainable development and cause environmental degradation. Deteriorating terms of trade, chronic trade deficits which are partly caused by growing protectionism, heavy debt-service payments, and inadequate financial flows have made it very difficult to allocate resources to environmental protection and improvement, particularly in developing countries. Specific problems include: insufficient consideration of environmental impacts in development co-operation, insufficient control of trade in scarce natural resources and hazardous substances; and transnational investment and transfer of technology without adequate observance of environmental standards, or information on environmental management.

61. *Outlook:* Awareness of the environmental aspects of international economic relations has increased but it has not yet found adequate expression in institutional practices and national policies.

62. Development co-operation projects have not helped build significantly national capabilities to avert environmental disasters. The environmental damage entailed by some large projects is now better understood than in the past. There is also a growing awareness of the need for additional resources to rehabilitate degraded environments.

63. Long-term declines in commodity prices coupled with their inequity and instability have adversely affected environmental management of natural resources. Neither do these prices fully reflect the environmental costs of depletion of the resource base. Good quality land, fish and other natural resources are being overworked and tropical forests are being encroached upon in order to achieve additional income. Substitution of export crops in place of subsistence crops has displaced small farmers and pastoralists from good quality land, and has led to excessive pressures on marginal land and natural resources.

64. There is a growing awareness of the hazards associated with trade in chemicals, pesticides and some other products, but international practices in controlling the transport of hazardous chemical goods do not yet provide for a systematic consideration of the environment.

65. Mounting debt burdens, repayment obligations, austerity measures and reduction in financial flows to developing countries have endangered and in some

cases blocked sustainable development, entailing negative economic, environmental and social impacts.

66. Recent years have seen a sharp worsening of the international economic situation. Its impact has been particularly severe on developing countries. Lack of economic growth in developing countries could have devastating consequences.

F.2 Goal and Recommended Action

67. *Goal:* Establishment of an equitable system of international economic relations aimed at achieving continuing economic advancement for all States based on principles recognized by the international community in order to stimulate and sustain environmentally sound development, especially in developing countries.

68. *Recommended Action:*

- (a) In the ongoing search for concerted action to deal with international economic problems, the urgent need to improve the world environmental situation, and to ensure a solid environmental foundation for sustainable development, has to be recognized. Correcting the deteriorating terms of trade and stabilizing international commodity prices at equitable levels, through international commodity agreements (e.g. Integrated Programme on Commodities), in conjunction with appropriate environmental management practices in the producing countries, should play an important role in this regard;
- (b) Especially in situations of environmental stress, development co-operation should aim at long-term improvement of natural resource productivity and environmental health. Poverty-focused projects which improve the environment should receive greater attention in development co-operation. Such co-operation has to increase substantially keeping in view the growing need for environmental rehabilitation;
- (c) Development co-operation institutions should increase significantly their assistance to the developing countries for purposes of environmental restoration, protection and improvement;
- (d) Country programmes and policy papers prepared by multilateral and bilateral development co-operation institutions, for allocation of aid resources, should provide for analyses of the environmental needs of recipient countries, with particular focus on major problems (e.g. desertification, deforestation, pollution). Developing countries should be assisted where necessary in preparing environmental accounting and relating it to the reporting on national economic well-being;
- (e) The system of appraising development co-operation projects should provide for assessments of environmental and socio-economic impacts of alternative designs and locations. Area development programmes, in particular, should seek to establish mutual support between environmental and socio-economic objectives. Development co-operation institutions should train their staff according to these objectives;
- (f) Trade in hazardous industrial products, such as toxic chemicals and pesticides and in some other products such as pharmaceuticals, should be subjected to regulations to ensure sharing, by the contracting parties, Governments and consumers, of information on their environmental and health implications, and on methods for their safe use and disposal. Labelling of products should be in local languages. Governments of the exporting as well as the importing

- countries should collaborate in this regard. They should also agree on the selection of chemicals for priority testing;
- (g) International trade and commodity agreements should provide for environmental safeguards, where applicable. They should also encourage producers to take a long-term view and provide for assistance for diversification programmes, where appropriate. Governments should study the environmental impacts of their trade practices and make the findings available to their agencies responsible for the trade negotiations, which should take them into account. UNCTAD and GATT should develop and apply effective policies and instruments to integrate environment and development considerations in international trade;
 - (h) Environmentally related regulations and standards should not be used for protectionist purposes. The International Trade Centre (ITC) should assist countries to meet such requirements. UNCTAD should make available information on such regulations and standards as they apply to commodities and manufactured products;
 - (i) Host Governments should institute policies and regulations to ensure sound environmental management of transnational investments. In agreements on transnational, including corporate, investments, Governments through appropriate controls should ensure that information and technology of environmental management will be provided, specifying the responsibilities of the parties concerned. In accordance with the UNCTC's proposed Code of Conduct, the TNCs should implement in the host countries programmes to minimize environmental hazards of their activities, including training of personnel. The UNCTC should play a role to facilitate this;
 - (j) Transfer of clean, low-waste and pollution control technologies should be promoted through international co-operation. The scope to make available such technologies at concessional prices to the countries in need should be explored. Governments of recipient countries should establish procedures to ascertain the environmental implications of imported technologies;
 - (k) International financial institutions, while dealing with questions of structural adjustment in developing countries and world economic reform, should link short-term financial stabilization to sustainable development.

III. Other issues of global concern

69. This section discusses briefly major environmental issues of global concern which have not adequately been dealt with in previous sections.

A. Oceans and Seas

70. Oceans and seas are being polluted extensively. The rising pollution levels and degradation of coastal ecosystems threaten the life-support capacities of oceans and seas and undermine their role in the food chain. Efforts which are being made to monitor the state of oceans and seas, including those of UNEP and other international organizations, confirm that there is cause for concern. This problem is particularly serious for coastal waters and semi-enclosed seas that border highly populated and industrialized zones. The situation will get much worse unless concerted action is undertaken now. The ongoing monitoring effort is far from

comprehensive and, where it has advanced, it has not yet led to adequate change in the practices causing environmental damage.

71. The challenge is to control and decrease marine pollution, and establish or strengthen regimes of environmental management of oceans and seas through international co-operation and national action.

72. A comprehensive data-base should be established over time on which action programmes to restore and preserve the environment balance in the world's oceans and seas can be based. Among others, the Global Environmental Monitoring System (GEMS), Global Resources Information Data Base (GRID) and the Oceans and Coastal Areas Programmes of UNEP should intensify efforts towards this end.

73. Conventions and agreements to monitor and manage human activities with a view to ensuring environmental protection of the seas and oceans should be ratified and implemented by all concerned countries. Where such legal instruments do not exist, they should be negotiated. Governments should strengthen or introduce policies and measures with a view to preventing practices harmful to marine ecosystems, and ensuring environmentally sound development of inland areas. Such policies and measures should include control of the discharge of industrial effluents and sewage, dumping of wastes, including hazardous and radioactive materials, disposal of hazardous residues and operational wastes from ships, incineration at sea, and oil spills from tankers and off-shore platforms. Environmentally sound land-based technology for the disposal of hazardous wastes should be developed and promoted. UNEP should continue to collaborate in this work with the Intergovernmental Oceanographic Commission (IOC), the International Maritime Organization (IMO), and other appropriate international organizations.

B. Outer Space

74. Outer space has now become a recognized area of human activity. As activity in this area develops over the coming decades, sound management of outer space will become increasingly important. To this end, international co-operation exclusively for the peaceful use of outer space is essential, especially on the part of those countries which now have the capacity to undertake outer space activities.

75. All countries, in particular those with a major capacity to exploit the benefits of outer space, should create conditions, including specifically the maintenance of its non-militarization, for broad international co-operation in the exploration and use of space technology to monitor the Earth's environment. The benefits of peaceful use of outer space, including weather forecasting, and remote sensing and medicine, should be made readily available to the world community, particularly through assistance to the developing countries.

C. Biological Diversity

76. Traditional crop and livestock species are giving way to high-yielding varieties and breeds. As the genetic base of plants, animals and micro-organisms becomes narrower, some genetic material is being irretrievably lost at such a rate

that the world could lose one-fifth or one-tenth of its 5-10 million species by the year 2000.

77. Over a hundred countries are collaborating in the global programme co-ordinated by the International Board of Plant Genetic Resources (IBPGR) for conserving crop genetic resources, and the global gene banks network contains over a million samples of crop germ plasm. Yet in many countries national efforts for conservation are still ill-organized and under-financed, and often do not attend systematically to the components of planning, training, education and research. International co-operation and technical assistance in this field should be further developed.

78. An international network of protected areas for conserving animal and plant genetic resources, encompassing about 10 per cent of the world's land area, should be established to reverse the trend towards depletion of species. Management plans for conserving ecosystems as reservoirs of species diversity have to be prepared.

79. Efforts to conserve crop genetic resources and the global data banks network have to be extended to cover adequately germ plasm with economic potential for providing food, fodder, fibres, waxes, oils, gums, medicines, energy and insecticides. *In situ* and *ex situ* components of conservation have to develop in a complementary manner in the light of the interdependence of nature conservation and genetic diversity.

80. Mechanisms should be established to provide information on rates of exploitation of genetic resources to facilitate selection of those to be conserved.

81. The gap between conservation of species and economic access to them should be bridged through maximum international co-operation. Agreements involving rights of possession of and access to genetic material, including research results, should facilitate such co-operation. Conserved genetic resources should be regarded as being a common interest to mankind.

D. Security and Environment

82. Accumulation and deployment of weapons of war and destruction present very grave risks to the environment. The use of weapons of mass destruction, including nuclear, chemical and biological weapons, could bring about far-reaching, even irreversible, changes in the global environment.

83. Development and stockpiling of nuclear arms and delivery systems at current levels have made the human race technically capable of putting an end to its own existence. In addition, the growing capacity of some States to undertake deliberate manipulation of the environment represents an immense potential danger. If the material, financial and intellectual resources devoted to armaments were to be used to solve problems such as those of the human environment, food security and shelter, prospects for sustainable development would be considerably enhanced.

84. The World Charter of Nature proclaims that 'Nature shall be secured against degradation caused by warfare or other hostile activities'. A comprehensive

system of international security is essential in order to ensure that this declaration is implemented.

85. Progressive disarmament through *detente*, negotiation, and avoidance of the use of force as a means of resolving conflicts should be pursued to minimize the environmental risks associated with armed conflicts. Governments should continue to pursue, in relevant negotiating forums, efforts to ban weapons which have the effect of modifying the environment.

86. One of the roles of UNEP is to promote environmentally sound development in harmony with peace and security, and towards this end, issues of disarmament and security, in so far as they relate to the environment, should continue to receive appropriate attention.

IV. Instruments of environmental action

87. Sections I, II and III largely sought to indicate how environmental problems should be dealt with effectively by addressing their policy sources. However, such actions need to be reinforced by the performance of certain overarching functions. This chapter deals with those functions.

A. Assessment

88. Environmental rehabilitation and management depend upon availability of organized information on the state of the environment, its trends, and their relationship to social and economic factors. Decisions, however, continue to be made in ignorance of the changing state of the environment and its implications for human well-being. It is essential, therefore, that reliable environmental information, obtained and analysed using modern technology, is made available to planners and managers in a usable form. Most developing countries face the constraint of lack of access to modern technology and to the necessary expertise to collect and interpret environmental data.

89. Environmental and resource data are being collected at global and regional levels by the United Nations and international organizations working with Governments. Additional data also exist at the national level although often in a fragmented form. Institutional mechanisms are often lacking to relate such data sets to each other and to analyse them in the context of existing practices and policies. Governments and intergovernmental organizations at the regional level should intensify efforts to collect and analyse data especially relating to common environmental problems.

90. UNEP, working through the United Nations system, co-ordinates the collection, monitoring and assessment of selected environmental variables and distributes this information world-wide through: The Global Environmental Monitoring System (GEMS) encompassing (i) monitoring and assessment systems relating to climate, health and natural resources; and (ii) the Global Resource Information Data Base (GRID); data bases and systems for the conservation and management of genetic resources; The International Register of Potentially Toxic Chemicals (IRPTC) which operates a global information exchange network to provide information and data on chemicals and their effects on health and environment through a query-response service and evaluations of the effects of

chemicals on the environment; INFOTERRA, the International Environmental Information System and UNEP's State of the Environment reports which address major issues of topical environmental concern.

91. Through improved collection and analysis of data and its wide distribution to potential users, which should be a service to countries as well as international organizations, UNEP should become, and come to be accepted as, a leading authority in environmental assessment.

92. International co-operation on environmental assessment, with the participation of the United Nations system with UNEP playing a leading role, should assist countries, particularly developing countries, in establishing effective national monitoring systems, geographic information systems and assessment capabilities, and improving data compatibility. For this, technical co-operation among countries regionally and globally has to increase significantly.

93. Notable environmental assessments have been carried out recently and related to socio-economic factors by non-governmental organizations in some countries. These have helped expand awareness and stimulate action to protect and improve the environment. Governments should encourage such efforts.

B. Planning

94. Environmental planning should provide a conceptual, methodological and institutional framework within which to internalize progressively the consideration of the environment in development decision-making. Every country should define its national environmental objectives and make them part of its plans for socio-economic development. Just as each country sets targets for sectoral growth, it should set time-bound targets in respect of environmental resources and indicators of major concern. Plans and policies at sub-national levels should also provide for the pursuit of the specified environmental and development objectives in tandem.

95. Governments should establish mechanisms and procedures to facilitate inter-departmental co-ordination of policies and unified direction for integrating environmental concerns in development planning. Use of analytical methods to ascertain the environmental and socio-economic implications of alternative courses of action should inform decisions on projects and programmes. It should also help resolve conflicts of interest among departments, among population groups, and among regions.

96. Allocation of investment resources of a national plan among regions and sectors has to reflect a sensitivity to environmental constraints and objectives. This should be facilitated by periodic analyses of the socio-economic significance of the changing state of natural resources and the environment at national and provincial levels. Effort should also be made to prepare an accounting of the use of scarce natural resources, particularly focusing on the country's major environmental problems (e.g. desertification), and to relate it to the periodic reporting on national income and well-being.

97. Sectoral ministries should be encouraged to apply environmental impact assessments and social cost-benefit analyses in decision-making on development projects and programmes. Taxation and economic policies should encourage sectoral decisions in favour of environmentally-benign technologies and locations,

recycling and safe disposal of wastes, conservation of natural resources and establish mutual support between environmental and economic objectives. Land and water use plans should be prepared, and their implementation monitored. Already some countries have made progress in planning at district levels to reflect environmental needs.

98. There have been advances in the analytical methods of environmental impact and risk management, social benefit–cost analyses of environmental measures, physical planning and environmental accounting. Theoretical work on decision models with multiple objectives and constraints has also progressed. UNEP, the Scientific Committee on the Problems of the Environment (SCOPE) and the OECD have played a useful role. This work should be strengthened in order that it will have a greater impact on decision-making.

99. Environmental action and economic planning still remain insufficiently related to each other in most countries. Efforts must be intensified at national and international levels to promote application of suitable methods, procedures and institutional arrangements to make economic planning fully responsive to environmental constraints and opportunities. UNEP's guiding role in this field should include technical assistance to the developing countries. Collaborative arrangements should be made at the working level between UNEP and UNDP, UN-DTCD, and the World Bank. They should set up, or strengthen, units to conduct environmental analyses of their projects and programmes and, in collaboration with UNEP, to assist Governments in systematically considering the environment in development planning.

C. Legislation and Environmental Law

100. Increasingly environmental legislation has been providing practical frameworks at the national level to implement environmental standards and to regulate activities of enterprises and people in the light of environmental objectives. At the international level, conventions, protocols, and agreements have been providing a basis for co-operation among countries at bilateral, regional and global levels for the management of environmental risks, control of pollution and conservation of natural resources.

101. There is a need to expand the accession to and ratification of these conventions and institute mechanisms at the national level to ensure their application. The present momentum of concluding conventions in fields such as hazards relating to chemicals, treatment and international transport of hazardous wastes, industrial accidents, climate change, protection of the ozone layer, protection of the marine environment from pollution from land-based sources and protection of biological diversity, in which UNEP has been playing an active part, should be maintained.

102. Groundwork has been prepared over the last fifteen years under the aegis of UNEP to establish legal frameworks to manage regional seas. Governments should intensify their efforts to implement legislative measures and other policies at national levels so that the policy sources of the environmental problems of the regional seas are effectively tackled. Increasingly environmental management of rivers, lakes, and forests has been posing a challenge to international co-operation. Governments, with the collaboration of UNEP and concerned international

organizations, should accelerate action to establish legal regimes at international and national levels to improve significantly environmental management of rivers, lakes and forests. The UNEP-sponsored new programmes for environmental management of freshwater systems is a promising start.

103. The Montevideo Programme for the Development and Periodic Review of Environmental Law prepared under the auspices of UNEP should be implemented fully. Development of international environmental law should continue with a view to providing a strong basis for fostering co-operation among countries. The progressive emergence of general environmental norms and principles and the codification of existing agreements could lead to a global convention on protection and enhancement of the environment.

104. Governments should settle their environmental disputes by peaceful means, making use of existing and emerging agreements and conventions. The International Court of Justice, the International Court of Arbitration and regional mechanisms should facilitate peaceful settlement of environmental disputes.

D. Awareness Building and Training

105. Participation of people in environmental protection and improvement depends upon their being aware of the environmental problems and possibilities, of how the changing state of the environment affects their well-being, and how their lifestyles affect the environment. People's effectiveness in dealing with environmental problems depends upon their technical and organizational capabilities to design and implement the needed measures.

106. Since the Stockholm Conference on the Human Environment (1972), awareness of the inter-relationship between human activities and the environment has steadily grown. Voluntary action groups at the community level, national and global non-governmental organizations, scientific bodies, schools and universities, mass media and Governments all have played a part in this process. Also UNEP through its Programme and through its information activities has helped build environmental awareness.

107. In a large number of developing countries, knowledge of proper environmental management practices still does not reach millions who suffer from environmental degradation. People are the most valuable resource in development but in order that they participate constructively in accelerating and sustaining development, it is necessary that environmental information is made available in languages they understand, and in a form that can easily help them relate it to their own situation. Governments should intensify efforts to make this possible. NGOs, with appropriate support from UNEP, should play an increasingly active role in this field, especially by way of provision of requisite materials.

108. UNESCO, in collaboration with UNEP, should ensure a systematic coverage of environmental education needs at all levels of schooling, especially in the developing countries. They should also prepare and promote course materials which would include environmental components in professional training given to selected occupational groups e.g. engineers, builders, foresters, farm extension workers, and managers. Training in analysing environmental considerations in relation to economic and other goals also has to receive growing attention.

Governments should make environmental education and training an integral part of their education and communication policies and programmes.

109. International support to training personnel in environmental assessment and management especially in the developing countries has grown steadily. It is essential, however, to ensure that the content and modality of such instruction is relevant to the needs of the countries where the skills are intended to be applied. International co-operation and Governmental efforts should also help ensure a progressive strengthening of institutional capabilities within the developing countries themselves to make available such training.

E. Institutions

110. Consideration of the environment needs to be internalized in sectoral policies and practices to ensure that environmental objectives are met and sustainable development is achieved. Sectoral bodies should be made accountable for such internalization. Existing environmental problems also have to be dealt with through concerted action and allocation of resources. This is true at both national and international levels.

111. At the national level, the mandates of sectoral ministries and other governmental institutions should explicitly state their responsibility and accountability for sustainable development and environmental protection within their sectors. Their policies, functions, structures and budgetary allocations should be made consistent with this. As appropriate, the same should apply at provincial and local levels. Authoritative mechanisms and procedures are needed to oversee and ensure that national environmental objectives are met across government. Governments should establish or strengthen environmental ministries to stimulate, guide, support and monitor actions to achieve these objectives. To this end, essential functions should include: environmental assessment, planning and incentives, legislative and regulatory advice, awareness-building and training, stimulation of research and application of its results. Environmental ministries should also provide leadership and co-ordination for direct action to deal with environmental problems, including rehabilitation. Bilateral and multilateral institutions and international organizations should assist developing countries in this regard.

112. International institutions, both inside and outside of the United Nations system dealing with such areas as food and agriculture, health, industry, energy, science, trade, finance and development assistance should reorient their policies and programmes to make steady progress towards environmentally sound development.

113. These institutions should be accountable for integrating the objectives of sustainable development into their policies, budgets and staffing strategies. Governments should ensure, through consistent policy guidance to these institutions, that their mandates and programmes meet this objective.

114. The governing bodies of all United Nations organizations should report regularly to the General Assembly on the progress made in achieving the objectives of sustainable development. Such reports should also be submitted to the Governing Council of UNEP for that body to provide comments on matters within its mandate to the General Assembly. The Administrative Committee on Co-

ordination, under the chairmanship of the Secretary-General, should oversee effectively the implementation of sustainable development in all programmes of the United Nations system, by reviewing and co-ordinating the efforts of all organs, organizations and bodies of the United Nations system in this field, and by including this in its reports to the General Assembly and the Governing Council of UNEP.

115. The inter-agency mechanism of Designated Officials on Environmental Matters (DOEM) should guide, support and monitor more effectively activities within the United Nations system to ensure consistent policy.

116. In parallel with the institutional arrangements at the national level UNEP should promote, guide, support and monitor actions to achieve environmentally sound development and stimulate and co-ordinate action to deal with environmental problems.

117. The major priorities and functions of UNEP should be:

- To provide leadership, advice, and guidance in the United Nations system on restoring, protecting, and improving the environmental basis for, and in general be a catalyst in the promotion of, sustainable development;
- To monitor, assess, and report regularly on the state of the environment and natural resources and emerging environmental issues;
- To support priority scientific and technological research on major environmental and natural resource protection issues;
- To make available, in co-operation with other agencies where appropriate, guidance for environmental management, including the development of management techniques, criteria and indicators for environmental quality standards and guidelines for the sustainable use and management of natural resources;
- To initiate and facilitate the development and, upon request, the co-ordination of implementation of action plans, in the developing countries, for the management of ecosystems and critical environmental problems. Such plans should be implemented and financed by the Governments concerned with appropriate external assistance;
- To encourage and promote international agreements on critical environmental issues and to support and facilitate the development of international law, conventions, and co-operative arrangements for environmental and natural resource conservation and protection;
- In co-operation with other concerned institutions, to establish and strengthen the institutional and professional capacity of developing countries with a view to integrating environmental considerations into their development policy and planning;
- To promote awareness of environmental matters through education and mass media;
- To co-operate with the United Nations Development Programme and other United Nations agencies, the World Bank and regional development banks, to strengthen the environmental dimensions of their programmes and technical assistance projects, *inter alia* through training and personnel secondments.

118. Specialized agencies, organizations and bodies of the United Nations system should more speedily assume full operational and financial responsibility for

UNEP-supported environmental programmes in their sectors included in the System-wide Medium-Term Environment Programme and the Environment Fund. The human and financial resources which will become available to UNEP as a result, should be concentrated on the priority areas listed above.

119. Environmentally sound development cannot be assured solely by actions of governmental, intergovernmental or international organizations. It requires participation of other entities, particularly industry, non-governmental environmental and development organizations and the scientific community. NGOs have important contributions to make in various areas, including environmental education and awareness and design and implementation of programmes at the grassroots levels. The scientific community should continue to play an important role in environmental research and risk assessment and international scientific co-operation.

120. Regional and continental co-operative arrangements are being established to deal with common environmental problems. For example the Cairo Ministerial Conference on the African Environment in 1985 agreed on a Programme of Action and modalities to implement it. Governments and development co-operation agencies should support such institutional arrangements and programmes.

Part 2: Statements

Introductory statements

Olof Palme

Speech of welcome by the Prime Minister of Sweden

It was in 1968 that the proposal was put forward that led to the convening of a conference on the environment to be held under the auspices of the United Nations. The aim was simple and self-evident. It was to focus the attention of all peoples on one of the vital questions facing mankind with a view to bringing about well informed discussions and, what is more important, concrete action.

The earth's resources are limited and our environment is vulnerable to the forces set in motion by technical and economic development. The amounts of air and water are restricted and so are sources of energy. Supplies of raw materials are exhaustible. Uncontrolled pollution of the seas and the atmosphere may permanently upset the processes on which human life depends. The pressure on our limited resources is accentuated by population growth. Food production cannot feed the growing number of the world's inhabitants. What is ultimately at stake is the survival of mankind on our limited planet.

Consequently, environmental issues are the urgent concern of all the peoples of the world. They demonstrate in a dramatic way the need for international cooperation and an international legal system. The seas are our common property and national frontiers do not act as barriers to air pollution and toxic waste. If the soil is destroyed, if water is polluted and if natural resources are squandered, we shall all suffer the consequences. War is the worst destroyer of our environment. This has always been the case but modern techniques of war extend the threat to coming generations and can rob them of their future.

I am firmly convinced that environmental problems can be solved. But this can be done only in a world at peace, in a world devoted to international cooperation. The preparatory process for the conference has already yielded tangible results. It has been part of an international movement embracing a wide range of public opinion, bridging national boundaries and generation gaps. All over the world, men and women facing environmental problems challenge established social and economic values. The threat to the environment is bound up with the development of society, raising questions about the aims and direction of production, about social structures and about cooperation between countries. In this way the discussion on our environment opens up new paths towards the future, towards a new internationalism.

Keywords are economy with scanty resources, fair distribution of wealth within and between nations, and global cooperation in a world at peace. Change demands knowledge of realities. Unique material has been assembled by member countries, international organizations, individual scientists and scientific institutions for this conference. The preparatory work has stimulated governments to a close analysis of environmental problems – in their own countries and in an international perspective. They know the problems and they are aware of the direction in which solutions must be found. But the success achieved in the work of preparation, and

the attention attracted by the conference, also mean that great expectations have been aroused. People are no longer satisfied only with declarations. They demand firm action and concrete results. They expect that the nations of the world, having identified a problem, will have the vitality to act.

Our expectations must not, of course, be extravagant. It would be unrealistic to expect a ten-day conference to find complete solutions to the extraordinarily complicated problems that are reflected in our agenda. But if this conference can outline a clear course of action and if it can create organizational procedures for further work on environmental problems, then I am sure that it will be regarded as the beginning of a new stage in international cooperation. It will have created confidence in the future.

There is no reason why we should surrender to anonymous powers, or allow development to lead us to inevitable catastrophe. The catastrophe, if it comes, will be a result of wrong political decisions or of no political decisions at all. The environment need not decay. We can control our development. We can be masters of our future. But national efforts will not suffice. We must work together. On only one earth.

Maurice F. Strong

Opening statement by the Secretary-General of the Conference

We have made a global decision of immeasurable importance, to which this meeting testifies: we have determined that we must control and harness the forces which we have ourselves created. We know that if these forces can be effectively controlled they will provide everything that life on this planet desires and requires; but if they are permitted to dominate us, they will have an insatiable and unforgiving appetite.

Our purpose here is to reconcile man's legitimate, immediate ambitions with the rights of others, with respect for all life supporting systems, and with the rights of generations yet unborn. Our purpose is the enrichment of mankind, in every sense of that phrase. We wish to advance – not recklessly, ignorantly, selfishly and perilously, as we have done in the past – but with greater understanding, wisdom and vision. We are anxious, and rightly so, to eliminate poverty, hunger, disease, racial prejudice and the glaring economic inequalities between human beings.

Much has been already accomplished, within nations where most action must be taken, and where ultimate responsibility for all nations resides, within the United Nations family where widespread activities have long addressed themselves to important environmental needs and within the many other intergovernmental and non-governmental bodies in which a wide variety of capabilities reside. New impetus has been given to existing activities and many significant new initiatives have been launched. But this conference must be the beginning of a whole new approach to the situation. For the environmental crisis points up the need to review our activities not just in relation to the particular purpose and interests they are designed to serve, but in their overall impact on the whole system of interacting relationships which determines the quality of human life.

What, then, is the prospect for Planet Earth? The answer is that nobody knows. There is much difference of opinion in the scientific community over the severity of the environmental problem and whether doom is imminent or, indeed, inevitable. But we need subscribe to no doomsday view to be convinced that we cannot – we dare not – wait for all the evidence to be in. Time is no ally here unless we make it one.

We do not have to believe in the *inevitability* of environmental catastrophe to accept the *possibility* of such a catastrophe. Whether the crisis is, in a physical sense, just around the corner or well over the horizon cannot obscure the fact that we have a policy crisis on our hands right now. We need only look at the unintended results of past and present decisions.

No one decided to poison the Baltic – or any other of our polluted and dying waterways. No one decided to destroy millions of acres of productive soil through erosion, salination, contamination and the intrusion of deserts. No one decided to dehumanize life in the great cities of the world with crowding, pollution and noise for the more fortunate and with degrading squalor in slums for the rest.

We did not intend either these or the many other destructive, dangerous, unhealthy and unaesthetic consequences of our past activities; but these are what we have. Man has been making his social decisions on too narrow a base and in too short a time perspective.

It is this that calls for a renewed sense of man's trusteeship over the resources he has inherited from the long evolution of nature. It is this that makes man's future role as decision maker qualitatively different from what it has been in the past. The skills that enabled him to master the techniques of providing his food supply and then of producing the wide variety of goods and services required to support his affluent consumer-oriented societies are now needed even more in managing the new ecological society on which the survival of technological civilization depends. Man the agricultural producer and man the industrial producer must become man the societal manager.

We shall not accomplish this compelling new task in a year or a decade. But we can discern a few essential components of the kind of decision making that will help us to foresee the consequences of alternative actions and to clarify our choices. For one thing, we must learn how to bring to bear our vast resources of knowledge in forms and at times most useful to those whose duty it is to make choices and to those who will be affected by them. For another, we must learn how to engage more effectively in the decision making process those who must live with the consequences of decisions.

The fate of Planet Earth lies largely in our own hands and in the knowledge and intelligence we bring to bear in the decision making process. In the final analysis, however, man is unlikely to succeed in managing his relations with nature unless in the course of it he learns to manage better the relations between man and man. Yet if we use our present standards as an indication of what will be, three decades from now, at least half of humanity will still be enduring a life of uncertain work, permanent undernourishment, poor health, poor housing and illiteracy and insufficient skills.

The balanced use of the world's resources, the priorities for human action within a well ordered planetary system, the plain facts of deepening poverty, of protein deficiency, of inadequate housing, of festering urban environments, must be at the centre of our concern. Our whole work, our whole dedication is surely towards the ideal of a durable and habitable planet. But what we are heading for is an earth in which fewer than half its inhabitants will enjoy such conditions. And this poses the key question that all governments must begin to ask – and answer: can the great venture of human destiny be carried safely into a new century if our world is left in this condition? I, for one, do not believe it can.

Our subject is the human environment. Broadly interpreted, the human environment impinges upon the entire condition of man, and cannot be seen in isolation from war and poverty, injustice and discrimination, which remain abiding social ills on planet earth.

The draft Declaration on the Human Environment is less than the inspirational and comprehensive code of international conduct for the age of environment that we hope to articulate over time. But it does represent an important, indeed an indispensable, beginning. In particular, it holds that all nations must accept responsibility for the consequences of their own actions on environments outside their borders. In my view it is essential that this fundamental principle be accepted here if we are to establish a minimum basis for effective international cooperation following this conference.

The proposed Action Plan is designed to further the principles of the Declaration. It consists of two main components: a series of specific recommendations for action at the international level and a framework into which all such recommendations can be fitted into their functional categories. The three principal categories are:

- the global environmental assessment or earthwatch programme;
- activities which together comprise an environmental management programme; and
- supporting measures.

The Action Plan cannot, of course, be a comprehensive approach to all problems of the human environment. It does offer, however, a blueprint for a continuing environmental work programme in the international community and a first indication of priorities.

Our major motivation in gathering here is to consider recommendations which can only be translated into action by international agreement. By far the major part of the burden of environment management falls, however, upon national governments operating as sovereign national states. This may be more in accord with political reality than with environmental reality. Yet in working out their national environmental programmes, governments and peoples will become increasingly aware of the direct and indirect links between national causes and transnational effects – between global conditions and local well being, between personal values and the integrity of planetary resources. The inescapable fact that we face a universal problem does not, of course, require a uniform response. In nature, the quality and durability of systems is maintained by variety. In human society we depend upon cultural diversity to produce similar results.

I cannot stress too strongly the central importance of accepting this notion of ongoing process, of continuity, of adaption, of steady evolution, in perception, in organization, in decision making and in action to protect and enhance the human environment. In a very real sense, this process is our policy.

The particulars of the environmental situation, and the priorities to be accorded to environmental action, are most obviously different between industrialized societies and societies in different stages of development. The developing countries are experiencing some of the same problems which first attracted concern in more technologically advanced states almost before they have begun to reap the accumulated benefits that some two centuries of industrialization have brought to the more industrialized nations.

At the same time these countries are struggling, with resources that are only a fraction of those available to the more wealthy nations, to bring to their rapidly growing populations the elementary necessities of life. Their natural resources, including the basic environmental resources of water, soil, plant and animal life, are the essential capital base on which they depend to meet these needs; they can ill afford to abuse or waste them. Many of the fundamental environmental problems of the developing countries derive from their very poverty and lack of resources and, in some cases, from inappropriate forms of development. They can ill afford to put the needs of an uncertain future ahead of the immediate need for food, shelter, jobs, education and health care today.

There is no fundamental conflict between development and the environment. Environmental factors must be an integral feature of development strategy if the aim of human endeavour is to increase welfare and not merely to increase gross

national product. Indeed, one of the most promising features of the continuing debate on development and environment is the new synthesis that is now emerging.

We are still at the very threshold of the new synthesis and there is still unresolved controversy over the concept of growth. I do not believe we can cease to grow. No growth is not a viable alternative. People must have access to more, not fewer, opportunities to express their creative drives. But these can only be provided within a total system in which man's activities are in dynamic harmony with the natural order. To achieve this, we must control and redirect our processes of growth. We must rethink our concepts of the basic purposes of growth. We must see it in terms of enriching the lives and enlarging the opportunities of all mankind. And if this is so, it follows that it is the more wealthy societies – the privileged minority of mankind – which will have to make the most profound, even revolutionary, changes in attitudes and values.

With a sound conceptual framework, with a commitment to ongoing process, with a sense of the intricate linkages between local and global systems, with an understanding that environmental concerns vary over time and place, we can, in the aftermath of the conference, begin to look ahead toward the next goals for environmental management.

The overall global goal of the United Nations environmental programme must be to arrest the deterioration and begin the enhancement of the human environment. Subsidiary global goals, such as the provision of decent water supplies for all inhabitants of the earth, will help us to realize that overall objective. The sooner we can assign target dates the better it will be. This, of course, will involve the elaboration of national and international priorities. For the time being, we do not yet have a clear and agreed set of criteria for identifying priorities; this itself might well be a priority concern for the next dimension of our work. But to stimulate thought I am prepared to suggest on my own initiative three top priority areas for environmental action. Each is so important that it is not necessary to rank them in any particular order.

Clean water supplies

Water is the key to life. But the water available to most of the world's people brings with it death and distress, both from the ancient plagues of water-borne disease and from the poisonous new residues of progress which are accumulating in mounting quantities in water throughout the world. Almost every single national report submitted to the conference secretariat placed high priority on clean water.

An adequate response to this problem would involve a massive mobilization of resources to provide water supply and purification systems, sewage and waste disposal and treatment facilities and research directed to developing less expensive technologies for water treatment and waste disposal in tropical areas.

Ocean pollution

This is another inescapable top priority, for the oceans cover some 70% of the surface of Planet Earth. They are the ultimate sink not only for wastes dumped directly into the seas but for what is washed out from rivers and bays and estuaries, and what is deposited through the atmosphere, lying as they do beyond all national

jurisdictions. The oceans present a compelling and urgent case for global environmental action. The case for regional cooperation is equally compelling, for a large number of effectively enclosed seas, such as the Mediterranean, the Baltic and the Caspian, are deteriorating at a frightening rate.

Urban settlements

The cancerous growth of cities, the desperate shortage of housing, the expanding slums and squatter settlements which are so incompatible with our concept of the dignity of man, and the threatened breakdown of urban institutions, are almost universal phenomena that make urbanization one of the gravest problems of the human environment. There is an important potential role for international assistance and cooperation; but this is primarily an area for national action, including the application of national population policies.

There are, of course, many other candidates for even a first list of top priorities. But these three – fresh water supplies, ocean pollution and urban settlements – belong, in my view, at the top of the list.

I move now to a discussion of another kind of priority, an area for agreement on which all other actions depend: the organizational mechanisms required.

Organization

If we are to achieve our goals, effective organization at the national, regional, or global levels is of crucial importance. In order to achieve effective and far seeing decision making we require institutional arrangements which reflect this need and assist in providing for it. We require new institutional patterns which provide for collaboration between governments, the scientific community and international institutions; it is no more than the truth to say that what governments decide to do will be critical to the implementation of the Action Plan and for assuring the ongoing process of environmental action to which I have referred.

A major feature of new organizational arrangements must be creation of a direct working relationship between the intergovernmental community and the community of science and technology. It is essential that policy makers and administrators have ready access to practical scientific guidance and that scientists – and in this category I include social scientists – are actively involved in the decision making process. We cannot continue with a situation in which these groups operate separately, and often in total isolation from each other. This institutional separateness has played a major part in creating the situation which we are now facing, and we must resolve to eliminate it. If it is not eliminated, and if we continue as we have in the past, no profound or lasting environmental reforms can be achieved.

We have determined to assert our domination over forces which we ourselves created. Our determination must be to enrich mankind and to advance together. Our power, our demands, our numbers, have made our interdependence an inescapable reality. The task now is to convert it into a political and moral reality. The United Nations carries a direct and unique responsibility for taking the lead in discerning and acting upon the new environmental imperatives. No one nation or

group of nations commands the air and water of this planet. If we are to ensure their survival we have to act as the whole community of man.

Can there be any doubt of our technical ability to take on – and succeed at – the task of managing our global environment? I have been told it is unrealistic to expect that we will. But is it unrealistic to expect that man will be wise enough to do what he must for his own welfare?

In our relentless pursuit of competitive, material and national interest we have constructed self-justifying promises and values which are themselves the source of a kind of unreality. Is it realistic to think that we as nations, or as species, can continue on our present course?

Is it realistic to think that we can continue to reap the benefits of exploiting our precious planetary heritage while continuing to permit its accelerating desecration?

Is it realistic to assume that a small minority can monopolize the benefits of a technological civilization which is inherently global in the scale and scope of the interdependencies it creates and which requires global cooperation to sustain it?

Is it realistic, in the light of this growing interdependence, to tolerate such disparities in the conditions of peoples?

Surely a sober and objective appraisal of our present conditions and future prospects must say that this cannot be realistic. Surely, too, our sense of a larger realism must lead us to believe that because we *can* change, because we *must* change, we *shall* change. We must not allow the frustrations of our past failures to prevent us from finding a new basis for international cooperation. The world desperately needs hope; and we must build on this hope. If we fail we will add to the growing divisions of this planet, divisions which threaten to deny the poor and the powerless their opportunity to participate in the decisions and the benefits of our new technological order and to deny the powerful the confidence and trust they need for their ultimate security and well being.

In the final analysis, political and social action must be rooted in the attitudes and values of people. If the changes already discernible in the mood of many of the generation of young people constitute the beginnings of the reevaluation in attitudes and values which the environmental challenge requires, we have indeed an encouraging base on which to build.

The basic task of this conference is to build in the minds of men the new vision of the larger, richer future which our collective will and energies can shape for all mankind, to build a programme of concerted action which will make an important first step towards the realization of this vision; to build the new vehicle of international cooperation that will enable us to continue the long journey toward that creative and dynamic harmony between man and nature that will provide the optimum environment for human life on Planet Earth.

The dominant image of the age in which we live is that of the earth rising above the horizon of the moon – a beautiful, solitary, fragile sphere which provides the home and sustains the life of the entire human species. From this perspective it is impossible to see the boundaries of nations and all the other artificial barriers that divide men. What it brings home to us with dramatic force is the reality that our common dependence on the health of our only one earth and our common interest in caring for it transcend all our man made divisions. In the decades ahead, we must learn to conquer our own divisions, our greeds, our inhibitions and our fears. If we do not, then they will conquer us.

Ingemund Bengtsson

Statement by the President of the Conference

The problems which have brought us together here are universally recognized to be of vital significance to mankind. All inhabitants of this planet have a stake in overcoming them. This conference is a sign that the international community is ready to take the first steps towards this goal.

When the General Assembly unanimously decided to convene this conference its aim was threefold: to focus the attention of governments and public opinion on the importance and urgency of the problems of the human environment; to identify those aspects which could only, or best, be solved through international cooperation; and to give the ongoing and planned work in this field a common outlook and direction.

Subsequently the member states also agreed that the conference should be action-oriented: that it should serve as a practical means to encourage, and to provide guidelines for, action by governments and international organizations to protect and improve the human environment. By initiating the worldwide preparations for the conference, the Assembly created a framework at the global level for continuous consideration and negotiation by governments in the field of the human environment.

Considerable progress has been made on a wide scale in creating conditions necessary for rapid and determined action by governments to deal with environmental problems. In many countries such action has already been taken and governments have set up institutional mechanisms to carry out this work.

The future capability of the international community to take effective action to solve environmental problems will depend on the decisions of this conference. The attention of the world is now directed at us in Stockholm. Let us therefore fulfil the justified expectations of the peoples of the world that this conference will lay a lasting foundation for the continuing efforts which we must undertake to ensure a better quality of life for all.

Mostafa K. Tolba

Statement by the Executive Director of UNEP

The option facing governments at this time is stark: take action or face certain disaster. Ten years ago the options facing the 113 nations attending the Stockholm Conference were not so obvious. Nevertheless, they agreed on a sweeping Action Plan – and I quote – ‘to safeguard and enhance the environment for the benefit of present and future generations of man’. The Stockholm Conference also recognized that action would need to be accompanied by more knowledge of our environment.

There has been progress since Stockholm, mostly in increasing our knowledge of the environment. Ecology and environmental sciences have matured in the last ten years. In some cases increasing knowledge has enabled us to turn the theories of ten years ago into fact, in others to dismiss them entirely or to uncover new areas of concern. For example, desertification was scarcely mentioned at Stockholm; today, with arable and grazing land being turned into desert at the rate of six million hectares each year, it is seen as one of the most devastating environmental problems.

A subtle change in emphasis has taken place during the decade, from worrying about changes in the state of the physical environment to concern over the causes and impacts of such changes. Throughout the decade our perceptions and our understanding have continuously evolved. Ten years ago, preserving wild plants and animals was seen as a worthwhile activity in itself. Now there is widespread recognition that the future of agriculture and of the pharmaceutical and other industries hinges on the conservation of wild species.

This new view of wild species as a resource has been paralleled in other areas. Increasingly as the decade has proceeded we have come to regard forests, soil, fish, clean air, fresh water as resources to be conserved. Conservation is no longer seen as vaguely desirable, but as crucial to our future survival.

During the decade we have also come to realize that everything in the environment is related to everything else. Atmospheric ozone depletion, possible climatic warming due to the build up of carbon dioxide, acid rain and nitrogen shortages in the soil were earlier seen as separate problems, soluble on their own. We now know they are closely linked through the global cycles of carbon, oxygen, nitrogen and sulphur.

Harsh experience has shown that environmental neglect in one quarter can have harmful consequences elsewhere. The useful life of some dams, for example, has been halved by siltation caused by unchecked deforestation in watersheds. The consequences of environmental neglect can have repercussions far beyond national borders. Oil spillages are a problem for all nations sharing a common sea; acid rain has become a serious problem not only in the polluting countries but even more in those countries with the misfortune to be downwind.

During the decade we have also noted that some ecosystems have displayed

remarkable resilience to our transgressions. Yet they have also displayed their limits. Loss of grasslands and forests, unwanted changes in freshwater systems and declines in productivity of coastal waters have been among the penalties we have paid for failing to manage these ecosystems properly.

Poverty is the worst form of pollution. This phrase was coined for the first time at Stockholm. As the decade has worn on we have seen how poverty has forced villagers and slum dwellers to destroy renewable resources like the fuelwood and soil on which their future survival depended. In 1982 it is underdevelopment which is still the principal cause of the environmental problems we have to solve.

Stockholm accepted the idea that the solution lay in an environment-based development which enhanced rather than damaged the environment. Then, it was a revolutionary concept; today it is common currency among decision makers. Strategies, action plans, programmes have been written with guidelines for how nations could institute a development process which would meet the material needs of their people while at the same time protecting their environment.

Unhappily, governments have not matched this developing environmental knowledge with deeds. The concepts for ecologically sound management have been imperfectly or too slowly applied. In some cases they have been ignored entirely. The inevitable consequence is that the fundamental objective of Stockholm, to protect and enhance our environment for future generations, has not been fulfilled. On virtually every front there has been a marked deterioration in the quality of our shared environment. The result is that now, when we need more of everything – more housing, more shelter, more food, more jobs, more fresh water – the planet's capacity to meet those needs is being undermined.

This means that our room for manoeuvre has narrowed considerably since 1972. Take food production: despite advances in agricultural methods, food production has barely kept pace with the increase in population. Here in Africa it has actually fallen behind. Circumstances will become bleaker still over the next decade if we continue to permit farm and grazing land to be reduced to zero productivity at the current rate of 20 million hectares each year.

Today 450 million people are chronically underfed. Millions more will be so each year unless we stop the haemorrhage of soil loss. And we can stop it. We have an action plan to stop desertification, we have soil conservation strategies and tree planting programmes; widely implemented, those strategies will preserve the one-third of the world's arable land now at risk.

Tropical forests are being depleted at a rate of almost eight million hectares every year; going with them are their precious mines of irreplaceable genetic resources. Like forests and soil, our fresh water resources need to be properly managed. If energy was the resource issue that attracted most attention in the 1970s, I predict that as the 1980s unfold, water will take its place alongside. Demand for already overstretched fresh water supplies will increase; even now some West Asian cities are being forced to withdraw fossil reserves to meet expanding needs. Pollution and conflicting demands on surface and ground water sources could become a source of friction between nations.

And the need is not only for water in more plentiful supply, but also for water that is clean. A large proportion of diseases affecting people in the developing world are water-borne. Today one in four people living in the cities of the developing countries has no access to clean water. In their rural areas, where the majority still live, the situation is even worse – more than 70% must drink and wash with dirty water.

People's health is also being put at serious risk by the increasing volume and numbers of potentially dangerous chemicals released every day into their environment. A similar threat is posed by the transport and disposal of hazardous wastes, especially long lived radioactive waste.

These are only samples of the environmental problems we are carrying over from the previous decade. Others will emerge as we approach the turn of the century. The magnitude of the problems we are facing cannot allow lacklustre performance on the scale we have seen over the previous ten years.

I would not continue to act as UNEP Executive Director if I did not believe that governments – singly and collectively – would respond during the next ten years in a more serious way. This belief is based on a number of positive developments. Most notable is a remarkable expansion of environmental awareness in decision making circles. Government environment machineries have expanded to over a hundred. These machineries have also expanded their influence and power. That growth has been accompanied by an increase of more than 5 000 in the number of non-governmental organizations concerned with resource issues.

We have also seen the start of a new era of cooperation between nations to safeguard shared resources. Regional sea treaties approved, conservation treaties ratified, antidumping conventions observed, river basin commissions established – these developments are ample reason for confidence.

A major landmark was the commitment of the world's leading international development assistance institutions – which disburse between them more than 14 billion dollars each year – to funding only sustainable projects. 'Sustainable development, and wise conservation are, in the end, mutually reinforcing – and absolutely inseparable – goals', concluded World Bank President A.W. Clausen in a recent major public statement. Several bilateral aid agencies, including those of FR Germany, Sweden and the USA, have made similar commitments. Others are starting to follow their lead.

In the circumstances of the current recession, there would be little cause for confidence if there were no facts and figures to show that environmental protection pays, in hard cash terms. Several government surveys have shown conclusively that an investment in environmental protection can result in savings of up to 2% of GNP.

In both developed and developing countries environment policies have created new jobs and industries. In France in one year alone 370 000 new jobs were created by environmental protection. According to the Organization for Economic Cooperation and Development (OECD) strict controls introduced by the Japanese government have been a major stimulus to growth. There is no evidence to show that environmental protection has caused any significant inflation. The highest price rise induced by environment regulation was recorded in Japan, and there, during the five-year period after 1974, it was just 0.7% each year.

Some sectors of industry in countries as diverse as Belize, Brazil, China and the USA have been discovering on their own initiative that productivity can be boosted by retrieving pollutants and using them as resources. UNEP has found in some cases that profits of up to 40% have been made through recycling.

One important element seems to have attracted no attention during the decade. Nations have made little effort to introduce an environmental accounting system. If oil, industrial plant and so on are counted among a country's assets, why not surface soils, clean air and water and gene pools? It can take nature a millennium to accumulate soil to a spade's depth, yet it can be removed in a matter of months.

That reserve of soil is more precious than any gold reserve, but we do not count it so. Were an environment audit system to be applied, I am certain greater care would be taken to correct what has been described recently as 'biological deficit financing'.

The case for environmental protection does not rest there. Though the health, spiritual and aesthetic benefits of environmental protection can never be subjected to accounting in strict monetary terms, they are invaluable and lasting. The case for environmental protection rests ultimately with global peace. Despite overwhelming evidence, there is little recognition in government circles of the extent to which resource exhaustion contributes to economic recession and threatens security. We need to widen the definition of national security to take account of global environmental risks that are unknown to traditional diplomacy and indifferent to military force.

Gone are the days when a nation, no matter how powerful, can consider itself immune from disturbances or disruptions of an environmental nature occurring elsewhere. The *Brandt Report* said, 'Few threats to global peace and survival of the human community are greater than those posed by the prospects of a cumulative and irreversible degradation of the biosphere on which all human life depends'.

As the environment is interdependent, so are nations, whatever their political complexion or stage of economic development. It therefore serves the self interest of the industrialized and other rich nations to invest in the environmental security of the poor developing countries. A similar conclusion was to the fore in a recent report issued by the OECD, which said, 'The destabilization of the world's ecosystem and the degradation of environmental systems in particular regions are among the fundamental problems which create actual or potential risks of concern to both developed and developing nations'.

We have distilled the recommendations for action that needs to be taken in order to head off the gathering environmental crisis. Once again I remind you that these suggestions are not UNEP's alone, nor are they to be implemented by UNEP alone; they are to be undertaken by the whole United Nations system, and above all by governments themselves. Implementation of those actions to secure all our futures will require a major transfer of resources. A great deal of money must be spent to make up for the years of inaction. It represents, though, only some 5% of the sums nations now spend on the arms race.

We have the tools to translate concepts into actions. But will these changes in our *understanding* of the importance of the environment be accompanied by political and resource commitments? And how can we ensure that our expanded, and expanding, knowledge of the environment is converted into better decision making? These are the twin challenges facing us.

We face today a problem which no previous generation has had to face. In 1982, nations have two choices: to carry on as they are and face by the turn of the century an environmental catastrophe which will bring devastation as complete, as irreversible, as any nuclear holocaust or to begin now in earnest a cooperative effort to use the world's resources rationally and fairly.

We hold more firmly than ever to the Stockholm principle that of all things on earth people are the most precious. There is still great potential to meet the needs of the people alive today and the nearly two billion additional passengers we will see come aboard spaceship Earth between now and the end of the century.

Ingemund Bengtsson

Address by the Speaker of the Swedish Parliament

We are here to look ahead and identify the major environmental trends to be addressed in the coming decade. This task is not an easy one. Particularly not today when economic trends and prospects are looking dark and when tension and the arms race have taken the place of *détente*. World economic growth is slowing down. Public budgets, including aid flows, are being cut. High unemployment figures are leading to pessimism for the future. Two-digit inflation rates favour consumption instead of the savings that would create resources for long-term investment. All this is favouring short-term decision making, when the environment calls for the primacy of the long-term view.

The environment is no longer a luxury concern. Environmental policies are now generally perceived as policies for a rational management of natural resources. The new perceptions have emerged primarily from the Third World's interrelated problems of desertification, soil loss and the fuelwood crisis which today form the world's most serious environmental challenge. About 800 million people, nearly one-fifth of humanity, are struggling for their lives, caught in endless cycles of hunger and disease. They are more acutely affected by environmental quality than are the affluent because they live directly off the soils, the forests and the waters.

Environment protection is a matter of survival.

The all-permeating awareness of the environment has led to a massive expansion of national environmental bodies, particularly in the developing world. Environmental legislation has been introduced and improved. Political parties have introduced the environment into their programmes. Non-governmental organizations all over the world are channelling people's concern with environmental problems. Mass media are covering the environment as an integrated and important part of their reporting on social development. And in spite of the economic difficulties, a broad spectrum of opinion is expressing the wish to continue to have substantial resources allocated for environmental protection.

All the new data has shown the urgency of concrete action to manage the environment in order to combat problems the enormous scope of which we are now seeing more clearly. This goes, too, for the problems connected with the acute threats to the carrying capacity of the natural resource base in the Third World, with particular emphasis on soils, forests, water resources and fisheries.

It goes also for the major environmental threat of acid rain, which is turning thousands of lakes in Europe and North America into aquatic deserts, threatening the growth of forests, causing billions of dollars worth of corrosion and threatening ground waters.

Yet another area which calls for forceful action by governments and by the world community is synthetic chemicals. I would particularly stress the risk that toxic substances are posing to the work environment. The most serious individual work environment problem today is the threat to farm workers in the Third World using

pesticides. Tremendous efforts to strengthen international cooperation in testing chemical substances are urgently called for in the 1980s.

No action is possible without political will. The economic difficulties which are haunting the world community today make it more difficult to mobilize that will. But the urgency and scope of action needed to protect and enhance the environment should be a yet stronger counterforce.

One of the areas where improvements on the first generation of environmental policies are badly needed is the handling of uncertainties. We know that there are serious risks that the build up of carbon dioxide in the atmosphere might lead to climatic change, most likely in the form of increases in temperature.

Another set of problems of the same character concerns the complex and subtle pollution problems created by the interplay of a series of pollutants of which we have only scant knowledge today. Concrete action for sustainable social development therefore has to be supported by intensified research.

A major element in a second generation of policies that have to be developed for the protection and enhancement of the world environment is increased popular participation in the decision making process. A lively popular participation is a necessary element in a dialogue needed to make full use of valuable inputs from a vital environmental movement of concerned citizens.

The Stockholm Declaration stated that man and his environment must be spared the effects of nuclear weapons and all other means of mass destruction. This principle is today even more urgently in need of affirmation than in Stockholm ten years ago. States must strive to reach prompt agreement on the elimination and complete destruction of nuclear weapons and all other means of mass destruction.

Today it is not enough to *look* ahead, but to go ahead and take concrete action. You have to reach agreement on decisions for environmentally sound development in the crucial times that will lead us into the last decade of this century.

Maurice F. Strong

Statement by the Secretary-General of the Stockholm Conference

It is only realistic to admit that today, ten years after Stockholm, the environment of our planet is still far from being secure. The health and well being of people throughout the world continues to suffer from environmental afflictions of various kinds. And risk and uncertainty cloud the future of the generations who will inherit the earth from us.

Nevertheless, by any objective standard, it is clear that the world is more secure and more promising environmentally than it would have been if there had been no Stockholm Conference. What was accomplished by the Stockholm Conference and what has been accomplished since then, represents notable progress and provides the basis for a future which *can* be more hopeful, *can* be more promising for the whole human family.

I believe that the most durable result of the Stockholm Conference has been the dawning of a global environmental consciousness, the establishment of a body of experience and a significant, if still insufficient, institutional capacity for mobilizing that experience and applying it to the wide variety of decisions by which we are shaping our environmental future. Indeed I believe that environmental consciousness and concern has, on the whole, been deepened and strengthened in the past ten years. If it lacks today the vivid and dramatic visibility which was manifest at Stockholm, it has become broader and deeper and is now entrenched as a permanent and continuing feature of the public conscience.

In almost every area of environmental concern we have demonstrated that most issues can be resolved positively, that the means for environmental protection and improvement are available to us. Yet we know that in all too many instances we are still falling far short of what we can do – and must do – to ensure the maintenance on Planet Earth of a secure and healthy environment for human life. We can do it; but we are not doing it.

The wave of public interest and concern generated by Stockholm produced a broad range of new initiatives. Governments established national environmental policies, legislation and agencies to implement them; others which had already done so strengthened and extended their support for environmental protection and improvement at the national level. But today those agencies for the most part lack the financial support and policy leverage required to enable them to have a major influence on national decision making and resource allocation.

The World Bank has taken the lead in providing for the incorporation of environmental considerations into its own development funding programmes and the regional development banks and some national development assistance agencies have now pledged to do so. But progress in doing this has been slow and most such activities are still undertaken with little or no environmental input.

A wide variety of practical actions have been initiated by non-governmental organizations and citizens' groups. Although much is made of the instances in

which this involves confrontation with governments, some of the most notable successes have been based on cooperation. A prime example is the blueprint for conservation of resources at the world level provided by the World Conservation Strategy produced by the International Union for the Conservation of Nature and Natural Resources with the support of UNEP and the World Wildlife Fund and the cooperation of leading scientists and scientific organizations throughout the world.

We have acknowledged at the conceptual level that there need be no fundamental conflict between environment and development, that the best development – indeed the only sound development – is that which is sustainable, which does not destroy the ecological integrity and resource base on which continued development depends. But we have done far too little at the practical level to apply these new insights.

Programmes of reforestation and recovery of lands that had reverted to desert have increased markedly during the past decade; yet far more productive land continues to be lost through careless and destructive exploitation than is being reclaimed by all these programmes. Loss and degradation of soil is setting the stage for major tragedies in the developing world. And the ability of North America to supply the cereals that the people of so many countries now depend on is jeopardized by the prospect of a decline in the productivity of the grain producing areas of the great plains of the USA and Canada.

The rapacious and careless destruction of tropical forests has been stopped or slowed down in some places; but overall the rate of destruction continues at a pace which threatens the very existence of these invaluable and irreplaceable ecosystems.

Some notable successes have been achieved in saving endangered species of animals and plants and some attention is now being focused on preserving genetic stock; nevertheless, more species of animals and plants are in danger of extinction today than ever, including some that are vital to maintaining food production.

All in all, the processes of decision making in the conduct of our economic life continue to give inadequate weight to environmental costs and benefits, and this poses a particular threat to developing countries which depend to such a great extent on their renewable resources – their environmental capital, if you will – for their economic future and can ill afford the costs of development which undermine or destroy this precious capital.

We have shown in successful programmes for abatement of pollution and conservation of resources that technology can be an ally, a friend of the environment; yet technology continues to be invoked more in ways which are destructive to the environment than in those which protect and improve it.

There has been increased recognition of the importance of such major ecosystems as the tropical forest areas, the deserts, mountain regions and the Arctic. But there has been too little sensitivity to the plight of the indigenous people who inhabit these areas. The pressures of modernization are undermining the lifestyles of these people and are making it almost impossible for them to sustain their own cultures while denying them access to the benefits which modernization can produce. The result is one of the greatest tragedies of our time. It is also one of the most flagrant abuses of fundamental human rights.

And at the same time it is both unnecessary and unwise. For the indigenous peoples who, in their own cultures, are still largely hunters and gatherers remain the repository of most of the accumulated evolutionary experience of the human race. And they can play an indispensable role as caretakers of the sensitive and

often rigorous and demanding environments in which they live.

Surely there is room for all of us on this planet. And there are special reasons, in justice, in equity, in human rights as well as in economic and environmental terms, to allow these peoples to adapt in their own ways to the modernizing influences with which they must now contend. Let me register here my strong and fervent plea that the environmental movement take a special interest and assume a special sense of responsibility for the plight of these people and the environments in which they live.

In industrial countries where concern with pollution provided the original impetus for the Stockholm Conference, there has been notable progress in control of pollution. But some of these countries have at the same time permitted the transfer of polluting industries and products to developing countries.

There has been slow, but positive progress in the attempts to identify and register sources of toxic chemicals going into the environment; but there is as yet little progress and little prospect of progress, on enforceable agreements for monitoring or controlling the international trade in such chemicals or their use. Thus chemical threats to the environment continue to grow.

And there is a particularly dangerous increase in the exposure of Third World peoples to the hazards of chemical products, including many already banned as dangerous in their countries of origin and distributed with an often appalling degree of carelessness and irresponsibility. Indeed, there is mounting danger that, as one observer put it recently, the Third World will become the dustbin for the excess and rejected products of the chemical producers of the industrialized world.

Business and industry have demonstrated a growing concern about environmental issues, a growing willingness to exercise a higher degree of environmental responsibility in respect of their own activities and to cooperate with the environmental community in resolving difficult issues. Yet there are all too many examples of individual companies which are prepared to sell their products or to establish new plants in the developing world under conditions which pose risks to the local environment and to the health of local people and which would not be permitted in their own home countries. The oil industry, however, has provided some positive and hopeful examples of industry initiative and cooperation in dealing with environmental impacts as, for example, in offshore areas of the North Sea.

Since Stockholm, governments have turned more attention to human settlements. Conditions in many cities of the industrial world have improved notably in the past decade. But cities of the developing world continue to grow faster than measures to make them more habitable. The result is that more people than ever face the devastating consequences of the breakdown of cities which are on the verge of being literally overwhelmed by populations for which they cannot provide the most basic services.

The atmosphere is cleaner today in many cities of the industrialized world, as, for example, London, New York and Tokyo; but it is worse and continuing to worsen to levels which endanger the health of residents of many cities of the developing world such as Mexico City, Santiago, Cairo and Calcutta.

Concern about the effects of supersonic aircraft on the upper atmosphere has abated since Stockholm. There has been remarkable success in measures to control the use of chlorofluorocarbons in aerosol sprays and reduce this important threat to the ozone. On the other hand, recent evidence suggests that the continuing build up of carbon dioxide in the atmosphere, primarily as a result of use of fossil fuels,

poses an even greater and perhaps more immediate threat to global climate and food production than was thought ten years ago.

Rivers and lakes have become cleaner in some parts of the industrialized world. But in developing countries many rivers are becoming progressively more polluted, with growing danger to the health of hundreds of millions of people.

The late Barbara Ward pointed to the lack of clean water and sanitation as the principal single threat to the health and well being of people in the developing world, particularly children. There has been growing recognition of the importance of this issue. To provide clean water and adequate sanitation for all by 1990 would require some 25 million dollars a day in development assistance; this compares with 240 million dollars which the world spends on cigarettes and 1 400 400 million dollars per day on armaments. Yet there has been little or no increase in the aggregate resources being made available to meet this need and little prospect that the needed resources will be available in the foreseeable future. Can there be any more dramatic illustration of the tragic distortion of values and priorities into which we have drifted in an era which we would like to think represents the ultimate in civilization?

Acid rain was identified at Stockholm as a threat to fresh water lakes and forests. This has become an even more acute issue today, particularly in Canada, the USA and the Scandinavian countries, where it is becoming a growing source of conflict amongst otherwise friendly nations.

The oceans of the world have shown more resilience against oil spills and other forms of contamination than was apparent at Stockholm. And there has been a notable increase in international cooperation for protection of the marine environment. These positive developments have not solved the problems of ocean pollution. But they have given us hope that the problems can be solved and helped to establish the means for doing so. The tough issues such as long-term control of land-based pollution and dumping of radioactive materials and other toxic wastes remain largely unresolved and progress towards resolving them has clearly slowed down, if not slipped back.

The lack of universal approval of the Law of the Sea Treaty threatens to frustrate its objectives and create a whole new set of risks and uncertainties for peaceful management and protection of this 70% of the earth's area. This raises the ominous prospect that the oceans will become a new source of division and conflict among nation states and between rich and poor.

Commendable and enlightened cooperation by the Antarctic Treaty powers has thus far spared the Antarctic from the principal threats to its highly sensitive and critically important environment and provided an impressive body of research and knowledge to guide future decisions. But there are disturbing signs that strong pressures are growing for development of the Antarctic, particularly petroleum exploration. This could represent a challenge to the concept that Antarctica is, and should remain, an intrinsic part of the international commons and part of the common heritage of all mankind rather than the preserve of a privileged few nations.

Although many environmentalists will be comforted by the fact that growth in the use of nuclear power as an energy source has been much slower than was predicted by most and feared by many at the time of Stockholm, this has been more than offset by the alarming expansion of nuclear weaponry and the proliferation in the capacity to produce weapons. Thus the capacity for nuclear destruction is greater today than it has ever been and growing conflict and tension throughout the

world has deepened the threat that this ultimate sword of Damocles will be used, with all of its devastating consequences for the very survival of the human species.

In the past decade, the rate of world population growth has slowed down. But there are some 900 million more people on earth now than in 1972 and growth will continue for the foreseeable future. In the meantime, per capita use of resources has also grown. The result is that pressures on the earth's resources and environment are still increasing and will increase for the foreseeable future. These pressures will be concentrated more and more in developing countries in which population growth is greatest and in which per capita resource use must also grow most.

One of the most important results of the Stockholm Conference was recognition that the principal threat to the environment of people in the developing countries derives from poverty, underdevelopment and maldevelopment. This important insight has been widely accepted at the conceptual level today and has begun to influence the programmes of the members of the UN system, the development assistance agencies and, most importantly, the national development programmes of Third World countries themselves.

But this has not resulted in increased flows of international assistance: indeed, the world economic recession, increases in military expenditures and the lower priority accorded by most nations to their international responsibilities have eroded the flow of assistance to developing countries despite the exemplary performance of a few countries, notably Sweden and the Netherlands, and the large increases in assistance from OPEC countries. This has come at a time when the capacity for self help by the developing countries has been drastically impaired by a combination of low prices for the commodities on which they rely for most of their export earnings, coupled with the inflation in the cost of industrial products and oil which they import. In addition to the immediate pressures which this has created on the governments of most developing countries, it has deepened the longer-term threat to the environment and well being of their peoples by making it even more difficult to ensure provision of their future basic needs for food, health care, education, clean water and sanitation. And it has made it absolutely necessary for more efficient and cost-effective use of the limited financial resources available to developing countries from both external and internal sources.

All in all, the balance sheet of successes and shortcomings in the ten years since Stockholm is one which must surely deepen and sharpen the concerns and issues highlighted there. It can also provide a basis for sustaining and nourishing the larger hopes and aspirations which emerged from Stockholm. For our experience clearly demonstrates that it is both necessary and feasible to reconcile the drive for development and aspirations for a better life with protection and even improvement of the environment in which we live and conservation of the resources on which we depend. This tenth anniversary of Stockholm comes at a difficult time in the life of most nations and of the international community as a whole. It also comes at a time that is absolutely crucial for our long-term efforts to meet the goals and aspirations for the care and maintenance of our only one earth which emerged from the Stockholm Conference.

There is still time to do it, but time is running out. Clearly the momentum of the environmental movement has diminished. If we cannot use the occasion of this tenth anniversary here to renew that momentum, the prospects are for a further decline from which it would be very difficult if not impossible to recover in time to deal effectively with some of the major environmental risks which confront us.

One of the most important and fruitful areas for renewed initiative is in the field of cooperation between governments and industry. Related to this is the need to accelerate the movement for industry to take greater responsibility and greater initiative in dealing with the environmental consequences of its own activities. More monitoring and self regulation by industry of those practices and omissions by some which undermine the confidence of people and their governments in all industry, would do much to alleviate the need for government action as well as improving the climate of confidence in which industry must operate.

But as a realist I know, as you do, that at this point in time it will be much simpler to identify areas in which specific actions are needed, and are justified, than it will be to muster the resources and the political will to make them possible. In the final analysis it is therefore a question of will. And will is a product of our values, our drives and, and the larger sense, our culture. This is the central issue we face.

As we reflect on our experience in the ten years since Stockholm it must surely be clear that the survival of the human species on Planet Earth cannot be taken for granted. The future of life on earth is literally in our own hands. It is an awesome responsibility and we have not yet accepted the implications of this in our own attitudes and behaviour.

What is needed is nothing less than the development of a new ethic, a new culture, one in which our competitive drives are more disciplined by our communal instincts and our propensities for cooperation. It must be one in which respect for each other's needs and aspirations constrain our individual self indulgence and in which conservation and caring for the earth's precious resources replaces extravagant consumerism and wasteful and destructive resource use.

The new earth ethic must be reflected in the processes by which our economic life impacts on resources and the environment. It means a new approach to economic growth – a new economic order – in which our economic activity is geared to enabling developing countries to meet the basic needs of their people while placing more emphasis in the industrialized countries on meeting the needs of people in the less material areas of life – culture, the arts, leisure and recreation; all those activities which nourish the human mind and spirit.

Within the economic system itself it will require changes in the incentives and penalties which motivate economic decisions so as to make it profitable to do those things which are environmentally sound and conserve resources, and unprofitable not to do them.

I have long believed that no growth is neither practical nor desirable as an objective; but new growth, the new approach to growth based on harmonizing ecological and economic considerations is not only a viable alternative to no growth, but the only sensible and feasible pathway to a dynamic, prosperous and sustainable world economy.

We have come to the point in human experience where all people must develop a loyalty to earth as a whole which transcends, but need not negate, their loyalties to clan or class or nation. Only one earth needs an active, committed constituency that extends into every country and region of the planet. It must be based on the new earth ethic and see itself as custodian and champion of that ethic. The elements of that constituency exist; they emerged at Stockholm. Now as we begin the second environmental decade what better initiative could we take, what better way of renewing the spirit of Stockholm and fulfilling the hopes it awakened, than by committing ourselves to giving new impetus, new substance and perhaps new form to the drive to create a truly global constituency for Planet Earth?

The Stockholm Conference that we commemorate here was a critical milestone in the human experience. For at Stockholm we lost our innocence. It became clear that human actions are now the principal determinant of human survival and well being. We can now identify the risks that derive from our own behaviour and we have the means to prevent degradation of the environment and destruction of the natural resource base and make it possible for all the inhabitants of Planet Earth to enjoy a decent and fulfilling life.

The new imperatives that have emerged from our environmental awareness reinforce the insights and the values that have come from our spiritual, moral and philosophical heritage. They make it clear to us today that concepts of equity, justice, sharing with and caring for each other are no longer pious ideals divorced from reality. They are the essential components for the survival and well being of the human species. And however preoccupied we may be with our own affairs, our own problems and our own responsibilities today, we must see these in the larger framework of our responsibility for the human future. No one bears that responsibility more than you who gather here today. No one has a greater opportunity to show in the practical decisions you take for your governments and which you help to shape for the international community the renewal of your commitment to the spirit of Stockholm. And most of all, you have the opportunity to take the lead in the spiritual and moral renewal which must be the real source of our hopes for a better and more secure tomorrow.

Country statements

Statements of Heads of State

His Majesty King Baudouin

Royal message from the King of Belgium

The opening of this Special Session furnishes me with an opportunity to re-emphasize the importance of your goals of preserving the environment and the riches of all the regions of the world. Ten years after the Stockholm Conference, gathering together representatives of 110 countries, there is a greater need than ever for all countries to combine their efforts to ensure genuine progress in this direction.

The Nairobi conference highlights the solidarity among all peoples in this field. In particular, it should enable young countries less affected by certain of the excesses of industrialization to make a major contribution.

I join you all in expressing the hope that concrete results will be achieved and that each country will strive to take the steps required for the protection of the natural wealth of our earth and its plant and animal resources, which are essential for man's well being and vitally important for future generations.

His Holiness Pope Paul VI

More than ever before man and his environment are inseparable; the environment basically conditions man's life and development and he in his turn improves and ennobles his environment by his presence, his work and his contemplations. But man's creative capacity will only bear true and lasting fruit insofar as man respects the laws which govern the vital force and the regenerative capacity of nature; man and nature are thus interdependent and share a common future.

The negation of distance by the progress of communications, the establishment of ever closer links between nations through economic development, the increasing subjection of the forces of nature to science and technology, the multiplication of human relationships across the barriers of nationality and race are factors of interdependence for better or for worse, for the hope of salvation or the risk of disaster. Any abuse or deterioration at any point in the world rebounds on other places and may alter the quality of life of other persons, often without their knowing and through no fault of theirs. Despite its promise for the future of all nations, scientific and technological progress, like all human works, carries the possibility of good or evil.

It is first and foremost a question of the application by the intelligence of its discoveries for destructive purposes, as in the case of atomic, chemical or bacteriological weapons and all the other instruments of war, great or small, with regard to which the moral conscience can feel only horror.

It is only too obvious that, as industry is one of the main causes of pollution, it is vital for those who control it to improve their methods and find the means of reducing, or even entirely eliminating – as far as possible, without harming production – the causes of pollution. It is also obvious that a prime role in this task of decontamination devolves on the chemists and that great hopes are pinned on their professional capabilities.

All technical measures will remain fruitless unless accompanied by a realization of the need for a radical change in ways of thinking. The excesses of progress bring man – and, significantly, the young in particular – to recognize that their rule over nature must be regulated by a true moral philosophy. The saturation of some, caused by too easy a life, and the growing awareness of many of the solidarity linking the human kind are contributing to the restoration of the attitude of respect that should be the real basis of man's relations with his environment.

'For everything created by God is good.' To manage creation for the human race means not to destroy it but to complete it; to transform the world not into an uninhabitable chaos, but into a beautiful and ordered dwelling where there is respect for all things. No one can absolutely and egoistically appropriate the environment to himself; it is not a *res nullius* – the property of no one – but the *res omnium* – the heritage of mankind, such that those who possess it, whether they are private or public persons, must regulate its use for the definite advantage of all; man is earth's first and truest thing of value.

The concern to offer all the possibility of a fair share of our planet's existing or potential resources should weigh particularly on the conscience of men of good will. Development the integral flourishing of man, is *par excellence* the area in which you will succeed in joining the search for an ecological balance with that for a just

balance of prosperity between the centres of the industrialized world and the immense periphery. Poverty is the worst of pollutions. Is it utopian to hope that the young nations, which are, at the cost of major efforts, constructing a better future for their peoples by seeking to assimilate the positive acquisitions of the technological civilization while at the same time refusing its excesses and its distortions, will become the pioneers in building the new world of which the Stockholm Conference should mark the beginning? It would be all the more unjust to refuse them the means to do so as they have often had to pay heavy and undeserved tribute to the deterioration and impoverishment of the common biological heritage. Instead of seeing in the fight for a better environment the fearful reaction of the rich, we should see, for the benefit of all, an assertion of faith and hope in our destiny as a human family grouped around a common project.

His Excellency Daniel Arap Moi

Statement by the President of Kenya

When we look back over the years, it becomes clear that in the history of human perception and response, the Stockholm Conference provided one of the most dramatic of all chapters. For the first time, it seemed that all the nations of the world – big or small, rich or poor – could effectively unite for common purpose in the face of common peril. So we must now all reflect upon whether the hopes and expectations of Stockholm have been kept alive, whether major battles have been truly won, what the chief weaknesses have been in fighting those battles, and how the international community can make full use of the total experience in this field of human environment over the last ten years.

I am saying this because serious and indeed truly dangerous pressures on the environment continue. There is no doubt that strong pressures on the resources and functions of the biosphere appear to have built up in recent times. The most important thing, however, is that those pressures have been recognized, although it would appear that there has been a tendency for mankind to be overwhelmed by sudden and massive inputs of environmental diagnosis and prescriptions. In fact, it has not been easy for governments and peoples to absorb all this, and steer traditional policies and practices in the necessary new directions.

Looking back over the last decade, a number of gratifying innovations or achievements should be acknowledged. It is commonplace now, in all parts of the world, for most countries to have ministries – or technical departments – in charge of environment. The whole subject of the natural environment is far better understood than it was ten years ago and specific provisions or requirements have become incorporated into laws or development plans in many countries. Valuable contributions of a more tangible kind have been made, in dealing, for example, with pollution of the seas and the cleansing of some major cities. Some other particular studies or initiatives have been applied to the complex problems of human settlements and the serious challenge of desertification. Some vital international dialogue has been sustained.

However, this anniversary is not one for unbridled celebration, if only because there have been some failures and disappointments. In some cases, commitment to environmental protection has not been adhered to. In this connection, it has been observed, in a number of instances, that when financial or other resources are scarce, environmental programmes are the first to be trimmed or set aside. More ominous has been the tendency for environmental issues to be loosely clipped or tagged on to economic projects, enabling these issues to be easily discarded if they become unpopular or inconvenient.

Another disappointment concerns the failure of the international community to deal decisively with widespread poverty in the so called developing world. Indeed, in many parts of the developing regions, per capita incomes and food availability are now lower than they were at the time of the Stockholm Conference. In such

situations of acute and widespread poverty, vast communities are compelled to live in a manner which destroys valuable soils, water resources and vegetative cover, all of which are of crucial importance in the maintenance of life itself. There is no doubt that poverty is a principal sponsoring mechanism of continued and desperate destruction of basic natural resources. This reality was recognized at the Stockholm Conference ten years ago: it remains true today and, if anything, the consequences of mass poverty on environment are now even clearer. It must, therefore, be stressed that the direct relationship between widespread poverty and environmental degradation cannot, and must not be, ignored.

Another conclusion here is that the establishment of a new world economic order, which has long been pursued under headings of justice and common sense, must be recognized as having an instant and fundamental environmental dimension as well. Affluence cannot ignore poverty, for there can be no escape for anyone, on this single planet, from ecological disaster. Indeed, nothing is more certain than that all of us will survive or will perish together. And we should acknowledge that it is only when poverty is relieved that work to restore and conserve the environment can really be secure.

Not enough has been achieved, in my view, in serving the environmental cause through the transfer and use of appropriate technology. There has seemed at times to be undue delay in translating theories or studies into concrete programmes of action. It is clear that in the field of the human environment, problems are compounded unless there is a swift response to new discoveries.

I would like to stress that the framework of our discussions must pay due regard to the issues springing from poverty, from increasing population, from spreading unemployment and from persistent inefficiency in the use of natural resources. All these elements are not only important; they also interact together and the end results of those interactions have significant consequences on the human environment. And in this context I should remark that mankind has the necessary resources and technology for dealing with the environmental problems facing it, and seen from the broad perspective I am using here.

We should ask what would happen if the intellectual, technological and material capacities now deployed for stockpiling of armaments were switched to the worldwide provision of basic human needs. It is not a lack of resources or technology which is the problem: it is the lack of political will to allocate resources rationally and for the benefit of mankind which is the real problem.

A direct relationship exists between rapidly increasing population and the environment. For a variety of reasons, the world now faces what has been described, quite rightly in my view, as population explosion in many parts of the developing world. The fact that rapidly increasing populations generate environmental hazards can clearly be seen, especially in the growing urban areas in the developing countries where sharply rising human numbers are so often accompanied by the lack of water and sanitation and the sheer impossibility of providing all the necessary services and infrastructures.

Much debate over the past decade has restricted itself to the safe ground of talking about human health and well being. These are respectable subjects and aims and no government would find it awkward to be associated with such high sounding objectives. But in my judgement we can no longer afford to skirt around the harsh reality. The issue before us today is not that of human well being but of human survival. Through thoughtless projects of development and overexploitation, made worse by the consequences of mass poverty and malpractice, havoc has been spread

across the whole spectrum of the natural environment. There is no doubt whatsoever that continuation of the current trends will lead to total collapse. Those trends must be halted and where possible reversed.

But what do we now see? We see sharp declines in aid programmes; spreading and deepening protectionism in the rich world against goods produced by the poor; difficulties in reaching agreements on stabilizing commodity prices; and among the developing countries themselves slowness in realizing that economic cooperation is essential.

The world was right, at the time of Stockholm, in recognizing environmental degradation as a hazard to human destiny. What began as politely expressed concern for enhancement of the human environment had become recognition that the context of debate, fundamentally, was the prospect of preserving the environment. There developed a fruitful anxiety about pressures on resources and systems of the biosphere through which life is perpetuated. By now, the concern should have become greatly sharpened, with practical action being seen on every side.

I want to conclude by saying that the key factor in human salvation now can only be political will, rooted in the acceptance of scientific truth. This must be reflected by and through some global institution; and so I urge all nations to give even more support to UNEP and to cooperate fully with that organization. It is sometimes surprising how much can be harnessed – money, technology and personnel – in compassionate response to natural disasters such as earthquakes or floods. Global efforts must now be fully mobilized to confront the possibility of total biological disaster. A whole new concept of obligation and duty needs to be blueprinted on an international scale. Time is not on our side.

His Majesty Qaboos Bin Said

Statement by the Sultan of Oman

There is no doubt that the discovery of the great majority of contemporary environmental problems is largely due to the Stockholm Conference and to UNEP, which was established by a unanimous vote of the UN member countries to lay down the necessary framework for the protection of the human environment and to supervise the implementation of the resolutions and recommendations of the conference. Despite the tremendous burden placed upon it, the programme has achieved much during the last ten years, due to its energetic Executive Directors and their technical secretariat. The achievements are also due to the constructive cooperation among the scientific and executive departments of all the UN organizations, the specialized international and regional agencies and the governments of the various states. The national associations set up in many countries calling for environmental protection for their citizens have also helped in this respect.

In spite of all these efforts we find ourselves faced with new environmental problems, while the previous ones have increased in magnitude and complexity. We must correct our approach to these problems so that we are not always overtaken by events and become easy victims of their destructive consequences.

From our point of view, the most important of these problems are those relating to the sources of water, energy and food; the development of rural and urban communities; the reduction of the arms race involving the production of weapons destructive to humans and to natural resources; and all kinds of environmental pollution, in particular, pollution leading to unfavourable climatic changes whose effects have clearly increased in the last few years and which may lead to physiological changes in humans, animals and plants.

In spite of the fact that we are still at the beginning of the road to economic and social development, the government of Oman places the environment at the top of the list to ensure that its functions and usefulness are not impaired. We believe that we must learn from the mistakes of our predecessors, otherwise we shall always remain at the beginning of the road. We also believe that God's gift of the natural environment to us as His inheritors on earth places on our shoulders the responsibility of guarding, maintaining and developing the environment for the successive generations of the human race.

We have achieved much in the field of environmental conservation and prevention of pollution since the Stockholm Conference. There is still much we hope to achieve in the coming years. In 1974 the first environmental law was issued in the Sultanate of Oman: this was the law for the prevention of marine pollution. To provide for the needs of the Omanis and the development of their economy, many other laws and regulations followed, for instance those relating to the establishment of natural reserves, the protection of water, agriculture, fisheries and mineral resources and their development.

In February 1982, an integrated environmental law was issued for the conservation of the environment and prevention of pollution in the Sultanate of Oman. Since 1976, the authorities concerned, with help from the International Union for the Conservation of Nature and Natural Resources and the World Wildlife Fund, have undertaken many studies of the flora and fauna of the Sultanate of Oman. These studies included ways of conserving the various species in their natural habitats to ensure their sustained development. Educational materials have been produced to enable us to spread environmental awareness among the citizens at all levels to ensure their positive cooperation in measures to protect land and marine life.

In 1979 the Council for Conservation of the Environment and Prevention of Pollution was established under our chairmanship. The government of Oman also cooperates wholeheartedly with its sister Gulf states in controlling environmental pollution in the Gulf region.

I hope the following recommendations will be taken into consideration when you issue your recommendations at this meeting.

First, to expedite international legislation defining the basic rules for interstate dealings to protect the human environment and preserve its natural balance, emphasis should be put on ensuring the following:

- Countering the attitude of international consultancies and financing organizations that consider the environment of developing countries as havens in which they may establish projects that these countries need for their development programmes, without taking environmental considerations into account.
- Banning exportation of products and machinery from developed countries to developing countries with specifications less than those required for the protection of the environment of the countries of origin.
- Stopping production of materials whose use is banned in the producing countries, and preventing exportation of such materials and their factories to other states.
- Assuring that each country will inform other states about the materials and products whose manufacture has been stopped and whose use has been banned in that country. The scientific reasons that led to the ban as well as the environmental dangers that may follow as a result of the use of such materials must also be explained.

Second, to lay down simple models for environmental impact statements that the developing countries should ask the planners and implementers of their development projects to provide. Help in evaluating these statements is also required.

Third, to lay down a simple method that will enable the developing countries, lacking specialists in the environmental sciences, to evaluate the environmental effects of projects and activities already existing in their territories and to devise methods of fighting such effects.

Fourth, to simplify the language of environmental reports and publications issued by the specialized international organizations, so that the layman or the non-specialist decision maker can easily understand the information they contain and the application of their recommendations. Such reports and publications should be issued in several languages so that they may be distributed as widely as possible.

Fifth, to translate environmental terminology and expressions into many languages in order to unify the language of environmental communication among the states of the world.

Nairobi, 1982

His Excellency Fernando Belaunde Terry

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Message from the President of Peru

On the occasion of the Session of a Special Character of the Governing Council of the United Nations Environment Programme (UNEP) to commemorate the tenth anniversary of the United Nations Conference on the Human Environment, held at Stockholm 1972, I take particular pleasure in wishing you a fully successful outcome for this major event.

My government is aware of the importance and urgency of these deliberations, the essential aim of which is to analyse the environmental future of the international community, and hopes that successful combined efforts will be made to draw up strategies for joint action to deal with this international problem.

To this end, I take satisfaction in renewing once again my government's commitment to the cause of the environment.

Nairobi, 1982

His Excellency Gaafar Mohammed Nimeiri

Statement by the President of the Democratic Republic of The Sudan

In the name of God, Most Gracious, Most Merciful.

It is He who produceth
Gardens, with trellises
And without, and dates,
And tilth with produce
Of all kinds, and olives
And pomegranates,
Similar (in kind)
And different (in variety)
Eat of their fruit
In their season, but render
The dues that are proper
On the day that the harvest
Is gathered. But waste not
By excess: for God
Loveth not the wasters.
(The Glorious Koran)

In the aftermath of the Stockholm Conference, two different views emerged. One called for giving more attention to the development process and the other stressed attention to the environment. We in the developing countries have opted for development and rejected any measures that may impede its path. This is because development represents the only means to satisfy the basic needs of our people: food, shelter and a decent living. On the other hand, the developed countries have stressed the need to preserve the environment as a safeguard against the negative effects of the development process.

Today there is a strongly held belief that our planet is an integrated environment, and that we have a collective responsibility to preserve it. World peace is the way to consolidate integration among nations. To achieve world peace, we must have a unified concept of international action.

Since humans are the main object of the development process as well as its instrument, it is essential to satisfy their basic needs, materially and morally: materially, by providing them with a decent living and morally by recognizing their inalienable rights for freedom, equality and justice, and by respecting their heritage and sacred religious beliefs. Considering humans as a tool for development, we must provide them with the best knowledge and training for proper exploitation of natural resources within the framework of their cultural and national character. This might create different ways of life in different nations, but we should bear in mind that such differences do not contradict the concept of integrated environment.

There are four basic components of the integrated environment. The first and greatest is a human being, regardless of nation, tribe or character; the second component is other animals, regardless of their species; the third is plants; and the fourth is the non-living. In its endeavour to preserve a balanced environment, the world today gives equal attention to animal, plant and non-living, regardless of the constituents of each of them. If science has prevented human beings from discriminating between the other three components, then why do human beings discriminate against each other? It is high time for us to cooperate to eradicate all causes and forms of racial discrimination if we are genuine and serious about the creation of the *one cosmopolitan environment*, based on respect for the inalienable rights of all people for a decent and dignified life in their lands.

The distribution of natural resources varies in quantity and quality not only between regions of the world but also between neighbouring countries. This has led to sharp differences in levels of development and in ways of life. Unfortunately, these variations have caused regional and international conflicts that can only be resolved through the use of force, which can have damaging effects on the environment. If we are keen to establish a healthy environment, then we have to continue our efforts to achieve development through international cooperation by sharing benefits and experiences.

To achieve that goal we need to consolidate the cooperation between the developed North and the developing South. The North has already developed the technologies required to exploit its resources, and has enough scientific and material potentialities for further development. The South owns natural resources that have not been fully exploited because of lack of technology and capital. In spite of this, the people of the South have demonstrated the will to achieve development, thereby ushering in an era of better exploitation of world resources for the benefit of all nations. The ongoing North-South dialogue and the initiatives so far taken by the states of the South to strengthen cooperation among themselves, stand as genuine proof that the world community is heading in the right direction toward establishing the basic principles of international cooperation.

But we note that although we have already made substantial progress toward crystallizing an international understanding of world peace and peaceful coexistence, it is regrettable that this understanding does not reflect the present world situation. We still view with concern the billions of dollars spent on improvement, innovation and stockpiling of weapons for mass destruction of human beings and the environment. While the arms race is now considered a sign of progress and advancement, developing countries are still suffering from its evils. We call upon the international community to put an end immediately to this feverish race, and direct all efforts toward the creation of a healthy environment and a peaceful, prosperous world.

The vast area of Sudan covers regions of various environmental habitat. It extends from the Sahara Desert in the North, across the savannah region, to the equatorial area, and from the Red Sea Hills in the east to the coast in West Africa. This unique topography presents a challenge to Sudanese scientists and researchers dealing with these physical phenomena and studying the problems resulting from such a geographical structure. We welcome all kinds of international contributions from scientific institutions and eminent scientists. Our scientists are ready to cooperate with scientists from different regions of the world to conduct joint research. The Sudan has already made basic cost-benefit studies on environmental preservation.

In the last decade the world witnessed serious developments in the field of energy use. The growing need for development has created massive demands for and, consequently, irrational uses of energy. Accordingly, the price of energy has risen sharply and become a real obstacle toward the realization of ambitious development plans in the developing countries that lack energy and enough financial resources to import it. Rural inhabitants have been hit most seriously by these developments. Many of them have emigrated to urban centres, thereby aggravating further the problems of environment and development.

Since energy stocks are about to be depleted due to irrational use, it is high time to start implementing effective measures for the preservation and proper use of energy. It is also essential to intensify the search for alternative and renewable sources of energy. In this context, solar energy represents the most dependable natural source on our planet. Since time immemorial, human beings have used solar energy but have not exploited or developed it as a basic source of energy due to low prices and the availability of other traditional sources. But the state of the world today necessitates a change; we must direct our attention to expanding the use of solar energy until it becomes the real alternative for other sources. By so doing we could realize a number of important objectives:

- conservation of the reserves of fossil fuel to enable humanity to continue using it for longer periods for appropriate purposes;
- stemming environmental pollution resulting from drilling, transport and consumption of fossil fuel;
- conservation of forest coverage by reducing firewood consumption, particularly in the rural areas of developing countries;
- striking a balance in development efforts between urban and rural areas, thereby containing emigration from rural to urban centres and encouraging a return to the countryside.

The present generation must shoulder its responsibilities of protecting the human race from self destruction and the evils of war. These responsibilities should go hand in hand with other duties that have to be fulfilled in order to secure a decent living for all human beings. We cannot achieve this goal without categorically denouncing the arms race and committing ourselves to the establishment of peace. Scientific knowledge and human energies must be reoriented and directed toward the creation of a healthy *one integrated environment*.

We call upon all political leaders of the world to give their utmost attention and care to the reduction and control of the arms race. The very existence of humanity depends on our ability to end this destructive game, and if we sincerely commit ourselves to the realization of this goal, we will pave the way toward the creation of better life based on a healthy environment. We equally call upon all states to settle their disputes through peaceful means and to respect good neighbourliness in order to diffuse international and regional tensions, and to enable all states individually and collectively to direct their human and material resources for the welfare of humanity.

Nairobi, 1982

His Majesty Carl XVI Gustaf

Message from the King of Sweden

It is with real pleasure that I send a greeting of good wishes at the opening of the Session of Special Character of the UNEP Governing Council, ten years after the Stockholm Conference.

The problems of environment concern us all. No country, no nation is spared the necessity of taking measures to tackle the many questions involved in our efforts to promote sound development without damage to the human environment.

The Stockholm Conference offered a fine chance to take stock and to suggest guidelines for a concerted action for the future. UNEP could start its important work. Today, a decade later, UNEP can pride itself in ten years of fine achievements. We pay tribute to what has been done and express confidence in the future efforts. These are problems that cannot be solved once and for all. New challenges and problems will always arise. Therefore this conference is of utmost importance.

Sweden, like all nations around the world, will follow this meeting with keen interest, and we wish the best of luck for your discussions and work at this urgent session. The problems of environment have always a special character.

His Excellency Mobutu Sese Seko Kuku Ngbendu Wa Za Banga

Statement by the President of the Republic of Zaire

In Zaire, all things begin with our philosophy of the search for authenticity, which, happily, is in line with the policies of UNEP. Confronted with the multiple problems of the environment, Zaire set up its initial structures for environmental management in February 1972. And since 1975, we have gone from a simple environmental service to the creation of a whole department, within the Executive Council, responsible for environment, conservation of nature and tourism. Our concern is to enable the whole nation and the world to enjoy in our country the benefits of well managed nature, be it fauna, flora, water, habitat, the industrial or energy sectors.

Concerning the fauna – the 800 000 hectares of Furunga Park with its lions, leopards and elephants; the 400 000 hectares of Garamba Park with its rhinoceros and giraffes; the vast plains of the park of Salonga and Upemba with their zebras and their okapis – all this constitutes for us truly natural sanctuaries and sacred portions of the national territory, and we protect them as such. This heritage of our forefathers, whatever the level of technology and industrialization that we may one day reach in our country, will always be the most beautiful flower of our civilization. In the past, traditional taboos such as being forbidden to eat certain types of flesh or fish, to cut certain plants, to fish or to hunt on one or another day of the week, have protected nature.

Concerning industry, we all know that today each new country aspires to industrialization. This is also the case with Zaire. But we do not want any type of industry in our country. Therefore, all new projects for development are carefully examined within the framework of our national planning for industrial development and of an investment commission in which is represented the Department of Environment, Conservation of Nature and Tourism.

In the energy sector, the Executive Council's attention is focused on the search for new sources of energy using vegetable biomass. Concerning renewable natural resources, Zaire is a signatory of the Convention on the International Commerce of Endangered Species of Fauna and Flora and to the African Convention on Conservation of Nature. The current laws of our country concerning the exploitation of these resources enable the state to maintain effective control at every step.

Briefly, this constitutes our experience in the domain of the environment and conservation of nature. The ecological consciousness of the world is an accepted fact today. And mechanisms for environmental management exist. For the future it will be necessary to take steps so that what has been gained is not lost again. Thus it will be necessary to reinforce the programme of mesologic education, environmental legislation and surveillance in order to be able to ring the alarms when necessary, so that the development process will not stop. Therefore, close collaboration between all member states is essential.

What do we perceive? Developed countries have created all sorts of mechanisms enabling them to control different environmental parameters. Activities forbidden in developed countries because of their nefarious consequences are transferred to developing countries with no provisions for practical control measures. If this continues, the environment in developing countries could degrade more rapidly than expected. I therefore invite all the developed countries and international organizations to cooperate closely in this area and with the developing countries in general, and African countries in particular. The plan of action for Africa has identified priority areas where concrete action – such as the establishment of control mechanisms for pollution and terrestrial biota, afforestation, the creation and administration of drinking water distribution networks – is expected.

Destruction of ecosystems and the countryside, the abusive use of natural resources, pollution, food deficits and hunger, the disparities among the different nations of the world are due, in large part, to a lack of global vision and of an integrated approach in the actions undertaken. For many thousands of years, human beings submitted to the constraints of nature. But by mastering fire, inventing tools, discovering agriculture, developing science and modern technologies, we have modified the natural equilibrium and have started to impose ourselves in different ways upon nature. And the big question today is to what extent can we modify our environment without endangering it. The answer to this fundamental question must be found at the policy level of the governments of our countries. It is not possible to dissociate development actions from in depth education and training efforts, to promote new ideas, a change in attitude and behaviour of human beings relative to the biosphere.

This change is not possible without mesological education, that is to say, education that takes into account the complex and constant relationship between human beings and their global environment and which pushes them to use the environment rationally to ensure survival. I appeal to all countries and specialized international organizations to help those states that wish to create education and training institutes oriented toward mesological education and integrated development.

Even if all precautions are taken, human beings are creatures with unforeseeable reactions. In order to define our limits and to prevent possible abuses, we must establish a legal framework. On the other hand, positive actions which one or another member state could carry out at its own policy level will be without beneficial results, in the long term, as long as neighbour states do not undertake similar actions. Therefore, environmental law must cease to be the concern of the UNEP Secretariat alone, but must become that of the whole international community. All member states should incorporate these issues into their national laws and in international, subregional and regional conventions.

In every case, the reinforcement of environmental cooperation between countries and specialized international organizations turns out to be more and more urgent; the longer we wait, the more the solutions to environmental problems will be difficult, long and costly. I ardently wish to see the tenth anniversary of UNEP constitute a moment of pause and reflection and a chance to promote a renewed commitment by governments and the general public of the spirit of Stockholm, namely to safeguard and cherish the environment for present and future generations.

Country statements

Statements of Heads of
Government
and Crown Princes

His Royal Highness Prince Albert of Belgium

An address

Like many other countries, Belgium would like the protection of environment to be universally recognized as both a right and a duty for each individual and for each state. The problems in our minds are as vast as they are ill defined. Underlying the general concern there is an extraordinary diversity of more or less explicit, often badly formulated and sometimes contradictory individual and collective aspirations. But, if they are to act, governments and international organizations cannot be content with ambiguity or uncertainty.

This is not the time or the place for defining the 'environment', with all its material and immaterial, inherent or man made components. Protecting the environment is not merely fighting pollution and nuisances. It is also creating and voluntarily organizing a complete setting for human life and communal activity, while respecting the essential balance which we must try to understand more fully.

But it is not sufficient to define the problem of environment and understand its various components more fully. We must also act and successful action must obey certain important rules. Public opinion in our various countries is expecting us to establish, by joint agreement, an overall policy containing well defined objectives and principles of action that are clear and understandable for all. This being the case, we must agree on priorities, for all the problems cannot be tackled at once.

We must take care not to think it possible, or desirable, to maintain or keep restoring the environment to its initial state. The important thing is to preserve or to re-establish, in the context of contemporary life and by the means available to us, the essential balance. To do this, we must find out the thresholds of tolerance.

Environmental problems undoubtedly concern all countries, but arise more acutely in some parts than others. Furthermore, behaviour, preferences and the choices that are made will depend on the population situation, social organization, political and administrative structures, traditions and the systems of values of each particular state. No *a priori* model can be imposed indiscriminately on all the nations. It is by international agreement, founded on solidarity between the different regions of the world, that we must determine the conditions to be respected by all if human life is to thrive.

I would like to say that our activity in Belgium is inspired by this same consideration and care. The Belgian Parliament has set up Commissions for the Environment in both the Houses and has issued a number of laws and regulations and a plan of immediate action to combat certain elementary forms of pollution and nuisance. I might mention, in particular, the outline laws for the protection of underground waterways, the law on the administration of surface waterways, the royal decrees for combating pollution of the sea and the programme for building water and air cleansing stations. The government has decided to implement a national programme of research and development on water pollution; another programme is also in preparation for ecological research in certain industrial zones,

redevelopment areas or natural regions. These programmes constitute national objectives associating all the relevant departments and private, industrial and university research establishments.

I would now like to express a few more personal views. Environmental problems will accompany mankind throughout its existence. We must therefore learn to live with the problems while tackling them. What we must now do is to bear this new factor in mind whenever individual or collective decisions are made. I say 'individual' because the sum of our personal actions naturally has an immense influence on our environment. And I say 'collective' because, in a world where nothing is inexhaustible, we cannot go on urbanizing, industrializing and consuming the riches of the earth as we thought we could do in the past. Our objective must be to manage our planet carefully and methodically.

Fortunately, these environmental problems are emerging at a time when, thanks to advanced media of contact and communication, the world is becoming controllable, and at a time when technology is producing equipment that will help us understand phenomena whose immensity and complexity have hitherto seemed insurmountable.

Does this mean, then, that good organization, new methods and appropriate techniques are all we need to overcome the difficulties before us? Is economic growth compatible with a certain quality of life, even beyond all thresholds? We are now facing the very question of the limits of our reign on earth. We cannot ignore it. The debate is just beginning and it will arouse much passion. But, is passion a good adviser when the matter at issue is none other than the survival of mankind itself?

Assuredly, the theories of those who ascribe the deterioration of the environment to the effects of unchecked economic expansion are far from proved. But this is no justification for rejecting out of hand a forecast deemed too pessimistic. Our natural optimism, founded on our capacity for adjustment, may lead us to doubt the fears of many scientists and researchers. Mentally, we are still living in a society where economic growth is, for some, synonymous with social progress and, for others, a source of profit. It has virtually become deified into an end in itself. Now is the time to redefine the objectives of growth.

Finally, there is a third reason why we are reluctant to debate the question of expansion, namely that old reflex, born with the course of time, which impels our states to practise power politics. And power, today, is chiefly measured in terms of steel output and energy consumption.

Let me say once more that I am far from wanting to limit or check economic growth. I do not maintain that the ecological disasters predicted by some will necessarily come about. Like most of you, I do not know. What I do maintain is that we must bear such an eventuality in mind, that we must step up research and feed the computers with increasingly accurate data so that the problem will be understood with less and less probability of error.

Public opinion must be vigilant. It must oblige governments to keep environmental matters constantly in mind, just as they bear in mind other factors. Public opinion must also demand more justice, and here I am thinking of another problem to be discussed at this conference, namely development. For some social categories and some less developed regions, the prospect of having to check economic growth before even savouring its benefits would be hardly acceptable. In recent years and despite all efforts the problem of development is far from having found any radical solution. But when we finally realize that certain aspects of the safeguarding of our

environment must be dealt with by international consultation, it should be possible at the same time to establish mechanisms guaranteeing that all nations enjoy the conditions of existence to which they are entitled.

Environmental problems are not, as some well intentioned, reassuring persons would make out, just speech making material. They will have an influence on our economic system; they will force us to consult with increasing frequency at world level and they will thus modify political situations. Finally, they will undoubtedly have profound moral consequences.

We must radically revise our mental attitudes and arrive at an 'ecological awareness'. This revolution – for it is indeed one – implies more discipline on the part of each individual, and also the acceptance of certain sacrifices. On the part of each state, it implies the renunciation of certain sovereign powers and an immense effort to stop thinking solely in terms of strength. Finally, it implies that mankind become aware of its unity and that it situate itself properly in relation to the other species. Life is a single phenomenon, the human species is only one link in the chain and we must stop thinking that nature is unreservedly at our service. Other species have the right to live: they make up cycles that must not be broken, form a part of equilibria to be respected. When we have realized that natural laws cannot be violated with impunity, that there are thresholds we must not overstep and that the quality of life demands a new concept of citizenship, we shall have accomplished the mental revolution which will eventually make mankind more adult and more fit to use the tools it has forged to good purpose.

Nairobi, 1982

His Excellency Zhao Ziyang

Statement by the Premier of the State Council of the People's Republic of China

On the occasion of convening the Session of a Special Character of the Governing Council of the United Nations Environment Programme, I would like on behalf of the Chinese government and people to extend warm congratulations to the session.

The UN Conference on Human Environment held in Stockholm ten years ago has contributed to promoting human understanding of environmental protection. An appropriate solution to the environmental issues will help the economic development of various countries and the improvement of peoples' livelihood. We hope this Special Session will further strengthen cooperation among various countries in the realm of environment and make positive contributions to the achievement of a better environment for the human race.

Shrimati Indira Gandhi

Address by the Prime Minister of India

Along with the rest of mankind, we in India have been guilty of wanton disregard for the sources of our sustenance. Some of our own wild life has been wiped out, miles of forests with beautiful old trees, mute witnesses of history, have been destroyed. Even though our industrial development is in its infancy, and at its most difficult stage, we are taking various steps to deal with incipient environmental imbalances, the more so because of our concern for the human being – a species which is also imperilled. In poverty he is threatened by malnutrition and disease, in weakness by war, in richness by the pollution brought about by his own prosperity.

We are supposed to belong to the same family sharing common traits and impelled by the same basic desires, yet we inhabit a divided world. How can it be otherwise? There is still no recognition of the equality of man or respect for him as an individual. In matters of colour and race, religion and custom, society is governed by prejudice. Tensions arise because of man's aggressiveness and notions of superiority. Power prevails and it is used not in favour of fair play or beauty, but to interfere in the affairs of others and to arrogate authority for action which would not normally be allowed. Many of the advanced countries of today have reached their present affluence by their domination over other races and countries, the exploitation of their own masses and their own natural resources. They got a head start through sheer ruthlessness, undisturbed by feelings of compassion or by abstract theories of freedom, equality or justice. The stirrings of demands for the political rights of citizens and the economic rights of the toiler came after considerable advance had been made. The riches and the labour of the colonized countries played no small part in the industrialization and prosperity of the West. Now, as we struggle to create a better life for our people, it is in vastly different circumstances, for today we cannot indulge in such practices even for a worthwhile purpose. We are bound by our own ideals. We owe allegiance to the principles of the rights of workers and the norms enshrined in the charters of international organizations. Above all, we are answerable to the millions of politically awakened citizens in our countries. All these make progress costlier and more complicated.

On the one hand the rich look askance at our continuing poverty; on the other they warn us against their own methods. We do not wish to impoverish the environment any further and yet we cannot for a moment forget the grim poverty of large numbers of people. Are not poverty and need the greatest polluters? How can we speak to those who live in villages and in slums about keeping the oceans, the rivers and the air clean when their own lives are contaminated at the source? The environment cannot be improved in conditions of poverty. Nor can poverty be eradicated without the use of science and technology.

Must there be conflict between technology and a truly better world or between enlightenment of the spirit and a higher standard of living? Historically, our great spiritual discoveries were made during periods of comparative affluence. Spiritu-

ality means the enrichment, of the spirit, the strengthening of one's inner resources and the stretching of one's range of experience. Perception and compassion are the marks of true spirituality.

For the last quarter of a century we have been engaged in an enterprise unparalleled in human history – the provision of basic needs for one-sixth of mankind within the span of one or two generations. The need to improve the conditions of our people was pressing. Our industrialization tended to follow the paths which the more advanced countries had traversed earlier. With the advance of the 1960s and particularly during the last five years, we have encountered a bewildering collection of problems, some due to our shortcomings but many inherent in the process and in existing attitudes. The feeling is growing that we should reorder our priorities and move away from the one dimensional model which has viewed growth from certain limited angles, which seems to have given a higher priority to things than to persons and which has increased our wants rather than our enjoyment.

The government of India is one of the few which has an officially sponsored programme of family planning and this is making some progress. We believe that planned families will make for a healthier population. But we know also that no programme of population control can be effective without education and without a visible rise in the standard of living. Our own programmes have succeeded in the urban or semiurban areas. To the very poor, every child is an earner and a helper. We are experimenting with new approaches and the family planning programme is being combined with those of maternity and child welfare, nutrition and development in general. It is an oversimplification to blame all the world's problems on increasing population. Countries with but a small fraction of the world population consume the bulk of the world's production of minerals, fossil fuels and so on. Thus we see that when it comes to the depletion of natural resources and environmental pollution, the increase of one inhabitant in an affluent country, at his level of living, is equivalent to an increase of many Asians, Africans or Latin Americans at their current material levels of living.

The inherent conflict is not between conservation and development, but between environment and the reckless exploitation of man and earth in the name of efficiency. Industrial civilization has promoted the concept of the efficient man, he whose entire energies are concentrated on producing more in a given unit of time and from a given unit of manpower. Obsolescence is built into production and efficiency is based on the creation of goods which are not really needed and which cannot be disposed of when discarded. What price such efficiency now, and is not reckless a more appropriate term for such behaviour?

Pollution is not a technical problem. The fault lies not in science and technology as such but in the sense of values of the contemporary world which ignores the rights of others and is oblivious of the longer perspective. There are grave misgivings that the discussion on ecology may be designed to distract attention from the problems of war and poverty. We have to prove to the disinherited majority of the world that ecology and conservation will not work against their interest but will bring an improvement in their lives. To withhold technology from them would deprive them of vast resources of energy and knowledge. This is no longer feasible, nor will it be acceptable.

The environmental problems of developing countries are not the side effects of excessive industrialization but reflect the inadequacy of development. The rich countries may look upon development as the cause of environmental destruction,

but to us it is one of the primary means of improving the environment for living, of providing food, water, sanitation and shelter, of making the deserts green and the mountains habitable. A higher standard of living must be achieved without alienating people from their heritage and without despoiling nature of its beauty, freshness and purity so essential to our lives.

The most urgent and basic question is that of peace. Nothing is so pointless as modern warfare. Nothing destroys so instantly, so completely as the diabolic weapons which not only kill but maim and deform the living and the yet to be born; which poison the land, leaving long trails of ugliness, barrenness and hopeless desolation. What ecological project can survive a war?

The first essays in narrowing economic and technological disparities have not succeeded because the policies of aid were made to subserve the equations of power. We hope that the renewed emphasis on self reliance, brought about by the change in the climate for aid, will also promote a search for new criteria of human satisfaction. In the meantime the ecological crises should not add to the burdens of the weaker nations by introducing new considerations in the political and trade policies of rich nations. It would be ironic if the fight against pollution were to be converted into another business, out of which a few companies, corporations, or nations would make profits at the cost of the many.

Life is one and the world is one, and all these questions are interlinked. The population explosion, poverty, ignorance and disease, the pollution of our surroundings, the stockpiling of nuclear weapons and biological and chemical agents of destruction are all parts of a vicious circle. Each is important and urgent but dealing with them one by one would be wasted effort. It serves little purpose to dwell on the past or to apportion blame, for none of us is blameless. We must re-evaluate the fundamentals on which our respective civic societies are based and the ideals by which they are sustained. If there is to be a change of heart, a change of direction and methods of functioning, it is not one organization or a country – no matter how well intentioned – which can achieve it. While each country must deal with that aspect of the problem which is most relevant to it, it is obvious that all countries must unite in an overall endeavour. There is no alternative to a cooperative approach on a global scale to the entire spectrum of our problems.

We do not want to put the clock back or resign ourselves to a simplistic natural state. We want new directions in the wiser use of the knowledge and tools with which science has equipped us. We must concern ourselves not only with the kind of world we want but also with what kind of man should inhabit it. Surely we do not desire a society divided into those who condition and those who are conditioned? We want thinking people, capable of spontaneous self-directed activity, people who are interested and interesting, and who are imbued with compassion and concern for others. It will not be easy for large societies to change their style of living. They cannot be coerced to do so, nor can governmental action suffice.

His Imperial Highness Prince Abdor-Reza Pahlavi of Iran

A statement

In the course of his history, man has had to undergo many changes. This conference signals the advent of one of the profoundest changes of all. Man has come to realize that he must abandon the concept of himself as lord of his planet, and find his new position as its guardian. His duties are clearly defined: to learn to understand the biosphere and to assist it in its still miraculous unfolding; to learn to be the protector, not the plunderer of its fourfold bridge of life, of earth and water, air and energy.

The environmental crisis which has brought us together is not a conflict which pits men against men or nations against nations. But man's abuse of nature may be as cataclysmic as a geological upheaval of many millennia foreshortened into half a century. Today even peace between men and nations can no longer provide the once cherished hopes for humanity unless man lives in peace with his environment. In this we must surely be united, for we all live on one earth.

Our ancient Iranian forefathers conceived of the earth as a mother, nature as sacred and defiling the environment a sin. These traditions have remained bound up with our way of life to this very day. Even while we talk, land is being eroded, water befouled, forests cut down and air poisoned. And more than two and a half million children will be born on our planet during the course of this conference. My country is making every effort to assist in the attainment of such environmental goals. We have recently created a department of environmental conservation with wide ranging duties and powers to protect and improve our environment. We have created environmental reserves which, with an area of five million hectares, represent virtually all the major ecosystems of our country, from the rain forests of the Caspian to the mangrove swamps of the Persian Gulf, from the snow clad Zagros Mountains to the arid plains of Khorasan. We intend to increase these areas further.

But we know that unless fundamental and long-range plans are formulated and pursued, the most careful manipulation of the present implies no certainty of success for mankind's future environment. We are hence initiating plans on a national scale for land use, physical planning, and the rational utilization of our natural resources. We know that we must plan for man's material as well as spiritual values, for economic growth as well as environmental quality, for this generation and those to follow.

Development in Iran has never been considered as being divorced from human values and the dignity of man. The importance of these values has always been stressed in Iran's long cultural history and remains our central concern in programmes for material development. But the situation today is such that no country can plan for itself and remain assured that the activities of other nations

will not affect its own environment or resources. Thus by its very nature this problem has acquired international implications of far reaching proportions.

This is particularly illustrated by the attitude of the industrialized countries to the aims of technology and development. Indeed, it is the very magnitude of industrial expansion and material wealth in the developed nations which lies at the root of the global disruptions which have brought us together. It is, at the same time, an irrevocable fact that the developing nations owe it to their people to press forward with their national programmes of industrialization and development. This conference as well as all action emanating from it must therefore clearly focus on the premise that the maintenance of a global ecological balance hinges on bridging the gap between the developed and the developing nations, that a more equitable distribution of wealth is a prerequisite for the betterment of the environment of mankind.

The seeds of the present crisis have germinated and come to fruition in the medium of values and aspirations engendered by the post-industrial civilization. We must bring about a fundamental change in our concepts. Do we exploit, build and produce for the advancement of technology or for the sake of humanity?

His Royal Highness El Hassan Bin Talal

Message from the Crown Prince of the Hashemite Kingdom of Jordan

The past decade has witnessed a growing awareness of the environmental problems facing the world. While success was not always attained in tackling these problems, considerable progress has been achieved on various fronts. It is our hope that the coming decade will witness an intensified effort to translate awareness and concern into concrete action and tangible programmes. We in Jordan share the international concern over the many threats to the environment. As a member of the international community, Jordan signed the Stockholm Declaration and committed itself to protect our fragile planet. Several policies and programmes to safeguard the environment have been implemented. A ministry of municipalities and the environment oversees environmental issues in Jordan now.

Educational programmes have been set up in universities, legislative measures have been adopted and specialist meetings have been held to deal with environment matters in our country.

However, a safe and clean environment is not purely a national concern, but it affects and is affected by decisions of various countries and institutions. Cooperation among the nations of the world is essential for dealing with environmental issues in a comprehensive and effective manner. The developing countries are importing most of their technological needs from the industrialized countries and hence are prone to the same negative environment effects of these technologies. The developing nations have their own special environmental problems, but they should learn from the experiences of others both in the preventive and curative contexts.

It is important to point out that the environmental issue is a human issue. If it can be said that environmental degradation has been caused by man, it can be said, in a hopeful tone, that this issue can be solved by man too.

We should all keep in mind that economic gains and environmental improvements are not sufficient by themselves to improve the quality of life. If the human spirit is not freed from the dangers of aggression, intolerance and denying others their legitimate human rights, war will remain a real threat to humanity and resources which could be used to improve the quality of human life will be diverted to aggressive means.

His Royal Highness Prince Claus of the Netherlands

An Address

Environmental awareness is greater now than ten years ago and our perception of the environment has widened considerably. I need only mention the World Conservation Strategy and the New International Development Strategy, both of which contain a plea for sustainable development. We have also witnessed a remarkable growth on the institutional level. Separate ministries or departments for environmental protection have been set up in more than a hundred countries, to the great credit of those governments.

Yet, in spite of these positive developments, we have not succeeded in devising balanced and systematic methods of dealing with the immense environmental problems which threaten the lives of both present and future generations. This is especially evident in the poor countries, which are most in need of consistent policies to protect and improve their physical environment. It is the plight of those countries, in particular, on which I wish to focus. 'We hold that of all things in the world, people are the most precious.' This was the message echoed at the Stockholm Conference. This was one of the principles which we rightly decided should govern our future action. But have we, in fact, adhered to this principle? Have people indeed been held as *the* most precious during the past decade? I have my doubts.

Looking at the continuing state of poverty in many parts of the world; at the continuing depletion and destruction of natural resources and its consequences, especially for the poorest people; in short, looking at the twin problems of poverty and environmental degradation, we must, I am afraid, conclude that we still have a long journey ahead.

As you remember, the whale became the symbol of the world's concern for nature conservation in the years immediately after Stockholm. We can be happy that the chances for its survival have now increased. The whale, the largest mammal, has thus been saved by the wisest mammal, *Homo sapiens*. So, why can the wisest mammal not save itself?

Nairobi is a city which reflects the traditional hospitality of the African people. Africa, known to have been the cradle of mankind, the place where man first walked the earth. Africa, the continent where desertification now threatens the survival of millions of people. Factors beyond their control force them to literally erode their own future in order to survive the present.

A few hundred miles west of here we find examples of one of this planet's most complex and luxuriant ecosystems, the tropical rainforests. It is difficult to conceive of the wealth of resources which these natural treasure houses contain. But at this very moment hundreds of thousands of people throughout the world have to make intensive use of them in their search for land and a living. Factors beyond their

control are forcing them to destroy annually many hundreds of thousands of acres of rich forests.

With regard to the most precious of all, much has been achieved for a small proportion of the world's population; little, however, for the masses in the developing countries. Over the past two decades more than fifty nations have ceased to be self-sufficient in food. Some people maintain that in time it will be possible to feed every human being adequately. But what of the fact that each year the number of acres of arable land, lost as a result of desertification, loss of fertility, salinization and waterlogging, exceeds the number of acres gained? What of the demographic data which indicate that, at present, more than 40% of the world's population are children? Soon they too will be parents. It will be their offspring who will pay the greatest price.

We have learned that degradation of the environment, especially of the soil, hurts most those who live from the land and that of the many hundreds of millions of people affected, those who live at subsistence level are the most vulnerable. It is surely time for all of us to face the fact that some of the most urgent and dramatic environmental problems are rooted in one single cause: poverty. This is in particular the case in the developing countries.

Poverty is a pollutant we have to fight. It is the carrier of diseases we have to eradicate from our social and physical environment. Poverty is one of the most insidious and deadly enemies which wreaks havoc everywhere, defying all our fine words and well intended efforts. It is contributing to the flooding of the fertile plains of Southern Asia. It chokes our modern irrigation schemes and hydroelectric plants. It outwits us in our efforts to eradicate malaria and other environmentally induced diseases. It is responsible for the virtual absence of trees and shrubs within miles around many settlements. Needless to say we all want to eradicate poverty. But even our efforts to keep it out of sight have failed. It is now endemic in many cities throughout the world, to which the poor move in ever increasing numbers.

We threaten to make this planet as uninhabitable for the affluent as it already is for the poor. Unless we, individually and collectively, are willing to share the responsibility for tackling poverty, we shall all sooner or later have to pay the penalty and suffer the grave consequences of the destruction of our environment.

Time and again it has been noted that the gap between existing needs and available resources in developing countries, particularly the poorest ones, is steadily widening. As a result, short-term development efforts tend to be overemphasized in order to cope with the most urgent needs, while structural needs tend to be overlooked. Structural problems, however, require structural solutions: the problem of malnutrition needs to be solved by food strategies, not just by food aid, the problem of health care by the establishment of primary health care facilities, not just by the supply of medicines, and the problem of drinking water and sanitation by comprehensive strategies, not just by drilling wells. The interconnection between development and environmental management has to be an integral part of these structural policies. This, of course, puts an additional strain on developing countries. Rich countries should assist poor ones to implement ecologically sound development to achieve lasting benefits rather than just short-term advantages. Such policies should strengthen self reliance through the optimal use of indigenous productive capacities. We must safeguard and manage the planet's resources in such a way that they can also meet the needs of future generations.

Needless to say, the economic development of poor countries has proved to be a

difficult and complex process. Since the early 1950s enormous efforts have been made to bridge the gap between the industrialized countries and the Third World. Yet, in these efforts for accelerated development, factors have often been neglected that in retrospect appear to be of crucial importance. We have devoted much attention to economics while neglecting social, cultural and environmental aspects. We have paid much attention to growth but perhaps too little to distribution. We have paid much attention to technical problems while often neglecting the political context.

Gradually, however, we are starting to learn. We have come to understand that in order to solve the problems of poverty, we have to take account of the entire social, cultural and natural environment. We became aware that destruction of the social and cultural fabric can have unforeseen effects both upon development as such and the natural environment. We have to accept to live with the financial constraints which have been imposed upon each of our countries. In short, we are gradually moving towards an approach in which greater consideration is given to the effects of individual economic actions upon the environment as a whole. This requires patience – more patience perhaps than some of us can exercise.

The dire economic situation has not been conducive to a balanced management of resources. In these times of great stress on the poor, the fight for structural policies is more painful. From where should developing countries tap the financial resources to protect their natural resources when the volume of aid as well as export earnings are decreasing? What about rural people who, as an answer to the increasing energy cost, have to cut sparse trees in order to produce charcoal?

It would be useless to try to blame any particular individual, group or political bloc for the present situation. If we really consider that people are the most precious of all, we cannot afford to waste time apportioning blame. One thing is clear, however; no blame attaches to the many millions who can survive only by destroying their natural environment. For them we have to find a solution and we have to find it now. The right to make a living is among the most fundamental of all human rights.

Olof Palme

Statement by the Prime Minister of Sweden

The realization of the importance of the human environment has had a great impact on international opinion. Some years ago public discussion – at least in the industrial countries – centred around a probable future of affluence and abundance. This optimistic view was rooted in the experiences of the first post-war decades, with their unparalleled technical and economic progress. It was not much disturbed by the reality of poverty and starvation for the vast majority of people in the world. They would, it was thought, ultimately share the abundance.

Nowadays, the debate largely centres around a future of scarcity on this one earth. Progress continues, yes, and world production increases. But we have become increasingly aware of the fact that our natural resources are limited. We have come to discuss more and more the interrelated problem areas of population, poverty and pollution. And we realize that just as we could not afford the *laissez-faire* economy we shall not afford *laissez-faire* technology.

This has led to some prophecies of doom, and many expressions of gloom, concerning the future of the human race. It has led to a very genuine sense of fear among ordinary people all over the world. They fear the consequences of overpopulation, of uncontrolled technology, of the exhaustion of natural resources, of too rapid urbanization, of environmental decay.

People show concern and they demand action. They attack representatives of the bureaucratic established order, they attack anonymous economic powers – all those forces which, rightly or wrongly, are held responsible for the present and possible future state of affairs. They try to act, to make themselves heard and understood. All this is basically a sign of health. A feeling of concern and a sense of urgency among the people is a prerequisite for change and for political action.

Can solutions be found? Can they be found in time?

These are disturbing questions. We must naturally beware of false optimism. Technological forecasts that are little more than quantitative extrapolations of the future can in fact be dangerous if they are allowed to divert our attention from the real and serious problems of the world.

But I must also offer a warning about prophecies of inevitable catastrophe. I have seen no convincing evidence that the problems of the human environment – and the interconnected problems of food production, population, resource management and economic growth and distribution – cannot be solved. I am certain that solutions can be found. But it is absolutely necessary that concerted, international action is undertaken. It is indeed very, very urgent.

At the same time the feeling of urgency should not overshadow the fact that solutions will require far reaching changes in attitudes and social structures. Agreement on the necessity of action will not eliminate the many conflicts of interest that are inherent in social change. The human environment will always change, development will continue. There will be growth. This cannot and should

not be avoided. The decisive question is in which direction we will develop, by what means we will grow, which qualities we want to achieve, and what values we wish to guide our future. All countries must accept the responsibility of ensuring that their activities do not cause damage to the environment of others. This is an expression of a deepening understanding of the need for international cooperation and solidarity. My government attaches the greatest importance to the need for development. It is an inescapable fact that each individual in the industrialized countries draws – on the average – thirty times more heavily on the limited resources of the earth than his fellow man in the developing countries. We know that our resources, both renewable and non-renewable, are limited. These simple facts inevitably raise the question of equality, of more equal distribution between countries and within countries. We are beginning to see the outlines of this problem.

It is terrifying that 'immense resources continue to be consumed in armaments and armed conflict, wasting and threatening still further the human environment'. This trend must be broken, although we know that work towards its fulfilment must take place in other fora. The immense destruction brought about by indiscriminate bombing, by large-scale use of bulldozers and herbicides is an outrage sometimes described as ecocide which requires urgent international attention. We know that work for disarmament and peace must be viewed in a long perspective. It is of paramount importance, however, that ecological warfare cease immediately.

Today the most commonly known exhaustion of our natural resources is that of those in the sea. In all parts of the oceans, nations are tempted to overestimate the highest possible sustainable yield and overfishing is not uncommon. To this is added the increasing pollution of regional and high seas. We hope that the draft convention on ocean dumping will proceed positively and rapidly.

In energy the aim is to decrease unnecessary spending of fossil fuel, mainly oil and natural gas. This obviously applies to the industrialized regions, where a serious cut down on luxury production is clearly desirable, from several points of view. The second is a substantial increase of units for conversion of nuclear energy to electricity. In this context, I want to stress that although the problem of leakage of radioactive products from the reactors may seem to be under control, and the fact is that the nuclear industry is one of the best safeguarded, large-scale production poses problems of final disposal of the radioactive waste. International cooperation through proper channels is necessary.

The third is an international spreading of the technical knowhow with regard to conversion of coal to fluid fuels; in other words in the future we need the conversion of industrial energy to transport energy.

The fourth is a substantial increase in the support for the research in the field of fusion power or other forms of less polluting power production by utilization of solar energy.

Let me point to another factor in the energy equation. Energy is vital for any development effort. Nature has a limited capacity, different for every particular region, to act as a purification plant taking care of waste. The only way to prevent damage to this system is the introduction of man made technical purification and recycling, both alternatives in their turn demanding more energy. Again the necessity of balance between pollution and energy supplies and needs is shown.

The general demand for a good environment also concerns working and housing conditions. This is an aspect to the recommendations that has become particularly important in my country. At workplaces, particularly in the factories, we can

recognize many of the problems occurring in the general environment, but in a concentrated form. It is important that we recognize the need for international action for a better working environment.

The history of international cooperation has always been a careful balancing act between national independence and international interdependence. How much national sovereignty are we in each instance prepared to give up in the interest of interdependence and international solidarity? In the field of environment the case is in some important respects more simple. The air we breathe is not the property of any one nation – we share it. The big oceans are not divided by national frontiers – they are our common property. What is asked of us is not to relinquish our national sovereignty but to use it to further the common good. It is to abide by certain agreed international rules in order to safeguard our common property, to leave something for us and future generations to share.

If we manage our own national environment in a sensible way we are not only contributing to the well being of our own people, we are giving proof of international solidarity. This simple fact is giving a new dimension to the concept of national sovereignty and to our common work for peace. In the field of the human environment there is no individual future either for human beings or nations. Our future is common. We must share it together. We must shape it together.

Country statements

Statements by Heads of Delegation

Afghanistan

The present interest in caring for the human environment has come at a time when the efforts of developing countries are being increasingly devoted to the goal of development. To a very great extent current concern with the environment has arisen from the problems being faced by the industrially advanced countries; these problems are the outcome of a high level of economic development. The huge amount of industrial and agricultural production, the development of complex systems of transport and communication etc have no doubt, on the one hand, proved of immense value and help to the mankind; but at the same time they have caused damage and disruption to the human environment. Though these problems arise in developed countries, the developing countries should not be unconcerned with them. They should have an interest in them because they are problems that tend to accompany the process of development; the developing countries, therefore, should try to avoid as far as possible the mistakes and destruction that have taken place in the development of the industrialized countries.

The serious problems of developing countries are of a different kind. They are mainly the problems of poverty and lack of development in both rural and urban areas. In both towns and villages life itself is endangered by poor water, housing sanitation, nutrition, sickness and disease over and above natural disasters such as drought, excess of rain, floods and epidemics.

The kind of environmental problems that are of importance in developing countries can be overcome by the process of development itself, while the environmental problems of developing countries are in large measure those that arise from lack of development. It is also a fact that problems arising out of the process of development are in evidence in these countries to an extent that depends on their relative levels of development.

Afghanistan has always been alive to the problems of the first stages of development as well as the consequential problems affecting the human environment. But in spite of the fact that my country is aware of these problems they cannot be overcome because of the lack of financial resources and shortage of trained manpower.

Rural urban development

We feel very strongly that future rural and urban development should include in its housing provision facilities for proper water supply, sewage disposal, disposal of garbage, electricity supply, schools and recreational centres and parks, markets etc. Local government is doing its best; but without international collaboration such development is more than difficult, mainly for financial reasons.

Safe and sufficient water supply

Proper water supply is available only to a limited section of the community in big cities; but it is essential that this is extended to the rural areas to avoid diseases due

to contamination of water. The shortage of water is another problem to be tackled for domestic, as well as agricultural, purposes. Kabul City has a demand for clean water that exceeds by over three times what is available; the shortfall is made up with unhygienic water. The immediate solution to this, to dig deep wells throughout the country, entails expenditure which is beyond the capacity of the government to tackle.

Disposal of waste material and garbage

This is another nuisance which affects human environments. It is necessary to make proper dumps in the vicinity of habitation. It is also necessary to have transport to take the waste to these grounds. Provision of transport is a major problem in achieving this objective in any developing country.

Food control

Cooperation and planning is required between the Ministry of Agriculture, Ministry of Health and the municipal authorities to deal with food storage. Many trained personnel and buildings are required to prevent the contamination of food.

Traffic hazards

Though advances in air and surface traffic have added a great deal of convenience to the life of human beings, they have also had some injurious effects. The air is polluted with exhaust gases and more and more accidents are occurring. It is essential to have strict traffic rules and also to have roadworthy vehicles. It is essential to widen roads to cope with traffic requirements, to construct pavements for pedestrians and traffic islands to control traffic. This again is found difficult by many developing countries as it entails a lot of expenditure.

Air pollution

Though air pollution is not currently one of the direct problems of the developing countries it will be easier for them to take account of the bad effects of industrialization and take safety measures against them at an early stage. Separate industrial colonies have, therefore, to be developed away from the human habitation.

Population control

The kind of environmental problems that are of importance in developing countries are those that can be overcome by the process of development itself. Afghanistan has no population problem as such, but badly needs a network of health services to provide family planning services for needy families, so that mothers' health is protected and children adequately spaced to get a good start in life. This in turn will

guarantee higher living standards and bring increased happiness. The foundations of this approach have already been laid, thanks to the pioneering work done by the Afghan Family Guidance Association which has established 19 clinics throughout the country and is offering free medical services and distributing contraceptives free of charge. In due course, the Ministry of Public Health will extend this service, within the limitations of available resources.

Among other factors recognized as important for child health and well being are increased food production, especially for growth needs; increasing the purchasing power of families; facilities for education; functional adult literacy of mothers, with emphasis on nutrition; better housing and a safe water supply.

Algeria

Real dangers threaten the majority of mankind: famine, war, disease, poverty and cultural stagnation. Any international action must be based on a common understanding of the problem; this is particularly so in the debate on the environment.

Algeria regards the environment as in a state of natural and social evolution; an environmental policy may be defined as the will to reconstitute, conserve and develop all the physical and human factors which play a part in this evolution.

The development of capitalism and the industrial revolution have provided the means of changing the conditions of life on earth on a massive scale. The growth of the capitalist system worldwide over most of the planet has given rise to, and perpetuated, underdevelopment. Any environmental policy must be linked, on the one hand, to rejecting the narrow aims and structures of capitalism and, on the other to the fight for economic, social and cultural development, the purpose of which is to create or restore the conditions necessary to meet the basic needs of the population, particularly the most needy.

Third World countries, like ourselves, must undertake the speediest possible process of development; this must be the context for the resolution of all our major environmental concerns. It is a change in the conditions of life rather than in the quality of life which concerns us. In this regard we must be careful to avoid any form of imitation which would tend to introduce alien concerns and solutions to our countries.

Science and technology can as easily bring catastrophic pollution to the environment as they can furnish the means to eliminate it. In agriculture, they can ruin fertility and the biological balance of vast expanses; but they can also contribute to the reconstitution of soils and even extend the animal and vegetable kingdom into areas where nature herself is inhospitable. Science and technology are not harmful in themselves; they are harmful because of the use made of them.

All environment policies must aim at improving living conditions by facilitating access to all aspects of development. The earth is a common heritage; it is also a closed system in which any destruction or imbalance in the natural environment is felt by all its inhabitants. The problems of the environment cannot, then, be reduced to the level of technical problems to which solutions can be found in the vast scientific arsenal that man now possesses.

Legislation aimed at safeguarding nature's potential for the benefit of mankind is of value: political will can lead rapidly to regional arrangements offering solutions to some of the most crucial problems.

But what would be the use of restoring nature in a world where man remained oppressed? What would be the use of conserving natural resources in a world dominated by economic inequality and social injustice? What could be the use of a newly viable environment if the majority of human societies continued to have no say in the major decisions that govern the world and to be subject to arrangements and compromises concluded over their heads?

The Third World countries bear all the weight of the ever increasing gap between rich and poor countries, a gap largely due to the economic and moral order which continues to govern world trade. Today the international community is seeking

solutions to its most serious environmental problems. Those solutions must not be an occasion for placing extra constraints on the development of our countries and for trade through which the wealthy countries will find new frontiers for an industrialization which is already well advanced.

It seems strange to us that, in the name of the humanism which underlies the present interest in the environment, concern should be devoted exclusively to the future of a minority of coming generations while the fate of three-quarters of the present generation is ignored. It seems equally strange to overlook the real problems and responsibilities and to speak of fair distribution of the burdens of the fight against a pollution caused by the rich countries, when what we are seeking is fair reparation for the plunder of our natural resources.

After the failure of the first development decade and the recent failure of the Third Session of UNCTAD, our wish is that this conference should offer a hope of change in the ideas which have to date guided international relations and that, thanks to a concern for greater equity and solidarity throughout the world, a genuine start will at last be made on eliminating the deep seated contradictions of contemporary society.

Algeria

During the past decade, the range and content of environmental protection activities have not often been of immediate interest to developing countries. The methodology for dealing with the environmental problems of those countries contains gaps and reflects an overly general approach at variance with their priority concerns.

However, greater sensitivity and awareness have emerged in most developing countries. The fight against erosion and desertification was our first activity and is still to the fore.

Our environmental protection policy is designed to win the general support of our people for the principle of producing without harming or destroying and to associate the population with the protection and conservation of the natural environment in which we live.

The first environment decade was characterized by a profound impact on states' consciences and the emergence of universal awareness of the need to conserve our environment. It is now a question of planning and executing the stages and objectives which should mark the next decade. These objectives should be realized through the implementation of projects with a clearly defined content adapted to specific situations in developing countries so as to produce tangible results. It is a question of developing and producing without harming or destroying. In this context, the responsibility for conserving the universal ecological heritage will fall more heavily than in the past on the developed countries, for it is they who possess and export to the Third World technologies, capital goods and services, which are generally factors of pollution. Development cooperation must in the future be pollution free.

The growing tension which currently characterizes international relations is a real threat to our environment and the achievement of our objectives is partly conditioned by improvements in these relations and the spreading of *détente*.

Argentina

In the latter part of the twentieth century the development of science has quantitatively and qualitatively taken so great a leap forward that our epoch has rightly been described as the era of scientific civilization. What distinguishes it from previous civilizations is the complete reversal of the relations between human beings and between them and nature. The world of technology and the world of nature are separated from each other like two distinct, untouching circles.

Industrial society, which is on the whole the society in which we live, and which in any case seems to be the aim of the less developed peoples of the world, has brought with it a surrogate reality whose effects man seems unable to control. A few examples will suffice. There are in existence at the moment half a million chemical products made by man whose behaviour and properties in the natural environment are difficult to predict. We know, admittedly, that the combined effects of the contamination caused by these products are a threat to the survival of at least 280 species of mammals, 350 species of birds and 80 000 species of plants. The use of DDT and other organic compounds of chlorine has also had alarming consequences: 25% of these substances finish up in the ocean and there is a danger that they will cause the sea's production of food to decline considerably.

Nor does industrial society have any qualms about the destruction of the scenic wonders our world can offer. Waterfalls are destroyed by concrete dams, woodlands, with their rich variety of trees, are wiped out to put up warehouses – all in the name of progress. The Prometheus of the twentieth century is industrial society, destroying its own habitat.

The importance of this conference lies in its pointing to a fundamental change in man's attitude towards nature. We see ourselves united here in the attempt to find a solution to the problems which industrial development itself has brought for terrestrial man. It is important that the discussion of the solution to these problems be carried out on the international level, for there are no clear limits, or limits corresponding to political boundaries, to the damage which can be caused to the environment. If there is one issue requiring international cooperation and permanent reciprocal consultation, it is this. What is at stake is not the survival of one population or region, but the maintenance of life on earth. It is a problem that affects us all equally. The adoption of unilateral methods can be fatal, since the solution to one problem within one territory may cause others in some other region. Just as raising the height of chimneys is no way to avoid contamination of the environment, ridding one area of contaminating substances by removing them a great distance and doing harm to another, here, too, partial or parochical solutions are of no great value. Only international cooperation can save us from being ambushed by the results of human civilization. These perils we face are among the most grave ever to confront mankind in its entire history. There is no absolute incompatibility between economic development and the maintenance of ecological equilibrium. The important thing is to bring the two into agreement and understand that nature behaves as an organic whole. Alteration in a river's hydrological constitution may lead to the death of a certain kind of fish, the immoderate felling of woodland is a cause of the erosion of fertile soils, the misuse of fertilizers causes pollution in lakes and rivers.

As for the perpetrators of the present situation in the natural environment, we may say that the states that are industrially highly developed have a high measure of responsibility for the deterioration of the environment. None the less, societies whose economy is agricultural and pastoral and those who possess an incipient industry, also bring about changes in the environment. Indeed, underdevelopment has its own ways of changing the environment. When the manufacture of certain products is carried on in a rudimentary way, when plants for the treatment of waste are lacking, when adequate technology is scarce, kinds of contamination result which do not occur in industrial countries.

The sovereignty of states should not be a barrier to execution of certain duties. The condition of mutual interdependence is the crowning feature of the international community in these years. The problems which we treat have themselves brought this interdependence about. No nation, nor any group of nations, has jurisdiction over the air and the water. The new attitude which mankind is adopting towards nature from this conference onwards must be translated into the working out of legal norms, firmly founded upon the general principle of the rights of peoples. As man has come to understand nature he has adapted the legal regulation of natural resources in accordance with this knowledge. In modern international law an attempt is made to regulate the natural elements under a single norm, since they constitute an organic unity. The Declaration on the Human Environment ought to set up those fundamental legal principles for the solution of the problems of change and contamination in the natural environment which will constitute bases for a new code of international conduct.

Argentina

Supporting a realistic environment policy is an immense crusading effort in many countries even today.

Adequate international management of the environment must necessarily be based on the different country activities, particularly those which directly or indirectly transcend national frontiers. In this regard, all the governments of the world community must recognize that they have not been able to surmount the major obstacles to the harmonious and non-competitive growth for all which would be made possible by rational use of the ecosystem which we share, namely our beloved earth.

Major topic areas such as human settlements, energy, natural resources, health, not to mention what are incorrectly described as supporting topic areas such as environmental education, training and legislation, call for genuinely concentrated action from all the bodies composing the broad spectrum of international institutions.

The present situation shows the developing countries to be more urgently concerned with finding solutions to regional and local problems than to those of an international nature. This can be explained by the gravity of the local and regional difficulties, the acceleration of the processes of deterioration and the high cost of remedies in terms of national financial resources. The organized community of nations must pay greater attention to decentralization in terms of both its form and of its conceptual aspects.

Argentina has developed its own technology and adapted imported technology for dealing with the various aspects of the environment which go to make up its complex array of problems in the sphere. This technology ranges from methodologies for detecting unusual environmental situations caused by man and outlining solutions for them, to feasibility studies and projects which will help to prevent and alleviate the deterioration of the environment. This technology was planned and executed to cope with the needs of a developing country like our own, and we therefore believe that it can be perfectly well adapted to other countries with similar or like features.

Peace among the nations is the basic prerequisite for the attainment of an environment in which all material and spiritual needs can be met.

Australia

Australia's environmental problems are not as acute as those of some other countries. We do not have the pressures of population on resources which have contributed to environmental problems in some countries. Our geographic isolation as an island continent makes us less affected by pollution across frontiers from other countries. But we do have environmental tasks and problems. They are not only receiving high priority from the Australian authorities but they also, I believe, are of a nature relevant to many other countries. Australia is a rapidly developing industrial country, and also a highly urbanized one – 85% of our population live in cities.

But we are also a large agricultural, pastoral and mining country. Environmental problems are not confined to highly developed countries nor are they the product only of the industrial revolution. The provision of a safe water supply and sewage disposal in growing cities and towns are problems for all countries. Unwise farming can reduce fertile areas to desert – examples from over a thousand years ago prove that point, quite apart from more current examples. Soil erosion is faced today by many countries, developed and less developed: Australia has been grappling with it, with some success, for 30 years. Salinization of the soil is a current problem for many countries which are not highly industrialized. Range management, the development of tropical pastures, the control of arid zones, the protection of our unique fauna and flora and the preservation of the Great Barrier Reef are all matters in which Australia has done a great deal of work of interest to other countries and in which we have benefited from cooperation and the exchange of views with others. Australia is determined to protect the environment. In our federal system of government considerable constitutional responsibility for environmental management rests with the six state governments. In recognition of the need for coordination of environmental activities the Australian and the six state governments have formed an Australian Environment Council consisting of the ministers with primary responsibility for the environment in each of the seven governments.

My own government has recently established a Land Use Advisory Council to advise it upon environmental considerations relating to the future use of any land under the government's control within Australia. The Australian government also announced recently its decision to introduce a system of impact statements. A federal minister preparing a submission to the government on any proposal that has some relevance to the environment has to submit an accompanying statement setting out the impact the proposal is likely to make on the environment.

Many of the world's environmental problems have arisen because of the lack of awareness of the environmental effects of human actions and a lack of knowledge of the interaction of the various systems. Sometimes those making decisions are ignorant of knowledge already available; in other cases data is incomplete and techniques and theoretical principles and connections have not yet been explored or discovered. We must strive against both forms of ignorance.

One area on which we need more knowledge is in relation to the measurement of the impact of our activities on the environment. No one seriously questions the proposition that thorough consideration should be given to the economic implications of any development project whether at a national or international level.

However, without an account of the full impact of the project on the environment, the economic implications are incompletely measured. Much has been said so far at this conference about the role of administrators and of physical and biological scientists. A lot more work needs to be done in both theoretical and applied economics to enable total costs in the widest sense to be known, so that those making a decision will be in a better position to weigh the advantages and the disadvantages of proceeding with a particular course of action.

Another field where additional and improved research and information sharing are needed is in the monitoring of certain environmental factors on a global basis. Australia is ready to play its full part in such a programme.

I shall not attempt in this statement to cover all the forms of pollution with which we are concerned. We believe, of course, that increased attention must be paid at an international level to pollution of the seas and of the atmosphere. As we in Australia live on the edge of the world's greatest expanse of ocean and our country has a long coastline, we are very much aware of the importance of clean oceans. Australia urges that the international community should press forward to control the dumping of harmful substances into the ocean. As far as atmospheric pollution is concerned it is becoming increasingly obvious that the atmosphere is a fragile element of the environment and emissions at a local level can lead to global problems.

I shall mention only one other form of pollution, because it has received so little notice in discussions. I refer to noise. One has only to walk in the street or live in a house or hotel in a modern town to know the constant assault on our ears of penetrating and persistent noise – not just the more spectacular outbursts, but the steady and wearing drone. It is frightening that many people have come to accept it as natural and inevitable. The abatement of noise should be taken into account when projects are being approved and when equipment is being devised. The absence of avoidable noise is not a pleasant luxury but a vital part of an harmonious environment, of good working conditions and of a healthy life.

I turn now to the organization of future international action and cooperation on the environment. We recognize the need, and fully support the call, for an intergovernmental body to provide broad and continuing policy direction for international cooperation in the field of the human environment. Australia as a continent, and in view of our place in the southern hemisphere, affirms its special interest in any action and programmes of a global nature.

There are two opposing fallacies that we have to steer between. One is to think that there is nothing to be worried about, or that there is plenty of time, or that one country's troubles or actions in respect of the environment are of no relevance to anyone else. The other fallacy is to think that environmental disaster is so close that programmes of development are bad in themselves – for example, that dams and the use of insecticides should be condemned regardless of any setback to overcoming hunger and disease, or that less developed countries should be frozen permanently at a lower standard of living than others. Both reactions – apathy or panic – have to be avoided. Each proposal has to be approached on its merits, remembering that side by side with our goal of preserving the human environment, is the goal of higher living standards throughout the world. It is not technology itself that is bad; it is the use that man sometimes makes of it. This conference has the task of seeing that the conditions will exist for the whole of mankind to take advantage in safety of all the opportunities for human benefit that science and technology have opened up and will continue to offer in increasing measure.

Australia

Looking back over the past ten years of environment protection and nature conservation in Australia, some encouraging progress can be reported. Environmental agencies are firmly established in all our governments. Sound laws exist and are well administered in all the main fields of pollution control. Extensive areas of parks and reserves have been permanently secured. Much has been done to protect our wildlife on land and in the sea. Environment assessment procedures are applied to major development projects. Our communities are alert to environmental problems and communicate their views freely to governments. Sound arrangements have been made for collaboration between governments within the country and we derive much benefit as a party to many international environmental agreements and conventions.

Looking ahead, we are well advanced with the preparation of a national conservation strategy which has provided a unique opportunity to assess the current state of the whole Australian environment and to plan effectively for the future.

Even so, we would not for one moment wish to diminish the challenges that lie ahead of us. Although in a global perspective Australia's environmental problems may appear small and manageable, we remain concerned about the fragility of our huge arid lands, with maintaining the productive capacity of our soils, with arresting the decline in trees and forest cover and with saving our unique flora and fauna from extinction. We are concerned to maintain, and improve where necessary, the quality of our inland and coastal waters, to improve our arrangements for controlling chemicals in the environment and to improve our land planning and land management practices.

Our desire in Australia for careful management of our natural and man made environment is matched by concern which we share with other countries for the establishment of effective international mechanisms and programmes designed to deal resolutely with environmental problems of global as well as local character. In the ten years since the establishment of the Stockholm Action Plan and the creation of UNEP much has been done to give effect to this goal.

If there is a major lesson to be learned from the achievements of international environmental cooperation over the past ten years, however, it is surely that the cause for urgency associated with the Stockholm Conference has not diminished. Some of the recommendations of the Stockholm Plan remain to be fully implemented; many of the specific environmental problems which achieved prominence in 1972 are still with us and new issues of growing concern have arisen.

In addressing these issues we recognize the acute difficulties faced by developing countries in providing the necessary resources and in harmonizing environmental protection and development. We all share these problems to a greater or lesser extent and have common perception of the urgent need to resolve them.

I would like to mention one of the environmental insights which has recently gained widespread recognition in Australia. Until very recent times, there has been a near idyllic balance between population and the resources which could be drawn from the land. This balance was no accident. Earlier societies evolved a lifestyle and social customs that allowed the people to live in permanent harmony with their environment. The ancient inhabitants of our country had a complete identification,

as a people, and as individuals, with the land itself. The life of the people, all other living things and land use were all seen as part of an inextricably related whole. It was recognized that if the land and its natural resources were harmed or destroyed, the people would suffer likewise.

Drawing from this long experience, which is no doubt shared by other early societies, my delegation hopes that the declaration and resolutions of this special session will record, in some meaningful way, the need for countries of the world consciously to achieve an equilibrium between population, resource and the environment, which will be stable in perpetuity and established at a level where all the people can live in health and dignity, while still maintaining viable coexistence with the other forms of life which share this planet with us.

I believe we are all becoming more aware that the world's less intensively used areas and resources are small and finite, when viewed in the perspective of all the centuries which lie ahead. These unexpended resources may help provide, at best, a relatively few years of additional time for the countries of the world to each achieve equilibrium between mankind and the environment.

Today, with our vision enlightened by the spirit of Stockholm, my delegation acknowledges the wisdom of those who kept the population and the environment of the Australian continent in harmony for tens of thousands of years. We pledge to do our part in shaping a course which will allow our land to support our people, in harmony with the natural environment, and in a just relationship with other countries for the many centuries of the future.

Austria

Man's transformation of nature goes back to the very beginnings of human civilization. Due to the rapid economic development of the highly industrialized countries – in itself a gratifying phenomenon – we are heading for a serious environmental crisis. Hence the terms 'economic growth' and 'welfare of the population' have to be reinterpreted and reformulated. We can no longer measure social and economic success only by the standard of greater quantities of material goods or the degree of mechanization or leisure available to the population. Today's main issue is the improvement of the quality of life, the things and values we want to enjoy in a healthy and beautiful environment. This re-evaluation of our attitudes towards our environment and towards the fundamental objectives of our policies presupposes readiness on our part to assume a considerably higher degree of political responsibility and the courage to implement unpopular measures. More and more urgently we are faced with the task of stemming the negative effects of technological advance and of incorporating into our plans for future progress an additional parameter: respect for the environment. In an age in which man made devices are beginning to explore the boundaries of our solar system, at a time when the seemingly impossible can be achieved by the blueprints of our technicians, the most difficult part of this task will not be the solution of technical problems. The main problems are social and economic in character. We shall have to give up many habits we have grown fond of, we shall have to spend a reasonable part of the surplus our societies produce on the protection of the environment rather than on more leisure and more consumer goods. But this immediately takes us in to the sphere of politics and the struggle between the many group interests of a pluralistic society.

The interdependencies of the various constituents which make up our biosphere – the circulation of water, the nutritional cycle, the atmosphere – make the pollution of our environment a truly international problem. It is only by concentrated worldwide cooperation that effective remedies can be found. It is essential that, despite the variety of individual interests, we do not lose sight of our common interest in the survival of mankind. Environment problems must therefore be kept free from the strife of political ideologies; they must be dealt with in a spirit of objectivity by countries with free enterprise economies and those with collective economies alike, by the joint efforts of government, science and industry. But we must not deceive ourselves into believing that any country will be able to solve the problems of environmental protection all by itself. Above all, people's awareness of the environment must be increased.

Important fields where international cooperation would be fruitful are those of information – especially on how to avoid damage to the environment – and the improvement of methods of prediction. Better forecasting would permit the timely inclusion of environmental problems in cost-benefit calculations, thus contributing to rationalization and long-term planning.

It is useless to single out individual agents such as industry or traffic as the main culprits of environmental pollution. Any biased interpretation of the principle of causation would inevitably lead to serious disturbance to the international division of labour. Hence there is an urgent need to harmonize environmental legislation

and the policies of subsidization in the various countries. Certain standards imposed to protect the environment could easily act as unintentional trade barriers and cause great damage, particularly to smaller export-oriented countries.

In setting environmental standards or limits, regional differentiation, with due regard to the different forms of resource utilization, is an absolute must. Special attention will have to be paid in this context to the preservation of recreation areas. Efforts will have to start primarily with the establishment of strict standards for these. But people living and working in industrial areas must also be guaranteed the best conditions attainable by present technologies.

Austria

Every so-called contradiction between ecology and economy must be based on a misunderstanding, because ecology is the economy of nature. Only short sighted views can identify economy and ecology as conflicting phenomena. In Austria we have realized that environmental protection is the best and most urgent general prevention against sickness and disease.

Our contemporary generation is confronted with the moral responsibility of preserving the environment, with all its rich varieties of life and forms. Man is only one part within an integrated ecological system, an important, but definitely not *the* most important, factor in a complex network.

Austria was one of the first European states to organize its own ministry responsible expressly for environmental protection. Environmental protection is not a new idea. What is new is the necessity to deal with the problems of the environment in a comprehensive way. In order to achieve this:

- Austria's role in international cooperation has been intensified.
- Within our territory we have constructed and put into operation a dense network for measuring environmental parameters.
- At the same time we have set up a network to monitor atmospheric radioactivity.
- We closely monitor levels of sulphur dioxide, heavy metals, carbon oxide and carbon dioxide, nitro-oxides and fine particulates within the atmosphere, the water and soil.
- We have recently succeeded in reducing the level of lead in fuel.
- We have upgraded our lakes to drinking water quality, although we have not done so well with our rivers.

In saying this, I am far from claiming that Austria has resolved her environmental problems. There are many, many more heavy tasks still ahead of us and new ones emerging day by day.

- Austria's territory consists of 70% alpine regions which are in need of special protection.
- Our forests are affected by acid rain.
- Our ground water needs more protection.
- The interdependence of tourism and environmental quality has been acknowledged, but we have not yet found the proper solution to balancing the demands of both.
- We have not yet succeeded in balancing the needs of energy production and the environment.
- We have not yet overcome the structural obstacles to reconciling full employment and environmental protection.
- The same applies to street traffic and road construction.
- We do not effectively safeguard the full variety of flora and fauna in our country.

No nation is entitled to regard only its own interest in dealing with its national problems. It is especially the responsibility of industrialized countries to fight against the temptations of a so called environmental dumping, particularly at the

expense of the developing countries. It is a crime to locate industrial or other installations in the territory of developing countries with the sole purpose of evading provisions to protect the environment. There is a real danger of neocolonialism which we must not permit. This is true also for the export of goods which would be illegal for environmental reasons in the industrialized countries of their origin. The principle should be universally acknowledged that nobody is entitled to export his environmental problems; this principle is especially valid with regard to the countries of the Third World.

Bahrain

A small nation like mine cannot offer significant, global, practical lessons. However, the scope of our experience and the depth of our problems take on a meaningful and deeper dimension within a regional focus. This is one of the reasons for our belief in a regional approach to human environmental problems. We believe that an excessively international approach may overlook small nations; on the other hand, too much reliance on national efforts may end up putting too large a burden on a small country's limited resources. We are convinced that during the early stage of our endeavour to solve human environment problems, some preliminary activities such as monitoring, establishment of uniform standards, education of environmentalists, agreement on priorities and even methodology cannot be tackled effectively except on a regional basis. But let there be no doubt that in advocating a regional approach we are not advocating fragmentation of efforts, weakening of our decisions or diminution in the intensity with which we should pursue our short- and long-term global aims.

Being a group of islands in a relatively closed gulf, we would welcome an agreement dealing with marine pollution. Our gulf waters are under a definite threat of pollution from offshore oil industries as well as other new potentially polluting industries that are rapidly proliferating in all the countries encircling the gulf. We are especially endangered because of slow currents that greatly increase the acculation of toxic and polluting substances. The fishing industry, which is the main source of livelihood for a significant proportion of the population, is at stake here and needs immediate and long-term protection. We hope that international monitoring of the world seas and oceans will include our gulf as early as possible.

We also hope that international law will in future prohibit the unnecessary and wilful tapping of the oceans's wealth by nations that are far away and have no coastal boundaries on those oceans. Today they unmercifully cull every available fish, tomorrow they will tap all of the ocean's other unused resources.

We join wholeheartedly with those who assert that the key to both development and environment is man himself. Unless a fundamental change in man's behaviour, his outlook and his values take place, the problems of underdevelopment and environmental damage will remain with us. Technology and science can provide us with temporary remedies, but they will not prevent exploitation of man by man, eliminate devastating wars, reduce continuous growth for its own sake or modify the consumer society philosophy which has been built on childish and immature attitudes and needs.

In the name of development factories are being built in all developing countries. But they are financed, run and even partially manned by non-nationals and therefore cannot lead to the development and education of the nation's manpower, a process which would automatically bring technical independence and economic benefit. Man in the developed world needs to assert himself and impose his identity. His revolt against the hidden persuaders and his insistence on another definition of happiness and security will both help development in developing countries and the problems of the exhausted and polluted environment in his own country.

Bangladesh

The great majority of our people live in the countryside and we cannot boast of much organized city life. Long before the scientists and sages foresaw certain terrifying aspects of modern urban living, our great poet Tagore sounded a clear note of warning: 'Give us back that forest and take back this soulless city of brick and mortar'. The inspiration to live with and learn from nature which he provided resulted in a form of education that emphasized a direct relationship between man and his natural surroundings. At the time it appeared visionary and perhaps unrelated to the practical problems of life. But today, when this world forum is seriously considering the problems of the human environment, his words appear imaginative and far sighted.

Back to nature has been a popular slogan in our land and is echoed in many other countries. It is the principal objective of our country to achieve a balance between nature and man, in a way that harnesses the turbulence of natural forces and leaves the environment free from unhealthy interference. Naturally we are faced with formidable problems today. We have to tame the rivers and control the monsoon floods. We have to build human shelters against cyclonic weather and ensure due protection to our coastline in the interest of unhampered progress.

But we can hardly achieve our objectives all by ourselves. We do not have the technical or material means to manage this complicated and gigantic task. Such a thing has essentially to be a multinational or international undertaking. With the assistance of our great and good neighbour, we are at last beginning to seriously investigate the nature of the problem and the scale of required assistance.

But large-scale support and assistance from many other countries will also be required if we are to tackle the problem effectively. The need for international cooperation to protect or restore our natural environment cannot be overemphasized. The concept of universality is indeed vital for a meaningful exchange of views if this present conference is to engage in constructive and fruitful discussions. Anything that militates against this concept necessarily limits its scope and opportunity. We live in a world where political considerations take priority and affect decisions even in matters where the survival of the human race is in question. But political interests alone can hardly serve the basic interest of this conference since politics tend to divide us, while the objective of the present effort is to unite us to face and to fight problems that threaten us.

A body constituted to represent all countries and reflect all views will be able to attend to the formidable problems of reconstruction and rehabilitation in Bangladesh. Our government is faced with problems it is ill equipped to fight unless the international community actively participates in reshaping and reordering our natural milieu. Nearly ten million refugees who fled the country have returned. They have to be housed and fed. Over 25% of the dwelling houses are burnt down or destroyed. They have to be rebuilt before the monsoon – a task which is quite impossible for us to achieve on our own. Communications within Bangladesh have been so destroyed or disrupted that widespread famine is possible. The need for hospitals, medicines, trained personnel, the demand for new and better schools, with advanced methods of mass education are indeed some of our immediate priorities. Side by side with this, long-term assistance is needed to reorganize our

population structure on a rational basis. Only a comprehensive programme can ensure normal and human conditions for our people and protect our environment from pollution of any kind.

A tropical climate and a fertile soil combine to clothe most of Bangladesh in an ever green mantle. Many people are by now familiar with the flora and fauna of our country – the rows of graceful palms, the deep green masses of mango trees, the light green splashes of the clumps of bananas and the feathery bamboo, arranged neatly round huts and water tanks. Years of neglect and exploitation of our natural resources have now created abysmal poverty in a land of plenty. Our people have struggled bravely and successfully. It is now the duty and obligation of the international community to assist these brave people to restore the natural environment in which they have always lived in peace and harmony.

Bangladesh

We believe that the resources of the world should belong to and benefit all mankind, as the problems of the world should also worry and be shared by all mankind. Problems in one corner of the world do affect the rest. It is therefore the responsibility of all people, individually and collectively, to face the challenge to conserve resources and protect the environment for present and future generations. We believe that to combat land, water and air pollution and their consequences effectively, concerted regional and international cooperation among nations is essential.

Bangladesh is a country of rivers which dominate the landscape and provide the major transport routes in the country. These rivers and their tributaries are also the primary sources of irrigation water during the dry seasons. Despite the ever abundance of water during the monsoon seasons, the country suffers shortage of water during the dry seasons, when river flow is sharply reduced. Most of the rivers in Bangladesh originate from outside its borders and are subject to disruption of water flow because of upstream water diversions in neighbouring countries. This diversion of river water from upper reaches has had serious consequences and has taken an acute toll during the last decade, with adverse effects on the economy, ecology and overall environment of our country. Withdrawal of water upstream has also disrupted navigation, irrigation, forests and fisheries. Inadequate water flow in our rivers gives us great concern for our survival. Unless immediate attention is given to this problem, one-quarter of Bangladesh will soon be turned into desert.

Bangladesh has always advocated regional cooperation involving all the riparian countries in order to formulate a planned and rational use of water catering the needs of each country. The reduction of water level during dry seasons affects ground water level and the availability of fresh water for drinking purposes. Rivers in Bangladesh are also subject to pollution from upstream outside our borders. River water in Bangladesh is our life. Altering its flow in upper reaches amounts to playing with the life and death of the people of Bangladesh.

We strongly propose that to minimize the human sufferings caused by man made activities, effective environmental laws and regulations are evolved and enforced for regional and international cooperation for the protection of rivers and other inland waters from pollution and for ensuring undisturbed river flows passing through international boundaries so as to protect the environmental and ecological balance in the entire region.

Poverty is the single largest factor responsible for the degradation of the environment in Bangladesh. Our per capita income is one of the lowest in the world. The government of Bangladesh, despite its best efforts, is still unable to provide the minimum requirements in terms of housing, sanitation, drinking water, transport and education to its teeming population. Environmental problems in Bangladesh are not the outcome of development but of lack of development. Overpopulation, lack of resources and adequate technology and environmental disruption pose a serious threat to the future environment of the country. This situation can only be solved through a comprehensive and intensive development programme which is environmentally sound and suitable. Unless we can improve our economic condition and develop self sufficiency it will be very difficult to check

adverse environmental trends in our country. The affluence of the people has a direct bearing on the environment and the quality of life.

Bangladesh is a natural disaster prone area. Natural calamities like storms, hailstorms, cyclones, water surge and floods are very frequent in our country. This causes loss of human life, loss of livestock, crops, trees, houses and soil erosion, damaging properties worth hundreds of millions of dollars every year. This has its inevitable consequence on the environment. However, during the last decade an effective cyclone and weather monitoring system has been built up which has helped mitigate the sufferings of the people.

We look forward to a better future and better environment for mankind to live in. That could be achieved through the cooperative and committed efforts of all nations and communities in the world. We also believe that it is the common responsibility of all mankind to protect the human environment the interests of the present and the future generations.

The question before most of us today is not better living but very survival as human beings. We have to live first and then think later how to live better. Countries are competing with one another in the research, production and use of armaments and harmful chemicals in various perverted forms. Do we have the capacity, leverage or bargaining power to stop this competition for the destruction of our planet? Can we translate our concerns and fears for the global environmental problems into reality? We must, if we want to survive. Otherwise, we are wasting our time.

Botswana

Botswana is landlocked on the central plateau in southern Africa and is about the size of France, although not as big as Texas. Human density is about one person to the square kilometre. More than 80% of the labour force is involved in agriculture. Our major export remains beef, although we are beginning to realize a considerable mineral potential.

Like Australia, much of the country is semiarid and the bulk of the population lives in immense rural villages on the eastern borders of the lightly vegetated Kalahari, a semidesert which covers two-thirds of the country. A short rainy season produces an uneven precipitation of from 100 mm in the south-west to 750 mm in the north-east. Our people are predominantly pastorally orientated with a very low average per capita income and preserve traditional prestige values, particularly regarding land use and cattle ownership.

The vegetation is generally suitable to stock raising, but – and here is the major problem – the cost of providing water in the semiarid environment is high. Considerable research must be carried out if, in the long run, sufficient stock are to be supported to make an economic profit on the investment on a sustained yield basis without degrading the habitat. The urgent need to raise the rural economy forces us to use it now, before proper research can be carried out, and this is the crux of the problem.

In October last year we convened in Botswana a conference on sustained production from semiarid areas. For the first time we were able to put into perspective our main national problem, that of increasing rural production in a semiarid, but agricultural country and thus alleviating poverty without downgrading the environment.

We came to recognize that all of us are users of the environment, and that in our attempts to educate our people, whether it be for agricultural purposes, water conservation, wildlife use or merely recreation, we must ensure that everyone is included, and particularly ourselves, the educators. No programme of environmental conservation education will succeed unless the whole population is involved. We are going to need help in this programme, and not just technical assistance but also the means to put across our message at all levels.

Large areas of Botswana are still sparsely, if at all, populated; and these are the driest and most brittle of our habitats. But with modern technology, the means to provide water in them has immediately opened them to exploitation. We have taken the initiative in protecting much of this land and I feel proud to say that one-fifth of Botswana, including almost every ecotype, is protected as national park or wildlife reserve. Our purpose is to ensure not only a wilderness heritage, but also to conserve the natural environment for the future, and to use it only *after* we have carried out research to ascertain the most desirable uses for the land, both from a human and a natural point of view.

Development must come, and we recognize that mining, so necessary for us at this stage, with its concomitant urbanization, can only bring problems. We shall, with help, do what we can to minimize and eventually eliminate these. Before mining has properly commenced, we have passed an act to control and monitor atmospheric pollution and we are looking at means of raising the rural economy to

offer alternatives to major urbanization. We do, however, recognize that this is but a start and much remains to be done.

Botswana is extremely interested both in regional and in universal cooperation, particularly as regards the exchange of information and research results, technical assistance, the imposition of regulations and restrictions governing the movements of commodities containing pollutants, and in endeavouring to stem the flow of pollutants carried by natural means. Again we are vitally interested in cooperation regarding the use and development of waters common to adjoining countries.

To assist in the development of an environmental conscience and in ways and means, first of stemming degradation and then of enhancing our world for the betterment of man and nature, I say that Botswana will subscribe its widow's mite to the fund to set up a body for these purposes in the United Nations organization.

We see each country's national heritage and respect its right to develop and sustain it. Although we do not have the Yellowstone National Park or the Victoria Falls, yet we do have the Okavango Delta with its prodigious wildlife (one river which never does reach the sea). These may be national possessions, but they form a part of this one earth, and in a way belong to all of us. Each of us in our own country has a responsibility to mankind to look after that heritage with which we are particularly blessed. I would hope that any special body set up will investigate the possibilities of finding universal standards acceptable to all countries for the proper development of this heritage.

Man forms a part of his own environment, *the* environment; and while he may have to alter it for his betterment, he does not have the right to reduce its potential. Until he understands that he is but a part of, and not above the environment, he will never be successful in handing on to future generations a world as good as, or better, than the one he found.

Brazil

The considerable growth of economic activities in highly developed countries has mainly been achieved through increased productivity based on the application of science to the solution of microeconomic problems. A predominantly technological attitude has produced negative reflexes which have resulted in serious environmental diseconomies such as pollution of the seas, or the atmosphere, of great significance for all peoples of the earth. The countries that have accumulated considerable wealth and means at the expense of so many diseconomies for the rest of the world should therefore take the principal responsibility for corrective measures and for replacing what has been damaged.

One of the main results to be derived from this conference will be a greater consciousness of the relationship between development and environment. The decisions and recommendations for action should take into account the relatively incomplete stage of knowledge on environmental conditions as well as on development requisites in each country. Should the output of the Stockholm Conference be restricted to a sizable research programme, even then it would be a resounding success, having created a solid basis for future action.

Corrective measures based on insufficient knowledge are bound to fail, the more so in the field of the environment, in view of the natural complexity of ecological and social factors. Economic and social diseconomies may then be expected from unwarranted steps taken to improve the environment. For the majority of the world's population, further improvement in their living conditions is much more a matter of relief from poverty, of better nutrition, clothing, housing, medical care and employment than reduction in atmospheric pollution. Economic development will have to be seen, from now on, as a compromise between the need to raise man's productivity, in order to ensure his well being and dignity, and the need to minimize the predatory aspect that progress had in the past when we thought nature could survive any punishment that man's foolhardy actions would impose upon it.

It is economic growth that has allowed developed countries to make great advances in the eradication of mass poverty, ignorance, disease and as such to give a high priority to environmental considerations. Mankind has legitimate needs that are material, aesthetic and spiritual. A country that has not yet reached minimum satisfactory levels in the supply of essentials is not in a position to divert considerable resources to environmental protection.

Environmental deterioration goes far beyond industrial pollution. There are other forms of degradation both in urban and rural areas, known as the pollution of poverty or of underdevelopment. This kind of pollution encompasses, in rural areas, soil erosion and deterioration caused by agricultural and forestry malpractices; it covers inadequate sanitation and food and water contamination. In urban areas the problems are still more complex in view of excessive urban densities at low levels of income. This type of environmental degradation tends to be essentially local in character; the major pollutants are in general biodegradable; and contrary to the conditions prevailing in industrialized countries, they tend to diminish as a result of economic development itself.

In fact, it would be impossible to correct such environmental deterioration

without development, since the resources necessary to cope with it are not obtainable at low income levels. It thus seems quite inappropriate to discuss these problems, both rural and urban, outside the framework of economic development. Any effort to reduce the pollution of poverty without reference to a process of resource accumulation through development would be self-defeating.

We should be confident that solutions will come in time to avoid the dangers anticipated for the distant future. A sensible and objective attitude will save us from an emotional belief in exaggerated threats to mankind. The resources we use today to foster mankind's well being are not unlimited. We have necessarily to conceive of their eventual exhaustion. However, at present, insufficient demand for an apparently excessive supply of raw materials and primary products is a problem that afflicts mankind and contributes heavily to environmental deterioration. We are far from a situation of global scarcity in natural resources in spite of the restrictions affecting some countries and regions in a few specific items. This condition stimulates trade through international specialization and thus gives newcomers to development a chance to export their primary products and to import the industrial capital goods necessary for the improvement of the standard of living of their people.

Experience shows that we are still far from knowing the natural resource potential of our planet. Resources of all kinds have always been available in different quantities in different places at different degrees of difficulty and cost of production. As cheaper and more accessible sources are used up, there is an economic incentive to reach for more remote reserves. As production of a given resource becomes increasingly expensive, in spite of technological developments, its price will gradually rise, leading to recycling, replacement and production of synthetic substitutes. This process could benefit underdeveloped nations by improving the terms of trade of their primary exports.

The world is not threatened by a shortage of energy. Nuclear, geothermal and solar power will add a virtually inexhaustible supply to the service of man well before conventional sources run out.

I do not believe that we are subject to rigid and inverse linear relationships between economic development and the environment, so that more of the former will necessarily imply less of the latter. There are many ways in which the environment of man is improved by industry, by urban concentrations and by agricultural practices. Man is gregarious, and searches for his full intellectual and emotional life in the human densities normally found in urban settlements.

A further point concerns population and, more specifically, so called population pressure through growth. The resource side of this equation has already been placed in its proper perspective. A good, sound environment exists only in relation to human beings that will, directly or indirectly, enjoy its benefits. In that sense, any proposals to improve the environment – necessarily for man – by reducing the number of people that will enjoy it, may seem a contradiction. What is being sought is an increase of total enjoyment, by man, of a certain type of environment.

It would be pertinent to state at this time that many issues and policies concerning the environment are of an eminently national character and responsibility. We should recognize and fully respect the exercise of permanent sovereignty over natural resources as well as the right of each country to fully exploit its own resources according to its own priorities and needs and in such a manner as to avoid producing appreciable harmful effects on other countries. International cooperation in this field is essential, especially in regional terms where it is most

appropriate and beneficial. Such cooperation, however, should not be hindered by international mechanisms that may dilute the concept of sovereignty and independence of states. In this respect the principle of international responsibility of individual states is the very best guarantee for the community of nations.

Brazil is vitally concerned with matters of economic development while taking concrete steps to better the social condition of her expanding population. Special efforts have been oriented towards the improvement of health and sanitary facilities, water supply and sewage services, as well as pollution control, so as to reach an urban population of 65 million by 1980. Financing of low cost housing is a main item in a nation-wide plan which provides for almost 200 000 units per year (of the half million dwellings which are being added to the urban areas annually).

The improvement of urban conditions is being associated in our case with a process of rational territorial occupation so as to reduce the exceptional rate of growth of the metropolitan areas and to allow for a better population distribution within the country. Broad programmes of erosion control and soil management are being developed, along with a major reforestation effort stimulated by fiscal incentives; in 1971 we were already able to plant more trees than were cut down during that year.

Legislation has been enforced to protect wildlife and nature reserves and our National Water Code, which dates back to 1934, is presently being revised and updated. The main item in government expenditure for 1972 is education and technology; we are making a concerted attempt to eradicate illiteracy, expand schools and universities and increase research. In addition to the regular educational programme, a major drive backed by fiscal incentives is now under way to conquer illiteracy; this campaign will provide education for nine million adults in the 1972-74 period.

The high rates of economic growth we have achieved in the past few years are indispensable for the support of these measures of social and environmental progress. Without economic development, under accelerated conditions, it will not be possible to offset the disadvantage of wasted time and opportunity and to face the future with confidence and optimism.

Brazil

The Brazilian government has reacted promptly to the heightened level of international awareness of the importance of environmental protection. A national agency for the environment was established in 1974 and autonomous agencies have been created in most of the states of the federation.

The Special Secretariat for the Environment has two main tasks – pollution control and ecological research with a view to the preservation of natural resources. One of the major results of this action has been the creation of the national environmental policy in 1981 which oversees, under the National Council for the Environment, all activities relating to environmental protection.

Main actions implemented include the creation of national reserve areas for flora and wildlife, the establishment of a unique programme of ecological stations, the diagnoses of environmental conditions in the semiarid north-east region, the monitoring of pollution by heavy metals, industrial zoning in critical areas and the organization of a licensing system for potential pollution activities.

The network of ecological stations covers the main Brazilian ecosystems; 90% of the area of the ecological stations is fully protected and permitted activities in these areas must not interfere with natural conditions. The remaining 10% carry out research and experimentation and are provided with laboratories, guest houses, offices and transport. Research is being undertaken by national scientific communities, by Brazilian universities and by foreign researchers collaborating in the countries' institutions.

The network covers the equatorial lowlands ecosystem, which contains the Amazonian rain forest, as well as the semiarid uplands in the north-east, the south-east Atlantic rain forest, the Brazilian araucaria forests of the south, the savanna-like formations of the central inland states, the mixed prairies of Rio Grande do Sul and the transitional lowlands of the Mato Grosso, one of the greatest existing neotropical wildlife preserves.

Brazil has always attached great importance to regional cooperation on environmental and other issues. Accordingly, it is a party to regional conventions such as the Treaty for Amazonian Cooperation, of which collaboration on the environment is a vital part.

As the documentation for this meeting points out, much has been done since Stockholm, especially at national levels, where action necessarily has a direct and more effective impact on the environment. The general world picture, however, still shows many of the lacunae of ten years ago and this is matter of great concern for a number of countries, including my own. The problem of development, which is so closely linked to the well being of peoples, is far from receiving an adequate response from the international community as a whole.

The problem of disarmament, especially of nuclear disarmament, which is so vitally connected to the maintenance of a safe and protected environment is another that has not been tackled with the necessary will. Indeed, new developments indicate the possibility of spreading the arms race to outer space or by the use of environment modification techniques as a new type of weapon. These considerations lead us to one main conclusion. The protection of the environment cannot be seen in isolation but has to be regarded as one of a number of other

problems, among which the problem of development still continues to be a major one, ten years after Stockholm. The interrelationships between development and the environment, more than any other possible interrelationships, should continue to be a matter of painstaking analysis. The interests of the developing countries, their national and regional priorities, should be fully taken into account in all programme activities.

We know that successful results depend on a great spirit of cooperation and on strong political will. It is also necessary that attention is concentrated on real problems requiring immediate action and on the activities which can best contribute at the same time to the preservation of the environment and to the cause of development. Material and financial resources are scarce, as we all know, and have to be directed to the areas where they can have most effect. The setting of priorities for the future implies difficult choices.

Bulgaria

The protection and renewal of the environment have become an inseparable part of the socioeconomic development of a country and a precondition for the harmonious development of the individual. On the other hand, environmental protection is a duty of each citizen.

The wide ranging and active pursuit of international cooperation is essential for successfully tackling environmental protection problems. The People's Republic of Bulgaria plays an active part in international cooperation in this field. Possibilities are opened up for us by bilateral cooperation with various countries and also by multilateral cooperation. The uniqueness of the CMEA member countries' cooperation programme lies in the fact that it is oriented towards the solution of practical problems connected with general trends in the economic and social development of each country.

The problem of protecting the environment on our planet is inextricably linked with the other crucial problems facing mankind: peaceful coexistence between states with different sociopolitical systems and cessation of the arms race. Our delegation feels that UNEP should continue to work actively towards a solution to this extremely important contemporary problem.

We further feel that in defining the major directions for its future activities, UNEP should proceed from the principle that all have an interest in cooperation. In our view, the directions might be:

- protection of the environment and rational use of its resources through the use of low waste and non-waste technologies;
- the problem of energy and energy resources, the search for an application of new reliable energy sources and energy technologies, including the more extensive use of renewable energy sources;
- protection of air and water from pollution;
- protection of flora and fauna and of genetic resources; and
- forecasting and assessment of the impact of man's activities on the environment.

Burundi

Environmental problems still continue to arise both in developed and in developing countries. The latter have more difficulties than the rest because of certain socioeconomic situations which are a serious handicap to their development.

Industrialization and the arms race, with all their consequences as regards the risk of air and water pollution, the annihilation of certain forms of life (including man) and the destruction of certain ecosystems which are vital to mankind, are the causes of the deterioration of the environment in what are known as the developed countries.

As for the developing countries, deforestation, bad farming and grazing practices, the inadequate development of the energy sector and the lack of drinking water continue to keep them in an extremely alarming environmental situation.

Byelorussian SSR

The government of the Byelorussian SSR lays great emphasis on the preservation of the environmental wealth, reproduction and development of natural resources for further improving the people's well being – their labour, conditions of life, recreation, health as well as for further scientific and technological progress and development of all spheres of material production.

In the republic a set of scientifically substantiated legal, technological, economic, social and other organizational and practical measures has been implemented in the last ten years, corresponding to the main principles of the Stockholm Declaration. With allowance for the current environmental requirements the legislation encompassing the main natural resources has been renovated and codified.

Legislation and governmental acts call for long-term planning of conservation measures, improving the system of natural resources and environmental control. The fundamental laws and the codes confirm man's rights to 'favourable living conditions in the environment whose purity provides for a prosperous life' and his responsibilities to protect and improve nature, conserve and manage natural resources, primarily those that are non-reproducible.

The policy of land resources development has resulted in the improvement of soil structure and fertility and the stabilization of rich agricultural lands. A hundred thousand hectares of lands disturbed by industrial activities have been taken back into cultivation and are made use of in the national economy. Currently, land areas recultivated are equal to those disturbed by mineral resource and peat working.

To control soil erosion and provide for rational use of lands, 70 000 hectares of sandy areas, ravines, river banks have been covered with forests. A system of field protection belts is being created. Forest plantations cover more than 330 000 hectares; woodlands now account for about 34.5% of the republic's area.

Since the Stockholm Conference 55 reserves of various types (landscapes, lakes, bogs, woods, geological, botanical etc) have been created in the republic to provide ecological balance and to protect valuable resources, some species of animals and plants, their genetic fund and unique and characteristic sceneries. Rational allocation of the protected areas has been provided for in a special project. In addition to further development of the reserve territories, the project provides for scientifically substantiated protection of rare and vanishing species.

To provide for protection and rational use of wildlife, a national registry of animals is kept. Biotechnical measures have been taken, with expenditure increasing threefold during the past decade. As a result, the number of elks, wild boars, beavers and other wild animals has increased considerably.

To save water resources, recirculation and reuse systems for industrial water supply have been put into operation to meet 90% of the republic's industrial water demands in 1982. A water protection system of high efficiency has recently been established in the republic, rendering all water bodies usable for cultural, domestic and fishery purposes. To prevent atmospheric pollution, gas and dust traps are under rapid construction, production processes have been improved and zero and non-waste technologies introduced.

During the past ten years ecological education training and propaganda have made great progress.

Cameroon

The ruinous exploitation of our planet's resources is harmful to all countries which are still seeking to stand on their own feet. We deplore the pollution of territorial waters by oil industry wastes, the growing toxicity of the agglomerations built according to developed country models, the poisoning of rivers from the discharge of unused byproducts, deforestation, and the depletion or disappearance of fauna and other primary resources.

In the cities, as in the country, not only the quality of life but life itself is threatened by disease, malnutrition, the pollution or lack of water supplies and the absence of hygiene, not to mention the shortages of housing and sanitation. No human conscience can remain indifferent to the scandal of the existence of this poverty in comparison with the opulence of the rich.

Development remains the saving force for needy societies. To be successful, it must be integral development ie seek a solution to the human problems which are not always taken into consideration in economic growth projects. While the latter are indispensable, it is nevertheless to be recognized that they aim only at increasing the unequally distributed gross national product of a single community; everyone knows that the building of a dam or the transformation of a forest into cultivated land aggravates social problems. There is an urgent need to unify environmental and development objectives at all levels.

At the individual country level, the environment is not a new problem but a new dimension of a development adapted to a physical and human milieu with its own potentialities, ways of life and values. At the regional level, the physical, economic, social and cultural *rapprochement* of geopolitical unity is a fact on which concerted legal and administrative action for the monitoring and management of water resources, fauna and flora can and should be based.

The integration of environment objectives into those of development demands closer collaboration at the international level. Economic interests bring the continents closer every day. In the face of the population explosion in our world, it is unanimously admitted that the growing pressure of needs will in the short term pose the problem of the limits to our planet's resources unless measures aimed at their wise development and a better planet-wide distribution of economic activities are taken now.

Because the responsibility of the industrialized countries for the deterioration of the environment of the poor countries is major, the developed countries should not, on the pretext of environmental considerations, adopt a neoprotectionist attitude towards the export products of developing countries; it would not be desirable for the burden which environmental policy represents for the big countries to be directly or indirectly borne by the weak.

The dangers threatening the biosphere can only be combated by common action. In this difficult search for universal well being at a higher level, where the poor will no longer be abandoned in an environment of miserable poverty which promotes mistrust and tensions between individuals and inevitably compromises the chances of peace in the world, the developed countries will once again play a pioneering role. In this new world constructed as a shelter for free men in an environment of high quality, the problems of colonialism and racism will be definitively resolved.

Canada

The main message which I wish to convey is simple. It is this. Nature is all important. Nature's laws, themselves, are universal. They are far reaching. They deal with life. They concern us all. Man breaks nature's laws at his peril. He breaks them and succeeding generations are the poorer for his lack of foresight, his lack of sensitivity, his lack of statesmanship on the ecological front.

Man made laws, up until now at least, have been different. They differ from place to place. They differ from one country to the next. They often differ markedly from one continent or from one part of the world to another. But nature's laws are more exacting. Like the fundamental truths of biological science, they cannot be ignored. Mankind may bend them to suit his convenience. But he will find, in the end, that he is all the poorer for having upset nature in a vain effort to win some short-run economic gain.

What bothers me most is the thought that man, as his numbers and affluence increase, seems bent on creating a dull and uninteresting environment for himself. Mass production, mass consumption, mass disposal, massive refuse heaps – all these are characteristic of an age which has lost sight of the balance of nature, of the revitalizing force which still exists in our great outdoors and which, itself, is threatened by our increasingly pedestrian way of life.

Biology, as a science, is still in its infancy. We know even less about biological phenomena than we do about economics. All the more reason for going slow. All the more reason to try to unravel the mysteries of nature, to monitor changes in our global environment, to play it safe in the harvesting of our living resources. All the more reason to prepare environmental impact statements before and not after we launch new projects on a major scale.

I am not one of those who believes that economic growth and environmental quality are necessarily in conflict with one another. Quite the opposite. I believe that sound economic planning involves environmental statesmanship of the highest order. A good engineer understands the forces of nature; a good economist, because he takes the long view, must also be concerned with nature's biological scheme of things. Challenging new jobs are needed everywhere. But it is often the character of these jobs, rather than their number, which is at issue. They, like the industries to which they are attached, must go with the grain of nature, not against it. We must add to the variety of life.

Of course we must be careful. We must not make unnatural substances and scatter them around. Produced for one purpose, they may have unfortunate side effects which come back to haunt us in the long run. Hence the emphasis on biodegradation, on the need to replace insidious substances like DDT with other chemicals which are not harmful to living things.

These observations flow from our own experience in Canada. Artificial substances like the polychlorinated biphenols (PCBs) have had a devastating effect on our salmon runs and our bird life. We have stopped using them for this reason. We have replaced them with other substances which are more effective from an overall, resource management point of view.

Canadians have learned, to their sorrow, that insect sprays which help to preserve certain forests can also destroy local fisheries. We have learned that new

processes using mercury, while they tended to cut the costs of other chemicals, constituted a hazard to man himself. Nor were these effects localized in their extent. Frequently they spread to other segments of our Canadian community, from province to province, and into the international sphere as well.

There is an interesting corollary here. In protecting our local environment, we are often protecting the environment of our neighbour. By practising environmental statesmanship, we are also helping to enhance the quality of life in lands that we will never see. Good neighbourliness, like cleanliness, begins at home. Multiplied by similar actions on the part of others, it can be an environmental boon to all mankind.

The draft Declaration on the Human Environment contains certain basic principles which Canada endorses as a desirable code for international behaviour. There is, for example, the principle that each nation accept responsibility for the effects of its environmental actions on others. Too often in the past the interests of our global community have been sacrificed by the short sightedness, I might even say the callousness, of the few. 'Thou shalt not pollute the environment of thy neighbour, the ocean or the atmosphere.' This dictum seems self-evident to me. I trust that it will become a part of our global environmental ethic in the future.

I am a firm believer, also, in environmental objectives and standards, levels of performance which are based essentially on biological criteria, but criteria which make economic sense as well.

These global objectives, these global standards, involve a simple test. This test pertains to life itself. Living things must not only continue to survive, they must flourish. If anything they should increase in their number and variety as the years go by. Remember, also, that life in its most sophisticated forms is our own first line of defence. Endanger a single species at the top of the food chain and you are endangering the lives of men, women and children everywhere. Wipe out an animal species like the whale, or a bird like the bald-headed eagle, and mankind may shortly be in trouble too.

These elementary standards, these biological tests, these natural criteria should not be confined to any one country. Properly drawn, they are valid everywhere. They rest on a universal truth and they should, therefore, be global in their application. Nature's laws are difficult to define. This is why we need more research; especially research on the biological front. But a lack of information should not be allowed to obscure an important point. The case for worldwide standards is, I believe, incontestable. It is incontestable not only because the cost of being clean may not be a cost at all, but because the destruction of all kinds of living things is bound to be destructive from the point of view of society as a whole.

Pollution havens are not for us. They are inexcusable in a comparatively affluent country like Canada. They are inexcusable, also, in the less developed parts of the world. They are inexcusable because they are short sighted, because they ignore the destruction of other resources. They are inexcusable because they tend to make lives of the local population a dull, drab and painful.

The Declaration on the Human Environment marks a beginning. We hope it will provide us with a framework for laws and institutions which will help us to protect nature in all its forms. Environmental protection can add immeasurably to the quality of life. It can add tremendously to life's enjoyment by men and women the world over.

Canada

What have we done since Stockholm? Much has been accomplished, but much more remains to be done. Public consciousness has been heightened and is still rising. In my own country, governments at all levels – municipal, provincial and federal – have acted in concert to clean up at least the worst forms of pollution, urged on by an almost relentless pressure from a public which feels that industrial activity is not an end to be pursued at the expense of human health nor of the natural and physical environments. We have reduced pollution from our pulp and paper industry drastically. We have significantly reduced phosphorous and other discharges into the Great Lakes and are now in close collaboration with the USA witnessing the recovery of North America's largest system of fresh water including all the tributaries of the St Lawrence River in Quebec. The air in our cities is cleaner.

Canadians have also tried to do their share as citizens of the world by promoting the development of international, legal frameworks and agreements and by working hand in hand with many countries to promote good environmental management. We are involved in soil erosion control in Lesotho, land reclamation in Rwanda, soil desalinization in Pakistan, flood control in Nepal, forest inventories in several countries and desertification control in the Sahel. These and many other specific instances of cooperation have allowed us to learn first hand of the major global environmental problems of the day and to assist in their solution.

This experience is a good one. But is it enough? What are we doing about the problems that spring from abject poverty, from lack of development rather than from overdevelopment? It would seem that we have only just begun to scratch the surface, both in the developing and the developed countries.

Our actions to date, our increasing knowledge have helped us to understand:

- That our problems, particularly in the developed world, are more complex scientifically, are more intertwined in the very fabric of our societies, and raise far more difficult challenges than those we have successfully grappled with so far. I refer particularly to such matters as acid rain and the management of toxic chemicals.
- The health of the environment is an issue, not at the margin but at the very heart of development. It is essential to the management of our natural resources for sustained, long-term economic development of a kind that will truly improve the quality of life on this planet.

In the last few years, widespread concern about our management of the planet's resources has produced a number of important studies. These are unanimous in one important respect: we have the means of our own management; we are not doomed to failure by fatalistic forces; we can indeed act to ensure our own survival. This is a positive note on which to commence the next decade. But to get positive results will require knowledge, wide public understanding, political will – and money!

There is, surely, no longer any real question about the inextricable links between the health of our environment and our economic development, our ecodevelopment. They are not, except possibly in the very short term or through failure to assign true costs, antagonistic but complementary. There is a strong, indeed

unbreakable bond, between successful management of our environment and success in achieving our social and economic development aspirations. It is not one or the other. Both must, and can, be achieved together.

But in my country, Canada, despite our vast geographical area, small population, and abundance of water and forest, we do too have problems. Like Scandinavia, we suffer from acid rain, partly of our own making, partly emanating from the USA, which is also suffering. Solutions can be found only by joint action, for long-range transport of air-borne pollution does not respect boundaries. We are concerned that the USA does not seem to share our sense of urgency in this regard, the more so in the light of our long tradition of cooperative effort and shared responsibility for the quality of the North American environment, where we impact so directly on each other.

Like most industrialized countries and many others, Canada faces the problems of toxic chemicals. We have much to learn about their use, their inadvertent release into the environment, their persistence, their threat to human health, their ultimate disposal. During the last four decades, chemicals have made a tremendous contribution in agriculture, in forestry, in industry, in consumer goods. Yet we have only limited insight into their negative aspects. It will require an enormous international effort to deal with the problem in a rational and coherent manner.

Like many of the developing countries – and because, like theirs, the Canadian economy is heavily dependent on a natural resource base – Canada faces problems of inadequate replacement of our forest resources; of soil erosion and decreased soil fertility for agriculture, of water supply which, despite its abundance, is potentially inadequate in quantity and quality to meet the many demands from many potential users. And like all countries, we are concerned about the man-made impacts on our climate, be it carbon dioxide build up or the depletion of the ozone layer. The most important environmental problems we all face are at least regional and often global in nature.

The preservation and enhancement of the environment is too important to be left exclusively to the environmentalists; it should be the proper business of everyone. The major decisions affecting the environment are not made only by people who attend this kind of conference, but industrialists, economic planners, energy developers and by the pressure for mere survival by the very poor. Only when all share our environmental concerns and sensitivities; only when the appropriate environmental criteria are incorporated into planning and decision making at the earliest stage; only when we accept the fact that we cannot go on treating the environment as a limitless receptacle and a free resource; only then will we start to record solid achievements in improving the state of the world environment.

To address our collective environmental problems will require determination and resources. Even more, it will require mutual care and respect and it will require new forms and mechanisms of international cooperation. It is a fundamental condition of our development that we conserve and manage our resources carefully; that we must not destroy the very base on which lies our future prosperity; that we are the stewards of our planet and that its future lies in our hands. This common knowledge is surely the first step towards common action.

Central African Republic

In the developing countries, the problems of the environment are linked on the one hand to the present temporary stage of underdevelopment and on the other to the legitimate right of those countries to attain the level of the technologically advanced nations. Consequently an action programme on the environment must necessarily be an integral part of development, and of planned development.

The detection and elimination of the harmful effects of a poorly controlled development are very costly, just as a disease costs more than its prevention. If development and the environment are to be at the service of mankind, they must move forward like the pedals of a bicycle.

For the sake of efficiency, the structure and operation of the body to be set up must be neither cumbersome nor expensive. The pursuit of an operational programme, rather than one which overemphasizes advisory services, should play a large part in that body's activities.

The desire for international cooperation should materialize in the allocation of substantial funds to the implementation of environment programmes in the framework of a development integrated into the conquest of this, our one earth.

Chile

With each passing day and with greater clarity, the problems of the human environment have become one of the focal preoccupations and anxieties of contemporary man. The possibilities of obtaining a better life for mankind, one which will allow for the fullest expression of his potentialities, are tarnished by the grave menaces which threaten the quality of the environment. And all this is taking place in spite of the great power which the extraordinary development of science and technology have given to mankind. Perhaps it should be said that this same development is one of the causes of the problem.

The problems of the human environment are multifaceted and bear on the most varied sectors of human life. A multidisciplinary approach is needed to reach an understanding of their true nature and the mechanisms which explain them. For this same reason, we must proceed to study and order them, with great care and objectivity, so as to be able to take constructive and efficient action.

It is evident that the problems of the environment which have moved the world in the last decades are those which have primarily and intensively affected the developed countries. Progress has brought problems by upsetting the ecological equilibrium; but we feel that these problems are not due to the great achievements of science and technology *per se*, but rather to the manner in which they have been utilized. The application of science and technology has not been planned; rather than contributing to the well being of man, they have been oriented towards promoting consumption and profit.

Unfortunately the problems of the environment in developing countries have never produced the same alarm. I will not list them now as they are well known to everyone. Let us remember as examples the problems of soil erosion, arid zones, the destruction of forests, the bad sanitary conditions, urban agglomerations and so many others which are characteristic of developing countries, precisely because of the lack of development which, at the same time, makes our countries poorer day by day.

The nations of the Third World cannot accept that their environmental problems should be neglected. They cannot, either, allow policies applied by developed countries to solve their own environmental problems to jeopardize trade and development, whether through non-tariff barriers applied to developing country products or the diversion of financial resources for development towards the struggle against pollution or any other environmental problem or the implementation of schizophrenic theories which recommend the arrest of development in the southern hemisphere and its conversion into an oxygen reserve for the rest of the world.

It is evident that in both developing and developed countries, it is possible to identify profound alterations and deterioration in the human environment caused by important capitalist interests which are conspicuously represented today by the huge multinational companies. These enterprises have turned into a supranational force which threatens to become uncontrollable. Even if we in this conference reach satisfactory agreements among the representatives of sovereign states, these agreements might not have the desired effect as multinational enterprises control, in effect, the practical implementation of these and other agreements. We must not

forget that these companies, in the name of free enterprise, cut and destroy forests, pollute the air and the water to avoid necessary investment in recycling industrial wastes, build big housing developments which produce a high profit but are badly planned and do not allow for adequate protection of health and well being of their occupants and carry out many other activities on a large scale which damage the environment. The only goal of these activities is profit without taking into account the *real* interests and needs of human beings.

Another problem that we would like to see considered is that of the mass media, specially television. They become each day a more important aspect of that part of human environment which results from human activity itself. The small screen of the television set broadens our horizons when it allows us to know and see what is going on in the world and in every latitude. This is an important element of human environment which has a formative and, unfortunately, a deformative influence on populations. It presents values which perpetuate attitudes which are exactly those we must change if we really want to avoid a greater deterioration of the environment and, on the contrary, improve it. The international system of telecommunications grows and improves day by day, and the developed Western countries control 75% of it. Multinational companies of US origin control 60% of this 75%. In less than ten years from now, our institutions and our homes will receive information and publicity transmitted from abroad, through satellites of great power. If this is not counteracted through timely and appropriate measures, it will destroy cultural values and will augment the dependence of the peoples of the Third World. In other words, the human environment of our countries will further deteriorate.

Neither in the documents of this conference nor in the agenda have we seen an adequate reflection of the havoc produced by arms and wars on human environment. Even though other fora deal with these problems, we cannot afford not to consider here, in a general manner, the impact of these artificial catastrophes on the environment. We do not think it moral to prevent these matters being discussed. By doing so we only make life easier for those who, in spite of the consequences of their experiments, continue to carry out tests with atomic weapons and radioactive elements.

A programme of action for the human environment is a extraordinarily ambitious task in the present circumstances. A fundamental transformation of the relations between man and his world is necessary. This cannot be accomplished by traditional methods. It is essential to augment the creative capacity of mankind so as to permit a change in economic and social structures and, at the same time, to alter the attitudes of man and the meaning of life itself. The great mass of people and, above all, young people, must participate in this. Any accomplishment made without taking into consideration the people will undoubtedly fail because the people will not support it. Nothing will be changed without the will of the people to change, act and create a new life.

China

The conservation and improvement of the human environment is a vital issue affecting people's livelihood and the economic development of all countries. In a growing number of areas of the world the human environment is now subjected to contamination and damage. Air has been poisoned, rivers, seas and oceans have been polluted, the growth and reproduction of fauna and flora have been affected, economic development has been hampered, and the health of many people has been seriously threatened or harmed. This cannot but arouse the deep concern of the people of all countries. To conserve and improve the human environment, to fight pollution, has become an urgent and vital issue in ensuring the healthy development of the human race. In our opinion, the increasingly serious pollution and damage of the human environment in certain regions is mainly the result of the development of capitalism into imperialism and particularly the policies of plunder, aggression and war pursued by the superpowers.

At present, many countries in Asia, Africa and Latin America wish to develop their national economies and to build up modern industry. This is an important aspect of their efforts to free themselves from imperialism, colonialism and neocolonialism and become independent, strong and prosperous. This just demand has the strong support of the Chinese government and people. Through their protracted revolutionary struggles, the Chinese people have become keenly aware that only by building an independent national industry can the people's livelihood continuously improve and the country become prosperous and strong. Of course, as industry develops, the environment will also be affected. However, this problem can be solved with the advance of modern science and technology. We must not give up eating for fear of choking, nor refrain from building our own industry for fear of pollution and damage to the environment.

In old China, owing to long-term oppression and plunder rural areas were on the brink of bankruptcy and industry was extremely backward. At that time the Chinese people were reduced to utter poverty; millions struggled on the verge of starvation and death; conservation and improvement of the environment of working people was out of the question. During the twenty or more years since the founding of our new China, our people have carried out large-scale socialist economic construction on the principles of independence and self reliance, thus transforming a poverty stricken and backward country into a prosperous socialist state. The industry and agriculture of our country are developing vigorously and the output of major industrial and agricultural products has increased considerably. Our government is now beginning to work in a planned way to prevent and eliminate industrial pollution of the environment by waste gas, liquid and residues. For many years we have been conducting mass sanitation campaigns and afforestation, stepping up soil improvement, preventing soil erosion, actively transforming the old cities, constructing new industrial and mining areas in a planned way to protect and improve the human environment. Facts have proved that, provided the people are masters of their country and the government genuinely serves the people and takes their interests to heart, development of industry will benefit the people and the problems arising from industrial development can be solved.

We hold that of all things in the world, people are the most precious. The masses

have boundless creative power. The development of social production and creation of social wealth depend on people, and the improvement of the human environment also depends on them. The history of mankind has proved that the pace of development of production, science and technology always surpasses the rate of population growth. The possibilities of man's exploitation and utilization of natural resources is inexhaustible. With progress in science and technology, man's use of natural resources will increasingly grow in depth and scope. Mankind will create ever greater quantities of wealth to meet the needs of its own subsistence and development. Mankind's ability to transform the environment will also grow continuously along with social progress and the advance of science and technology.

This in no way means that we approve of the unchecked growth of the population. Our government has always advocated family planning; the publicity, education and other measures adopted over the years have begun to produce some effects. But it is wholly groundless to think that population growth in itself will bring about pollution and damage of the environment and give rise to poverty and backwardness.

We support the developing countries in building their national economies on the principle of independence, exploiting their natural resources in accordance with their own needs and gradually improving the well being of their people. Each country has the right to determine its own environment standards and policies in the light of its own conditions, and no country should undermine the interests of the developing countries under the pretext of protecting the environment. Any international policies and measures for the improvement of the human environment should respect the sovereignty and economic interests of all countries and conform to the immediate and long-range interests of the developing countries.

Energetic measures should be adopted to stop the dumping of harmful substances in the high seas, polluting seawater, damaging marine resources and threatening navigation and the safety of coastal countries.

Mankind makes constant progress and nature undergoes constant change; they never remain at the same level. Man therefore has constantly to sum up experience and go on discovering, inventing, creating and advancing. On the question of the human environment, there are no grounds for pessimism. We are convinced that with social progress and the advance of science and technology, we will certainly be able to exploit and utilize natural resources more fully and effectively solve the problem of environmental pollution and create better working and living conditions for working people and a beautiful environment for mankind. We deem it necessary here for us to say a few words on the question of nuclear monopoly. For the purpose of safeguarding international peace, protecting the security and environment of mankind a resolute struggle must be waged against the nuclear monopoly, nuclear threats and nuclear blackmail of the superpowers. China develops nuclear weapons solely for the purpose of defence and to break the nuclear monopoly and ultimately eliminating nuclear weapons and nuclear war. China's nuclear weapons are still in the experimental stage. The Chinese government has consistently stood for the complete prohibition and thorough destruction of nuclear weapons. Our government has on many occasions declared that at no time and under no circumstances will China be the first to use nuclear weapons. At present, there are some countries which are worried by nuclear pollution. Such a sentiment is understandable. But we hold that the fundamental cause of the threat to the existence of mankind and the human environment by nuclear war should be eliminated.

China is still a developing country, and the level of our science and technology is still not high. We still lack experience in conserving and improving the human environment and have to continue to make greater efforts. We wish to learn from all successful experience of other countries in the field of the protection and enhancement of the human environment.

China

During the past decade the importance of environmental issues has been widely acknowledged by the world community. Environmental pollution is no longer treated as an isolated, local phenomenon, but as a global, social and economic matter. The damage caused to the environment by inappropriate development and exploitation of natural resources has been fully recognized. Attention has been drawn to the more serious 'combined hazard' brought about by the interaction of pollution and destruction.

An increasing number of countries have come to realize that environmental protection can make a positive contribution to ensuring and promoting sustained economic growth and must be regarded as a strategic goal in the formation of a sound, long-term policy for social and economic development.

China is a developing socialist country. While accelerating development, the Chinese government has always given care and attention to environmental protection. Especially since the Stockholm Conference environmental protection in our country has made headway in various fields. A series of policies and decrees have been enacted, aiming at protecting and improving the environment. Now that our national economy is undergoing readjustment and restructuring, the government has made a special decision to strengthen, in the meantime, environmental protection and to take the preservation of the environment and rational development and exploitation of natural resources as a basic integrated objective in our modernization efforts. As a result of the improved management and adoption of various measures to prevent and eliminate pollution, the environmental quality of some cities and water bodies has been improved. In addition, strict policies have been implemented to stop the destruction of natural resources, forest, water and soil in particular. Natural reserves of different types have been established. The pressure exerted on the environment by rapid population growth has been alleviated by cutting birth rates considerably.

I would like to make a few remarks here on some of the basic problems regarding environmental protection. The entire history of mankind is one of the development of human civilization, both spiritual and material, from a primitive to an advanced state. It is imperative for the developing countries, comprising the overwhelming majority of the world's population, to speed up the development of their national economies; this, in its turn, depends heavily on a sound ecological environment. They should therefore give high priority to the development of their national economies and, at the same time, take into full consideration basic environmental factors while shaping their development strategies, so as to ensure a correct relationship between development and environment. They should never stop or slow down the pace of development just on account of environmental consequences which might occur during the course of development. Only the acceleration of development can provide solutions for environmental problems created by human or other factors. Unjust and irrational world economic relations have imposed impediments on development as well as on the enhancement of the environment. This further bears out the need to have this old order restructured.

It is a global strategic issue to effectively mitigate the great pressure on the environment arising from the dramatic growth in population. We have consistently

maintained that among all things in the world, people are the most precious. Nevertheless, we have become increasingly aware that within a given historical period human reproduction must be kept in conformity with the tolerance and the carrying capacity of the human environment. Today it is mainly in the developing countries that there are sharp population increases, thus bringing an ever growing pressure on the environment. Excess consumption of natural resources in man's production and daily life is posing a threat to the sustained availability of resources; inappropriate modes of development are destroying the ecological balance of nature, causing water and soil loss, desertification, climatic changes and other damage; the dramatic growth in urban population produces serious social hazards. In order to secure his own survival, man has to tap his creativity in reducing environmental damage as far as possible, while at the same time resolutely practising family planning to bring population growth under control.

The rapid depletion and destruction of natural resources have aroused great anxiety. Various kinds of natural resources combine to make up the environmental entity and the destruction of one part will affect, or even damage, the whole environment as well as the other related resources. For example, forest coverage is a basic indicator of a sound ecological environment. Yet China's forest cover accounts for only 12.7% of her entire territory. The decrease in forest resources has led to increased water and soil loss, further desertification and numerous disastrous floods and droughts. Great efforts have been made to popularize the use of biogas in rural areas, to enlarge fuelwood forests and protect natural vegetation. Effective work has also been done to control desertification. In this connection, we cannot but feel gravely concerned that natural resources in many regions of the world are still being subjected to various kinds of damage, and that tens of thousands of living species are in danger of extinction. Unless brought under effective control, this will bring about irreparable consequences in the sustained development of human society, especially of the national economy in the developing countries.

At present, agriculture still plays a major role in the economy of most developing countries, thus making the protection of the agricultural environment all the more important. There are two dangerous trends in present day agriculture. One is towards a so called oil-fed agriculture, which depends excessively on petroleum, a non-renewable resource, and which seriously damages the soil and contaminates the environment; the other is a tendency to extend arable land by wantonly destroying forests so as to obtain more grain and firewood. Natural vegetation is thus destroyed and the agroecosystem deteriorates. The wide use of farm chemicals also causes serious damages. China's traditional farming is characterized by intensive cultivation, full use of natural, organic fertilizers and biological control of pests and diseases. Our government is fully aware of the importance of carrying on and developing this heritage and of making use of the achievements in modern science and technology to establish a sound agroecosystem, by which the optimum transformation of material energy is obtained and which requires less investment and low energy consumption, yields high returns and is conducive to the protection of the ecological environment. We are ready to learn from the strong points of all countries in agricultural development and make a concerted effort with other nations in seeking a rational strategy for agricultural development.

The environment has a direct bearing on the interests of every individual. Only when all the members of a society are aware of its significance and are ready to take the necessary action will it be possible to solve the environmental problem. Our government attaches great importance to environmental education and publicity.

The achievements in the past decade hold out a bright prospect for environmental protection despite the continued destruction of and threat to the human environment. Mankind is bound to progress, so is nature. Neither will ever stay at the same level. The Chinese government remains optimistic and positive about the eventual solution of the environmental problem, and is ready to expand scientific and technological exchanges and cooperation with other countries in the field of environmental protection, so as to make our due contribution to safeguarding and improving the human environment.

Colombia

It is not only at the government level that an interest in the environment is manifested; it is also apparent in the growing expectations of broad sectors of world opinion. The broader and clearer the dissemination of environmental issues, which, by their very nature should be of concern to all mankind, the greater will be the involvement of individuals and the masses in seeking the solutions that can only be found with their active participation.

Some say that, given the seeming inevitability of a cataclysm, only the restriction of the birth rate in poor countries and a check on such states' economic growth would be adequate solutions. This is a negative view and one that is profoundly unfair to countries which continue to be mired in backwardness and in the ignorance and misery created by underdevelopment. It is obvious that these problems are not the result of chance, but of a model of economic growth which has alienated man and made him the slave of progress and technology instead of making him more autonomous, less dependent and, in short, more human.

The approaches to the problem by rich and poor countries are different, for the obvious reason that their interests and problems are different. In the rich nations, there is excess and the craze for consumption, the neglect of man as a natural being and an opulence synonymous with waste; in the rest, there is an absence of the most elementary benefits, whether material or cultural.

The poor countries require development in terms of the needs of peoples and industrialization which will ensure their independence as nations. The sister countries of Latin America claim the right to their progress as nations and to a climate in which no new direct or indirect obstacles are placed in the way of their efforts to achieve economic independence and social progress. There does exist a possibility of growth without the adverse aspects which the indiscriminate application of technology and science have brought with them, particularly for the highly industrialized countries. It is not to science and technology themselves that these faults should be imputed, but to the systems, procedures and methods that have used them in an unsuitable form at variance with man's needs.

We are prepared to collaborate in any attempts to pool efforts to defend the environment, but without renouncing national sovereignty, which does not at all stand in the way of the collaboration of the countries in an international community with the basic aim of conserving peace, achieving justice and the rule of law.

All measures which are aimed at avoiding the arms race and the expenses of war or preparation for war, which so heavily affect the weak economies of the backward countries, will be viewed with sympathy by my government, which considers this problem to be closely linked to a general policy of promoting human well being and to the defence and protection of the environment.

The disturbance of the world environment takes different forms in the developed and rich countries, which are generally located in the temperate areas of the planet, and in the poor and less industrialized countries, which are frequently to be found in tropical areas. In the poor countries, the greatest dangers are poverty, the pressures of external buyers and the lack of scientific knowledge of the potential, and of the means of appropriate management, of reserves. While the highly polluted countries will have to expend enormous sums to eliminate pollutants, the

underdeveloped countries could avoid the problem by preventing the establishment of polluting processes in their territories; these are in any case obsolete technologies, the products of which would always be at a disadvantage in the market.

The tropical countries can offer the chance of development with new, clean technologies based on the use of renewable resources which will offer their peoples the necessary well being and the possibility of processing and marketing their products while contributing to improving the ecological balance of our planet.

Colombia

In only ten years the environment has become part of history and has definitively impinged on the social memory of the contemporary world. Ten years have been sufficient for society to begin to recognize intelligently the collective economic value of the natural and human environment. There are few instances of progress so rapid, innovative and powerful as that of the unity of opinion within countries against the plundering of our biophysical environment. Much of this reaction to the environmental crisis is due to the association of the political, cultural and civil forces which have affected state decisions. The deterioration of the environment nevertheless continues to advance at unprecedented rates.

The environment problem is a political one, the political problem of the decade. It is the revolutionary idea of the decade. Political awareness is required, as well as courage to carry out activities that need the reallocation of financial resources to longer-term objectives. Problems like erosion, droughts, pollution, floods, the plunder of fauna and the destruction of natural areas are increasingly frequent in Colombia and their effects are in some cases proving beyond man's capacity for repair.

It is obvious that the longer the implementation of the active double principle of conservation-production is put off, the greater the costs of replacing natural resources; in ecological terms irreparable losses may occur.

An important source of international cooperation has been the various forms of horizontal cooperation between the countries of the Latin American region and their institutions and experts. We have made our own contribution and have received help from our Latin American colleagues. The exchange of experience has been exceptionally valuable and has given rise to a network of regional and local experts and knowhow which provides an important basis for the future.

Noteworthy progress has been made in creating public awareness of the importance of conserving ecosystems and the environment as a fundamental aspect of efforts to ensure the well being of the community and improve the conditions and quality of life of the population.

It is now current practice to prepare environmental impact statements as part of all studies for the development of new projects. This practice has made it possible to identify the possible effects of projected activities on ecosystems and to devise some measures to correct them.

There is an ever clearer need to unite efforts and to bring about changes in models and styles of development which go beyond existing political structures. Structural changes do not necessarily bring changes in modes of development unless they go with an awareness of the social and environmental dimensions of human activity.

The years since Stockholm show that multinational cooperation is a good method. We have advanced along the paths of thought; we are now walking the way of action. We perceive the solution of environmental problems as a source of savings in the long term. The adoption of more sensible styles of development will also require time, and that is why a start must be made now, why it is a matter of the highest priority. The time for the future is now.

Cyprus

Cyprus has felt the effect of man's activity on its environment for no less than one hundred centuries and it is therefore not surprising that the quality of its environment has been considerably affected. Historical evidence proves that in ancient times the island was covered with forests and was known as the green island of the Mediterranean. Through the centuries man cleared the forests to provide land for agriculture, for grazing and to provide timber for his needs. Uncontrolled fires caused considerable damage to forest vegetation, while free range goat grazing, which occurred on a large scale in all the forests of Cyprus, had a destructive effect on young regeneration and ground vegetation cover with consequent increase of soil erosion and eventual destruction of the land itself. Proper land use principles and practices were unknown in the old days and large areas of forests were felled on steep mountain slopes, where repetitive cultivation of the land and continual erosion of the soil have induced degradation of the land down to the parent rock.

More recent times have also had their impact on the natural environment of the island. Technological and economic development in all fields has unavoidably influenced further the natural environment. Rapid urban development during the last three decades as a result of the increase in the movement of population from rural areas to towns and the increase of the tourist trade has also left its mark. There has recently been considerable activity in the development of the coastal areas for tourism, hotels or apartment blocks have been built in beautiful coastal areas, with effects on the environment that are not always desirable.

Cyprus is most anxious to participate in any international initiative seeking to protect and enhance the natural environment. Matters affecting the environment are too complex and difficult to understand and solve on a national level only; there is an indispensable need for full international cooperation at all levels if the natural environment is to be preserved and enhanced for the benefit of present and future generations.

On the national level, the government of the Republic of Cyprus is taking all possible measures to protect its native environment.

- The forest resources of the island are managed on the basis of the sustained yields principle and our policy provides for their protection, improvement and extension.
- There are 120 species of plants native to Cyprus and some of these are very rare. These have now been fully identified and classified by expert botanists and every effort is being made for their protection.
- Fish stocks are rationally managed and all marine endangered species are strictly protected.
- The most serious form of the degradation of nature in Cyprus is, without a doubt, soil erosion. To combat this the government has been carrying out many agricultural schemes and projects including the strict application of soil conservation and tree planting legislation.

The Cyprus Council for the Conservation of Nature, set up in 1974, is the body responsible for planning and coordinating the work of the responsible government

departments in the field of the natural environment. The Town and Country Planning Law, promulgated in 1972, provides legal backing for measures to control the physical development of the Republic through a national development plan. But this can only be the beginning. Uncontrolled and unplanned activities of man continue unabated in many countries and contribute to the further deterioration of the human environment. Efforts are needed by every human being alive, as well as governments, if the common heritage of all mankind is to be protected, enhanced and passed on to future generations in a better condition than we received it ourselves.

Czechoslovakia

The governments of all countries, regardless of their political and social systems and economic structure and level, now face a number of very serious problems relating especially to food, and increasing demands on energy supply and raw material resources. This is naturally reflected in international policies and events and, of course, environmental policies.

I would like to comment on one of the most important problems which face us. Basic and applied research has for several years been signalling that a considerable range of toxic substances have not yet been fully identified, that they await detection, and therefore that this aspect should be given the same or even much more greater attention than is devoted to the prevention of the harmful effects of known toxic substances in the environment. We are concerned with latent disturbances of the environment and with health hazards which will become manifest only after many years, at a time when damage to human health and to the environment will have become irrevocable or from which recovery will have become economically unfeasible. Scientific and technical development in a number of branches, especially in the chemical industry, is developing new technologies every day which result in the production of new products whose environmental impacts are still unknown to us; nor do we have as much as an approximate idea of all the hazards involved. I do not think it necessary to recall examples of recent catastrophic failures in industry, the risks of the application of many protective substances in agriculture, the health hazards involved in using of many drugs etc.

I believe that the industrialized as well as the Third World would welcome any concentrated effort devoted to the solution of these problems. Scientists of many countries are struggling to determine the damage caused to organisms and to their environment by harmful and toxic substances whose effect is slow or indirect (we are not concerned with carcinogens and mutations). It is also necessary rapidly to complete the methods of diagnosing the state of the environment where harmful substances act as the sum of various factors.

I would like to emphasize the necessity of devoting continuous attention to the developing methods of effective reproduction of the basic components of the environment and to the conservation of an adequate genofund. I consider this to be important in order to preclude the undesirable reaction of our ecosystems.

Protection against the threat posed to human health, life and human environment by various harmful factors must be additional to the struggle against war and arms race which is the primary international obligation of all people of this small and only one earth. I would like to proclaim here that the world of socialism has set this as its goal and I believe that it should become the goal of us all.

Denmark

Hesitation on our part will mean that the harm we inflict on our environments, and thereby on our conditions of life, will in some respects be irremediable even by the most advanced technology and by any economic sacrifice. We have already had the first dire warnings: the discharge of heavy metals, such as mercury and cadmium, has already claimed a heavy toll in human lives and incurable disablement, and species of animals have been exterminated as a result of man's encroachment on nature. We should aim at a better understanding of environmental problems and, not least, their relationship with other social factors.

Ecology is the key to our understanding of the complex processes of our environment and of the interdependence of living organisms and their surroundings. Ecology has shown us that environmental processes are interlinked and that individual processes cannot be isolated – except, perhaps, in laboratories. From this branch of science we have got ample evidence that we have been overlooking essential factors in the application of technology and industrial knowhow.

There is no denying that technological progress is the foundation on which we have been able to build the affluent society of our century, especially in Europe and North America. On the other hand, this development, which has led to an extensive industrialization, has also caused serious disturbance to the natural environment. The solution does not lie in a repudiation of technology and material progress, but it must, from the very beginning, pay due regard to the environment.

We may survive, our children may survive, but subsequent generations will hardly feel grateful to us for having let matters take their course. Thirty or perhaps fifty years ago the problems were delimited geographically; but today the scope of human action and intervention is so wide that the consequences may affect us all. This calls for international solidarity in the struggle to preserve a sound environment, not in the shape of reservations for privileged classes, but as a human right for everybody, wherever they happen to live and whoever they are.

In the developing countries the concern for the environment has dimensions and characteristics which are quite different from those in the industrialized part of the world. In Denmark we are fully aware of this and, therefore, also of the need for the governments of developing countries to approach the issue of the environment in a way that is compatible with their own conditions.

Improvement of the human environment, as well as efforts to prevent environmental deterioration in developing countries, are integral parts of the development process itself. Growing awareness of the vital issue of the environment therefore underlines the need for increased efforts on the part of industrialized countries to assist developing countries in reaching the goals they have set for their economic and social development.

The risk that the process of development may in itself have negative effects, directly or indirectly, on the environment should not be overlooked. In its development cooperation policy the Danish government is therefore prepared, upon request, to assist governments of developing countries in their efforts to avoid or reduce this risk.

Representatives of developing countries sometimes express concern that environmental measures in the industrialized part of the world may have *adverse* effects

on *their* development. I hope that discussions at this conference will prove that all the industrialized countries are aware of their responsibilities towards developing countries in this respect.

I think it justifiable to speak of misuse of the world's resources; the industrialized nations must largely be held responsible for this. It is often emphasized that the world's resources are limited and finite. The continued growth in the consumption of our resources must therefore have a point of termination, and in some respects and in some places we may in a few decades be confronted with shortages. There is no consensus of opinion among international researchers as to when the various resources may give out, but there is general agreement that environmental quality is deteriorating.

Pure water and pure air – like wholesome foodstuffs – are benefits that have to be protected. These essential needs of ours are now in danger of being ousted. We must therefore economize on these gifts of nature and on raw materials. And even in cases where the reserves may stand up to increasing consumption, it will still be necessary to recognize the principle of recycling. The piling up of refuse, too, may become a menace to our resources, especially because man made materials represent an increasing part of the waste. Recycling reflects an awareness of the environment and is an imitation of nature's own processes in which substances continuously enter into new combinations. Recycling will not only save resources but also reduce the discharge of waste.

It is indeed a moot point whether material wealth and growing prosperity should remain the principal policy aims of the industrialized countries, or whether an alternative political philosophy will have to be considered. So far, economic growth has been a condition for the level we have reached in social, educational and health standards which must, of course, continue to develop. But in many other areas of material wealth the industrialized countries will – whether they like it or not – have to reconsider the base on which social progress rests.

We cannot go on regarding wealth merely in terms of the amount of services and goods we can make available. We must look at the value of each product and see who will benefit from it. We must consider the environmental damage caused by such production and the damage it may do to human beings. The need for a more equal distribution of assets will grow, more especially because pollution abatement may set limits to the rate of economic expansion in the terms we have applied so far.

The question of distribution of wealth also applies to distribution among nations and, consequently, to the relations between developing and industrialized countries. Many of the raw materials on which the high industrial level in the rich countries depends come from developing countries which need these raw materials themselves to make essential improvements in their own living standards. We can hardly permit ourselves to look at such improvements to the standard of living with the same critical eye that we apply to our own standard of living. So when we regard pollution as the global problem, which indeed it is, we come up against great difficulties. Our affluence is largely due to underpaid contributions from the poor countries. The primary problem of these countries is to provide their peoples with the mere essentials of life. It is the production in the wealthy countries that is primarily responsible for the global environmental crisis. In any future international cooperation on environmental issues, the rich countries must, therefore, look at development from a new angle.

I believe there are many fields in which we may succeed not only in reaching

agreement but also translating environmental protection into practical measures. The water of the oceans is common property, but unfortunately we are pouring more and more refuse into them. It is absolutely necessary to protect the oceans against discharge of environmental poisons by an agreement similar to that which exists on mineral oil discharges. Such oil discharges are still taking place, and – like dumping – they ought to be prosecuted.

There are problems connected with the large, civilian aircraft designed for supersonic flight. In the first place, supersonic booms may cause nuisance to people when such aircraft fly over land territories; but the uncertainty about the effects of such supersonic flights on the atmosphere must also give rise to concern. It has often been said that progress must not be impeded, but this may be a very poor excuse for taking a step backward if, in the name of technology, we destroy the environment only in order to shorten the travelling time between continents by an hour or two.

As a representative of a small country I would like to emphasize the importance of cooperation within the field of research, where many relevant possibilities for joint action exist. Research, for instance, may help us replace environmental poisons by other substances. Research can ascertain the effects of pollution on human health. Exchanges of the findings of research work could save a great deal of work and unnecessary effort. This would be of importance not least to the assistance which industrialized countries owe to developing countries.

One of the most important factors of an active environmental policy is effective planning of the use of land as well as of government action. The principal importance of planning lies in the fact that it can prevent environmental abuse; but it should also ensure the protection of areas which are considered particularly valuable. Effective planning is one of the most rational instruments of a long-term environmental policy, because planning based on ecological considerations may forestall a number of environmental problems. In practice, the industrialized countries have been late in recognizing this fact.

Environmental protection requires a wide spectrum of action. I have already referred to research and planning, and I have also pointed to a few concrete measures. In addition, I would like to emphasize the fundamental need for systematic regulations at national as well as international level. Such regulations must be formulated with considerable foresight and flexibility to ensure that they can cope with new challenges. Standards of environmental quality that we find appropriate today may later prove to be inadequate.

Flexibility in systems of regulation and organization should not, however, result in giving environmental protection a low priority. We must not forget that it will often be those in a weak position who have to suffer most from environmental destruction – and the weaker segments of the population also get the smallest shares of social wealth. This underlines the global nature of the problems involved and stresses the need for solidarity among all peoples and nations.

Denmark

An evaluation of the ten years since Stockholm seems to give both an optimistic and a pessimistic view of the present state of affairs. Looking at the positive achievements, substantial progress has been made at the national level. During the last decade, almost all countries have introduced legislation and established government bodies for the purpose of protecting the environment. Further, we have managed to get a fairly good picture of the environmental situation.

In my opinion this is due to the growing awareness of environmental issues among populations, partly as a result of the work done by non-governmental organizations, but also through the commitment of central, regional and local elected bodies to solving environmental problems.

One overall objective defined at Stockholm was to increase knowledge and understanding of our environment. This has to a large extent been achieved. A global environmental monitoring system has been established and a world conservation strategy has been developed. The other task was to protect and improve the environment. In spite of growing global and regional cooperation and the establishing of treaties and action plans, this task remains largely unsolved. It is a depressing fact that the state of the global environment is generally worse today than it was in 1972.

One major reason is that the serious pollution problems primarily caused by industrial countries have not been solved, not least the problems caused by transboundary pollution such as sulphur dioxide and carbon dioxide and the threats to the ozone layer.

From the global point of view, developments in the Third World gives cause for special concern. In many developing countries natural resources are gradually being destroyed: forests disappear, and, with them, the vital genetic resources; arable land is destroyed, and the desert takes over. We are consuming the productive resource base by satisfying current needs at the expense of future generations.

On the other hand there seems, in parallel with a growing awareness of threats to the environment, to be a growing understanding of the fact that economic growth can take place without damage to the environment and even imply the possibility of improving it. The concepts of environmental management and resource management have been linked and this greatly facilitates the work we have to do in the future.

We must keep in mind that we are all responsible for the conservation of the natural resource base and for not depleting it by short-term solutions. We also know that in a number of developing countries the daily struggle for life leaves no room for long-term solutions. We cannot solve the global environmental problems without promoting a type of economic development which incorporates environmental concerns. Here, aid and transfer of resources from the rich countries, and from others in a position to do so, to the poorest countries play an important part.

An initial step must be to ensure that development assistance does not have adverse environmental or ecological effects, undermining the very basis of development. Assistance should not only be improved, but increased. Second, we

must eliminate threats to the global environment, originating primarily from the industrialized countries, by international cooperation.

In spite of all our differences, the nations of the world will fight together for a better environment. We must protect the air we breathe, the oceans that may hold the key to the solution of future food problems, and the precious soil that feeds us. Ten years ago we attended the Stockholm Conference. Much has happened since then. But there is still only one earth.

Egypt

When man came down to earth from the boughs of paradise he was not the strongest or the most able of his fellow animal species; but he managed to survive and eventually to gain ascendancy over other elements of his ecological system through society, men working together. Unity of mankind saved *Homo sapiens* at the early dawn of human history; and we are assembled here to ask ourselves whether mankind, at present split by wars and threats of wars, by racial discrimination and evil greed, by extravagancies of surplus and humiliations of poverty, can find its way back to unity, the only way to survive today.

We cannot allow the dynamic interaction between man and the environment to proceed unheeded and consequently do irreparable damage both to man and his environment. These complex interactions are multidimensional and involve ever changing levels of population, science, food production, capital, non-renewable resources and pollution. But the complexity of these interactions should not blur the clarity of our vision: the gaps must be bridged, the dichotomy must be stemmed and man must survive in harmony with his environment.

Peoples of the world are entitled to strive for the betterment of their environment, the enhancement of their economic potential and emotional satisfaction; but not at the price of destroying the elements of life of others. Material achievements are no justification for destroying less fortunate people, expelling them from their homes. This is the tragedy of the people of Palestine.

There are questions we must answer about the principal challenges to be faced, gaps of knowledge to be filled, institutions to be established, measures to be taken and conventions to be adopted. But these questions need first be answered at national level. The challenges and opportunities that the human environment poses depend on perceptions and outlooks that are determined primarily by prevalent socioeconomic factors: bilharzia, malaria, malnutrition or overpopulation may be major challenges in certain countries but not in others.

A unified approach, that will give coherence to our human environmental programme, should combine environmental problems of global and transnational scope and the sum of national environmental problems. This applies to the definition of international commons. Our legitimate concern with problems of global extent such as oceanic pollution, climatic change, degradation of stratosphere components etc should not divert our attention from the very serious national problems of developing countries, whether these are created from within the national boundaries or transmitted from adjacent territories.

We welcome, and intend to participate actively in, global networks of environmental monitoring, natural reserves, germplasm banks and agricultural information centres, because these international institutions are needed and because our goal should be to bring the peoples of the world together and to involve them in matters of common interest. But we suggest that the proper functioning of these global machineries requires the effective functioning of their national components; to this end should be channelled most of the resources that will be available through the proposed international fund.

Our present conference should be more than a congregation of men and women concerned with the undoing of the harm inflicted on world environment. It should

be the inaugural phase of a programme sustained by the collective efforts of peoples of the world with the purpose of discovering and of following the road to the survival of all mankind in health and happiness.

One of the main responsibilities of this conference is to issue an international declaration on the human environment, a document with no binding legislative imperatives but – we hope – with the moral authority to inspire in the hearts of men the desire to live in harmony with each other and with their environment. Such a document will live in the collective conscience of the human race and will eventually breed bilateral, regional and international conventions that formalize the collective will to maintain the quality of environment and to sustain its productivity for the benefit of present and future generations.

These objectives will require substantial changes in people's attitudes, in their systems of values and in their concepts of national interest. Man's interest and concern should transcend national boundaries, not with greed and gluttony but with the feeling that this is only one species and that this is only one earth. This declaration should set no hindrance to imagination and ambition of mankind, but should implant within the sociocultural parameters of human behaviour controls of self discipline, and should resent all forms of colonialism and expansionism because they represent depletion of environmental resources for the short-term benefit of the alien some and not the long-term benefit of the all.

Wealth results from the active and dynamic interaction between man – assisted by science and technology – and elements of his environment; development means inevitable interference with natural systems. The declaration will, we hope, give the moral guidance that enables man to strike a healthy balance between his need to develop the resources of his environment, the needs of generations yet to be born, and the interest of his good neighbours. If this is not our faith, it should be.

Egypt

Egypt shares with the other countries of the world an interest in protecting the environment and developing natural resources. A complete list of necessary legislation on the environment has been prepared in order to introduce necessary amendments to protect the River Nile, the environment in the workplace, to dispose of industrial wastes, to protect the seas from oil pollution and reduce ionizing radiation. Egypt intends to establish a centre to protect the marine environment against oil pollution of the shores of the Red Sea. We are also cooperating to establish an environmental health centre at Embaba near Cairo, to be a centre for monitoring the elements of the environment and their pollutants and to set standards and criteria which suit our national conditions in Egypt.

Egypt is very concerned about the Nile basin, which is common to eight countries in Africa. The Nile basin countries cooperate in activities relating to water resources, their development and distribution in a model for positive cooperation. Egypt also shows interest in the problem of desertification because the country is in fact no more than a large oasis extending along the banks of the Nile and occupying only 4% of the area of Egypt. The rest are vast deserts with resources that need development. The deserts are a danger to the green oasis. Egypt has shared in a project to establish a green belt across the north of the African continent to protect plantations and the grazing lands from being engulfed by the desert. Egypt has also participated in a project to develop the underground water resources in the Nubian sandstone basin in the north-east of Africa in cooperation with the Sudan.

While working in all such fields Egypt does not overlook its problems as a developing country still suffering from the problems of developing countries such as deficient services of drinking water supply and sanitation, bad housing, overpopulation in big cities due to continuous emigration from the rural areas and a high birth rate. Infectious and parasitic diseases are still a big problem that results from poor environmental conditions.

In spite of the marked increase in safe drinking water supply, a quarter of the population in rural areas are still without a source of safe water. The increased projects and financial allocations for sewage disposal are not enough to meet the present deficiency, let alone meet the expansion needed in the future. Notwithstanding the efforts carried out in the field of curative and preventive medicine, intestinal diarrhoeas, enteritis and endemic diseases such as schistosomiasis are still widespread.

Among the problems of development in Egypt is enthusiasm to control agricultural pests in order to protect crops. But this entails use of excessive amounts of pesticides, especially the organophosphorous compounds which result in many cases of poisoning among agricultural workers and the general population. Industrialization in Egypt was not accompanied by sufficient efforts to protect the environment from industrial pollutants, either air emissions or solid or fluid wastes.

These two examples underline the importance of the approach which summarizes the four elements of the problem: man, resources, environment and development. We must secure a decent and healthy life for man, we must improve the use of the natural resources and sources of energy and we must continue development to realize the welfare of the individual and the society. All this should be done without

exposing the environment to anything that might upset its balance and capacity to regenerate its elements and get rid of pollutants. We must take into consideration the fact that development can and must be pursued without endangering either man or the environment.

Among the problems of the environment in the developing countries is the fact that more emphasis is being put on academic studies and research which, though important, seem to overshadow the real services to protect the environment. Although we must never forget that all efforts should aim at improving the environment and consequently the human health and the welfare of man, I am afraid we might get so much engaged in studies and research as to forget the aim of these activities. We must not forget also that what might be considered as a necessity for some people is a luxury that cannot be afforded by others. The individual who has to walk for a mile or two each day to get fresh water is not concerned with the protection of a certain plant or insect species. The people who do not have a shelter from the hot and damp weather do not care much about wildlife reservations. The millions who suffer from malnutrition cannot be concerned about a newly discovered chemical that causes gene mutation in a species of mice. I hope that the programme of work of the next ten years will be more pertinent to the daily urgent problems of hundreds of millions of people and that we can concentrate on the well planned, low cost, rapid output projects which benefit the most needy.

Ethiopia

Ethiopia's experiences in the sphere of environmental protection and management in the last ten years have been marked by both tragic and rewarding results. It is to be remembered that the year of the Stockholm Conference witnessed the beginning of one of the most shameful famines in Ethiopia. The gross neglect of the human and natural resources of Ethiopia by the regime then prevailing in the country, coupled with climatic changes, brought about the death of hundreds and thousands of Ethiopians.

Since then, Ethiopia has witnessed structural and revolutionary changes in all spheres of national life. Among the major changes made, the nationalization of all rural and urban lands, extra urban houses, major production and distribution enterprises, banking and financial institutions and the organization of the masses into associations should be mentioned as having direct implications for the rational utilization of resources and the protection and management of our environment. As in many developing countries, the life of the vast majority of the Ethiopian people is directly dependent upon the utilization and management of the agricultural resources of the environment – namely land and water. Hence, the democratic ownership, rational utilization and protection of these vital physical resources of the environment is a matter of survival and well being.

Ethiopia has fully realized the catastrophic consequences that invariably attend the gross abuse of land and water resources. It is fully cognizant of the fact that only a broad based strategy of environmental protection and management of resources can have a positive, meaningful and lasting influence. To this end, the country has been making monumental efforts to organize the peasantry into associations. These have made gigantic contributions to national afforestation schemes, terracing of eroded hillsides, the digging of wells for safe water supply, the diversion of streams for irrigation purposes and the construction of earth dams and ponds for dependable perennial water supplies.

The rational utilization and management of our land, water and atmospheric resources is being facilitated more through the technical contributions of specialized government institutions such as the National Mapping Agency, the National Meteorological Services Agency, the Water Resources Commission, the Forestry and Wildlife Authority, Land Use and Physical Planning Departments. The scientific information provided by these and other institutions on the land, water, forestry, wildlife and atmospheric resources of the country are improving in quantity and quality.

Another major sphere of environmental protection and management activity in our country is the planning, development and management of urban and rural settlements. Realizing the importance of planned settlement development and management for raising the living standard of the people, the country has taken measures to improve institutional guidance in this area.

In the sphere of social welfare, the country is doing what it can to help bring about an improvement in the standard of living of the masses through the creation of better employment opportunities, provision of education, health, housing and other facilities. This is, however, a difficult and long-term strategic task. It is the development of the productive forces of a society that determines the production

relations and hence the level of welfare of the populace. Like many an underdeveloped country, Ethiopia cannot adequately meet the demand for goods and services of the populace without structural changes in its production forces and relations. The changes that have been instituted in the country since 1974 are aimed at creating the basic prerequisites for the progressive development of the material and institutional bases for comprehensive national socioeconomic development and public welfare.

Ethiopia's efforts in the sphere of relief and rehabilitation of victims of man made and natural disasters have been indeed vigorous. In the last decade Ethiopia has been a victim of both natural and man made disasters. The environmental impacts of these disasters have been staggering. Hundreds of thousands of people have lost their lives; others have been displaced. Ethiopia has been trying its best to provide help to these people by mobilizing both internal and external resources. However, the magnitude of the problem is such that major international financial and technical assistance is called for. Despite this and many other major constraints, the Relief and Rehabilitation Commission has been and is helping thousands of people affected by drought, war and displacement.

Important developments are taking place in such other spheres of environmental concern as public awareness and active participation, training and research in environmental management and international cooperation. The mass based development approach that has been charted out is undoubtedly a significant step towards the rational development, utilization, protection and conservation of our natural and human resources.

In the 1980s Ethiopia will strive to improve its environmental assessment, management and support capabilities. Ethiopia's experience in environmental protection and management fully agrees with the principles and approaches that have emerged in global environmental protection and management since the Stockholm Conference. The importance of economic growth and development for environmental protection and management, the need for the adoption of new lifestyles and patterns of development; the interrelationships between people, resources, environment and development; the mutual interdependence and collective self reliance between and among developed and underdeveloped countries are all concepts of central significance to global, regional and national policies, strategies and programmes of environmental protection and management. It is with this basic conceptual understanding that Ethiopia will make all possible efforts to facilitate global, regional and national environmental protection and management in the coming decades. From the practical point of view, Ethiopia is a country with a great diversity in geography, soil conditions, climate, natural vegetation, wildlife, culture and settlement patterns. This diversity of natural conditions and cultural patterns needs to be rationally developed, protected and managed in order to meet the material and spiritual requirements of the present and future generations.

Fiji

My country of many islands in the South Pacific, with still, clear skies and limpid, blue waters washing the coral beaches conjures up visions of Utopia to the present day dwellers of some major modern cities. But we are realistic enough to accept the exhortations of the many speakers on the subject of environment over the last few days; we realize and accept that no country, big or small, temperate or tropical, can and will escape the fury of the biosphere if the tempo of the degradative process continues at the present rate. Changes in the biosphere are no new phenomenon for this planet; man's existence itself on this planet has been because of these progressive changes over the millennia, up to the evolution of *Homo sapiens* himself. Species of plants and animals have become fossilized and will continue to be fossilized over the epochs; the land itself will undergo the natural weathering and relentless erosive processes over the geological eras. However, what causes deep disquiet and is of concern to us all, is man's ability to change the environmental balance to such a degree as to raise possibilities of harming and destroying man himself either directly or indirectly.

As a developing country, our environmental problems are basically those caused by lack of development associated with the scanty resources available to us at the present time. However, it has been possible to break the vicious cycle of unmanageable population growth by reducing the high birth rate of a decade ago. The problems of adequate housing for all, potable water and disposal of wastes – the trilogy of developing countries – are being dealt with with determination. In solving these problems we do not look towards reduction in technology, but its increase in a controlled manner to provide the answers in the future.

Although we are able to reduce to a minimum the degradation of land and forests by national legislation, as a maritime country our well being and survival is determined to a great degree by the stability of the waters around our land and the air that envelopes us.

A recent biological observation of the explosive increase of the crown of thorns starfish in the Pacific area has been a matter of grave concern to the people of the area. These particular starfish devour the tiny laborious coral polyps which over the ages have built and continued to build a protective barrier for our islands against the erosive action of the waves. The disappearance of these coral reefs is likely to bring about changes in the intensity of marine erosion which could spell disaster to a large number of beaches and smaller islands alike. Precisely what has brought about this pending catastrophic change in marine biology is not known clearly, but here as elsewhere it is unlikely that man will be completely absolved of the blame.

My delegation has heard with interest the suggestion of confining big tankers to established and accepted international routes, thus avoiding ecologically sensitive areas. I appeal for serious consideration of this proposal, as oil pollution of beaches – nature's gift to man – is creating a serious threat.

Man's ill conceived and hasty actions against his environment over the last two centuries are causing mental anguish and increased debasement of the quality of life, in spite of great material acquisitions. The penalty for known violations against nature in the last quarter of the twentieth century will, to man's sorrow, be paid in a very short time.

Finland

Life is often considered equivalent to movement. In our case, it should be movement towards a better quality of life. While moving ahead we are, however, not walking properly. In fact we are limping.

Years ago, governments set themselves two targets. The first one, on the national level, has been a high and sustained rate of economic growth and the raising of material welfare. The second one, on the international level, has been closing of the gap between industrialized and developing countries. We are now about to set ourselves a third target: protecting the environment and achieving a rational management of natural resources and a more equal distribution of their benefits. The question can be raised whether and how these targets can, with our present knowledge and thinking, be reached simultaneously. In my opinion, the answer can only be found in a new way of thinking, particularly in the industrialized countries. Reaching the first two targets presupposes the achievement of the third.

So far, we have been inclined to consider development only as a material concept. Some time ago, we used to speak of less developed countries. We now speak of developing countries. As to the industrialized countries, in the years to come we should perhaps be prepared to ask ourselves when the concept of quantitative overdevelopment enters into the picture. Relevant environmental considerations should be integrated with overall economic and social planning to relate the total activities of man to the environment and its natural resources. Attention should perhaps be paid to the activities of multinational enterprises in developing countries. In the industrialized countries, protection of the environment is often regarded as a merely technical matter. But in the developing countries the main problem is how to stay alive in an environment where the use of the natural resources is not always under the control of their people. The number of people to be supported by such an environment is in many cases too large in relation to the natural resources available. The chief issue is how to make the environment inhabitable.

To be good the environment should:

- enable basic needs to be fulfilled and society to develop;
- be free from factors unfavourably affecting the security and well being of man; and
- contain and preserve the basic values of nature.

Pollution abatement is certainly an important and urgent task in the short and medium term. The solution to pollution problems can also help us to some extent to meet the more long-term problems presented by natural resources. It seems to us, however, in the light of our present knowledge, that a much more radical change in our thinking is needed. Development must be conceived of as meaning something other than material things. From this new concept of development, the decision makers will have to draw the right conclusions. One of the first conclusions would seem to be the accrued urgency of a more equal distribution of benefits, both nationally and internationally. The senselessness of armament production in a world with exhaustible resources becomes all the more obvious, not to speak of the

use of these armaments and even of noxious chemicals, such as defoliants, in warfare leading to a destruction of the environment.

In addition to these few general remarks there could be many others on population, human settlements and urbanization and the work environment. The fact is that in recent years our concept of the environment and environmental protection has been very much enlarged. Environmental problems are not only problems of contamination and pollution. Overexploitation of natural resources, hunger, poverty, unequal distribution of welfare and amenities of life are equally, if not more important. The same applies to the work environment where a great part of the population is continuously exposed to environmental nuisances, the dangers of which have been proved but cannot be eliminated by those suffering them because they do not have the necessary influence.

DDT and other chlorinated hydrocarbons constitute a serious international problem. Their continuing use at the present rate gives cause to serious concern. On the other hand, to cease using these low cost pesticides would bring about serious handicaps to the health conditions and the success of agriculture in developing countries. One task of a new environment fund might be to finance research work of international importance, with a view to finding other less dangerous substances or methods to replace DDT. Such substances or techniques should be made available at reduced prices to the developing countries.

Sulphur emissions cause damage to people, materials and vegetation in two ways: through concentration in the air and through deposition on the ground. Studies have demonstrated the continental character of the problem. This implies that plans and programmes designed to reduce damage from sulphur emissions must be handled internationally. In the case of air-borne sulphur pollution the exclusion or non-participation of only one of the bigger industrialized countries from international cooperation to cope with this problem could jeopardize the efficacy of measures taken by all others.

DDT and the sulphur pollutants, as well as many other injurious substances, finally flow to the sea. The sea, the cradle of life, is a very old ecosystem and as such extremely delicate. Great oceans require more general international protection measures. For smaller pelagic regions, regional arrangements are suitable and necessary. The Baltic is a good and urgent example. Useful research cooperation is already going on between the Nordic countries concerning the Baltic. Bilateral cooperation has also been established since long between Finland and the USSR. However, efficient protection of the Baltic is only possible with the participation of all coastal states. This, once again, spells out the importance of universality to this conference and of all consequent international cooperation in the field of environmental policies.

Governments should be able to anticipate problems rather than only react to them. Anticipation requires knowledge. This is obtained by efficient information about the environmental situation at each particular time, and of environmental trends. An international monitoring system should be developed to give governments the necessary base for anticipatory decisions. This implies, first of all, coordination of systems for gathering scientific data and efficient international research cooperation. The target should not only be a situation with polluting industries combined with more or less effective antipollution measures, but non-polluting technology. Due to the socioeconomic character of environmental problems, the research activities must to a certain extent be interdisciplinary. An intensive worldwide network for systematic exchange of knowledge and experience

is required. To support international monitoring, a system for processing and distribution of the information material through all available channels – not only to the decision makers, but to anybody – is necessary. As a supporting activity education and training at all levels is of crucial importance.

Finland

UNEP's most central task is, in a nutshell, to teach man the sustainable management of the earth's natural resources. To this end, the use of renewable resources has to be kept within the limits of their regenerative capacity. In the utilization of all natural resources the principles of non-waste and low waste technology must be observed. Raw materials and energy can thus be used with optimal effect. Environmental pollution must be reduced to a minimum. Wastes have to be reused, recycled or returned to nature in an environmentally acceptable way. Reuse and recycling in accordance with the principles of non-waste and low waste technology are especially pertinent to the use of non-renewable resources. Nothing can prevent their depletion: but non-waste and low waste technology will help us to adapt to their depletion and gradually to substitute renewable resources for them. This is a course of action which will allow future generations to satisfy their basic needs.

If people are to be interested in environmental protection it is essential that their basic needs be satisfied. It is therefore a central goal of global environmental policy to free man from extreme poverty and hunger. Breaking the vicious circle of extreme poverty will open the way to unravelling the tangle of the interrelationships between population, resources, development and the environment.

We should concentrate especially on two areas: global problems relating to the protection of the oceans, the atmosphere and living nature as well as to the prevention of environmental hazards caused by chemicals and environmental protection in developing countries. From the point of view of environmental protection, desertification, the devastation of tropical forests and the problems of water supply and water management are among the most acute environmental problems in developing countries.

Environmental research in developing countries should be promoted in order to extend understanding of the causes and consequences of environmental problems. In this context it is necessary also to pay attention to research in social sciences, although the most urgent problems to be studied may belong to the sphere of the natural sciences. The benefits of supporting research would include an improvement in the ability of developing countries to protect their populations and environments against the hazards of imported chemicals and their misuse. Education is in the long run probably the most important instrument for tackling and solving the environmental problems of developing countries.

Since the Stockholm Conference Finland has stressed the importance of international environmental research. Finland has also given its full support to efforts to improve international environmental law. Three major subject areas have been identified for which guidelines, principles or agreements should be developed in accordance with agreed objectives and strategies: marine pollution from land based sources, protection of the stratospheric ozone layer and transport and disposal of toxic and dangerous wastes. We fully support this selection.

Finland has also together joined with other Nordic countries in actively participating in concluding an international convention on the protection of the stratospheric ozone layer. Finland has often emphasized the importance of regional

cooperation too. It seems to us that the environmental problems of developing countries can also be successfully dealt with regionally.

The convention on the protection of the Baltic Sea, the Helsinki Convention, is an example of global and European environmental policy being given concrete form on the level of cooperation between the seven Baltic Sea states. Another example of successful subregional cooperation is the work done in the environmental field by the Nordic countries, namely Finland, Denmark, Iceland, Norway and Sweden. We believe that the very rich, broad and close cooperation between the five Nordic countries has been further strengthened through the introduction of environmental elements into it. We would like to stress the importance of bilateral contacts in the field of the environment as a positive contribution to the cooperation between states and, naturally, as a necessary measure from the environmental viewpoint. This is very obvious in, for instance, the relations between Finland and its eastern neighbour, the USSR.

The future of humanity can be bright only if the accelerating arms race and, in particular, the deployment of deadly weapons of mass destruction can be stopped. World peace is a basic prerequisite for environmental protection. Problems connected with the interrelationship between population, natural resources, development and the environment can be solved with the use of many fewer resources than are at present devoted to equipment and organizations aimed at the destruction of human beings and the environment. We must exert all our strength in order to safeguard a secure future for our planet and its greatest wonder, living nature, of which man is also a part.

It is our duty to protect, with our united forces, the vital conditions of life on earth. The future is in our hands – let us not miss our chance. The spirit of Stockholm must be strengthened, it must be made a force which guides every government, every community of man and every human being.

France

Our aspirations towards a better life are shared by the whole of humanity. However, we must be careful not to overstress this universality for in doing so we risk forgetting the social, economic and cultural particularities which give originality and value to the aspirations of each nation. It would not, therefore, be realistic to try to impose upon the whole international community universal rules which would not take into consideration the rightful interests peculiar to each country or to each group of countries.

I hope that we can one day legislate for behaviour which will guarantee the protection of the biosystems in the various environments affected by the activities of man. But who can pretend that our scientific knowledge of the phenomena involved is satisfactory? Scientists are in dispute on so many environmental matters that we cannot be optimistic. We have also to admit that most of the protective measures we take are too short sighted. Too often they are designed to protect our own rather than the general interest.

Social and economic development and the protection of the environment are not in opposition: on the contrary, one is the condition of the other. It is growth alone that will give us the possibility of releasing resources and inventing techniques that will improve our lives. Some campaigns advocate a return to a state of nature. This is a luxury for people who are already well provided for and a real provocation to the Third World, as well as the rejects in our own consumer-oriented societies. Such views jeopardize rather than help the cause of the environment. The solutions to most environmental problems are technological; this therefore implies that what is needed is an acceleration of the modernization process and also, of the development of our societies. Is the consciousness of the threat hanging over our planet not a result of the progress of science?

The protection of the environment must be taken in its widest sense. It means that for developing countries the struggle against hunger and against diseases is one of their major environmental objectives. In highly industrialized countries, the question is not one of stopping growth but of refusing to pursue growth at any cost.

The importance we have been attaching, for the last few years, to the protection of nature, points up the deficiencies of an economic theory which does not take into account the values of our environment such as the purity of water, silence, the quality of air and space. The main problem at present is what direction growth should take and how to eliminate its more disastrous effects on the environment. Provided we choose low pollution growth, this growth will be useful; but no resources should be wasted if we cannot renew them. Such efforts must be beneficial to the countries of the Third World. They should be able to rely upon an adjustment upwards of the prices of raw materials which cannot be renewed and which they supply to us.

I will finally stress that the measures taken to protect our environment should be a permanent feature of the modernization and organization of production. Environment must be and can be the key to a new technological revolution. We can observe in several countries, and principally in France, a simultaneous effort to define both the limits of growth and the future evolution of the conditions of our daily life.

A concern shared by all countries is related to the difficulties we are confronted with when estimating the limits and the actual scope of environment policy. We know that this policy had at first a very narrow meaning. In its initial stages, it was oriented solely towards the protection of natural resources and of space or was just a struggle against nuisances. We defined the principles of a rational management of water resources, we created regional and national parks and sites we wished to protect.

At the same time we became concerned with urban development. Environment means for most of our people the background of their daily lives, the background against which they live and work. A recent opinion poll in France showed that concerns about the improvement of the environment are related to both the quality and quantity of space available in every day life. We must pay particular attention to the satisfaction of these aspirations and justify efforts and actions in various fields. I will mention particularly:

- the struggle against noise and the specific disturbances of industrial and urban concentrations;
- special efforts to reduce atmospheric pollution in residential districts, whether this pollution comes from factories, private houses or from automobiles; and
- policy on urban spaces, wooded periurban areas and green areas.

Overcrowding is the main problem in our cities. Most disturbances result from this and city dwellers, even when their living space is satisfactory, resent a lack of space and leisure, a lack of easily accessible free space and a general feeling of overcrowding. All over the world, the problem of the dimension and the density of urban agglomerations is basic to all the discussions concerning the quality of life. These problems are difficult to solve.

The success of any action undertaken at a national level depends greatly on the help we may expect from the international community and on the direction of other countries' policies.

We must benefit from the experience of other countries and the exchange of information on the technical and administrative aspects of their programmes; we must coordinate and activate researches and coordinate actions on our natural environment.

The efforts that are being made or that will be made to improve the quality of our lives are already compelling us, and will compel us all the more in the future, to divert a share of the national product from immediate productive investments.

France

During the past ten years more could have been done to combat noise, to recover waste, to prohibit the spoiling of the countryside or restrict various forms of pollution. Environment policy should, no doubt, have been even more closely integrated into countries' economic, social, cultural and political life.

The world has clearly changed a great deal since Stockholm, with intensified inequalities, geographical changes and the emergence of new technologies. I have noted since Stockholm advances in awareness of the environment, in public opinion, in local communities, in enterprises and in administrations. Progress has also been made in understanding our world, its biology, its life, giving a deeper knowledge of the major balances and the profound interdependencies in nature. The environment has been one of the domains where North-South relations have progressed.

It is increasingly clear that in each country the environment embraces living standards, lifestyles and cultural identity and in turn gives rise to in depth reflection on technologies, on land use and on the objectives of society.

A number of challenges have appeared which entail greater vigilance and a better mastery of affairs; the knowledge of climatology, for example, and of the upper atmosphere and the risks incurred by it must be expanded, not to mention the unknown risks attached to thousands of new chemical products, the possible effects of which are never sufficiently measured.

I would stress two priorities: regionalization and decentralization and the importance of a better link between environmental policy and development policies. An efficient environment policy can only work through contact with people, places and milieux. A better link is required between environment policies and economic and social policies.

We know now that a bold environment policy will produce development, create jobs, provide better answers to questions of land use, restrict wastage and indirectly lead to substantial savings.

New technologies – replanned industrial processes that minimize adverse effects, pollution and the wastage of energy, materials or space – are essential. They are not universal. They must be created in every region of the world, for each nation, so that they become genuinely appropriate and well adapted.

To link the environment with economic and social life is also to encourage more rational management by developing the means of controlling economic life. Inadequate account has been taken of our heritage of renewable resources or of the risks of overexploitation or depletion. A public accounting should be carried out by the major sectors of economic life. As an objective exercise this will facilitate the task of legislators and those responsible for the negotiation of treaties.

Gabon

To make the fight against pollution a matter of the well off who pay, and the poor who receive, will delay solving the problem. The world today is characterized by the facts that two billion persons are hungry or suffer from various forms of malnutrition, that housing is totally inadequate in many regions, even in developed countries, that urban structures and public transport need rethinking and that environmental monitoring will be needed to reduce ecological constraints.

The sea is the world's major natural resource. Since it is present in all areas of the globe, it is of importance to all nations and must be the object of entirely international concern.

The first act of an international environment policy should consist in solving problems which are already apparent and very acute in the developed countries; if the environment is a topical subject, it is because the proliferation of international pollution originates in the developed world.

An environment policy must be compatible with the development of our countries and meet investment needs, since the lack of capital in the Third World handicaps its economic growth. The success of genuine international cooperation with regard to the environment depends on transcending the artificial frontiers of states; the air, the sea and rivers know no such boundaries.

Gambia

Threats to the environment continue to be serious; far more so than ten years ago. We in the Gambia are well aware of these threats and the devastating impact of environmental degradation. Our president has said that

It is a sobering reflection that in a relatively short period of our history, most of our larger wildlife species have disappeared together with much of the original forest cover. The survival of the wildlife still remaining with us and the setting aside of protected habitats for them is the concern of all of us. It would be tragic if this priceless natural heritage, the product of millions of years of evolution, should be further endangered or lost for want of proper concern. This concern is a duty we owe to ourselves, to our great African heritage and to the world.

Our limited resources do not in any way affect our determination and deep understanding of the need to build environmental considerations into our national development plans. On the contrary, our limited resources, coupled with our vulnerability to drought and desertification, make us more resolutely determined to ensure that environmental considerations figure prominently in our policies.

We strongly believe that conservation efforts and the improvement and maintenance of environmental quality cannot be truly realized in the absence of structures and institutions directly responsible for the coordination of such efforts. It is this belief in planned action for better resource utilization and management within the context of socioeconomic development that led to the recent creation in the Gambia of the Ministry of Water Resources and the Environment.

The principal threat to our environment, as is generally the case with all countries in the Sudano-Saharan belt, is that of degradation of our natural resource base which, in the Sahel, represents our life support system. The problem of soil degradation through human activity, coupled with the extended drought experienced over the last decade, have greatly affected and severely disturbed the life patterns of our populations.

But we have optimism, firmly grounded in the hopes that international action and support for our efforts to combat the evils of environmental degradation, both from natural and man made sources, will continue to improve the present conditions.

Our approach has been an integrated one. Our national efforts have been principally directed towards reforestation programmes, including now traditional yearly tree planting exercises, a system of improved land use management, meteorological data collection and dissemination, an extensive rural water supply programme, public information and sensitization and the development of a stronger manpower base.

Of major importance to us is the development of a strategy for the realization of self sufficiency in food. In this connection, a bridge-barrage project, with the barrage aimed at preventing saline water intrusion into our agricultural lands, is presently under way. The project takes into account all possible negative effects of barrage construction; consequently a whole array of environmentally associated studies have been executed or planned. These include studies on health matters, possible impacts on coastal ecosystems such as mangrove swamps and possible

effects on certain fish species. It is envisaged that 24 000 hectares of viable irrigable land will be saved from saline water intrusion thereby becoming available for agricultural production. This project will be a major contributor towards our objective of food self sufficiency and rural development.

We also need sound pasture and range management practices. Consequently our livestock development projects focus on better grazing control, judiciously planned watering points and destocking.

Our wildlife species have not escaped our attention. We are developing wildlife sanctuaries in suitable areas in our country. Wildlife conservation legislation has also been enacted for the protection of this important natural heritage.

In addition to all this we are participating in regional programmes on cooperation in the protection and development of the marine and coastal environment of the West and Central African region. We are concerned to work towards a more rational utilization and sustained development of our God given resources.

German Democratic Republic

I would like to take this opportunity to provide some information on recent efforts made by the German Democratic Republic. In our opinion, a great responsibility falls on states to use the possibilities offered by scientific and technological progress to establish a sound relationship between man and nature to the benefit of present and future generations. This means bringing about a qualitative change in the relationship between production and natural resources.

The Tenth Congress of the Socialist Unity Party of Germany issued directives for the development of the national economy in the period 1981 to 1985. It is oriented towards a planned continuation of measures of environmental protection tending to improve the working and living conditions and increase the efficiency of the national economy. The German Democratic Republic does not see any contradiction between on the one hand, economic growth and the improvement of the material and cultural standard of living of the population, and the planned protection of the environment, including the rational use of natural resources, on the other. It is intended to focus research and development on the most effective utilization of available raw materials as well as on the maximum reuse of secondary materials and wastes.

We have worked in close and fruitful cooperation with the USSR and other socialist countries. In the framework of the integrated programme of the COMEA tasks of environmental protection are being solved jointly on the basis of a comprehensive programme approved by the Council for Environmental Protection; these range from management and planning procedures to special scientific technical processing.

Federal Republic of Germany

During the last ten years, global environmental problems have become even more urgent. Our growing knowledge of global ecological implications has made it clear to us, in a dramatic fashion, that the matter at stake is nothing less than the survival of humanity itself. In 18 years from now, the world's population will amount to 6.5 billion. Thirteen people are born every second, and they have to be fed and clothed. Moreover, they need a roof over their head and a place to work. The pressure of this problem confronts two-thirds of all states in the world, many of whom have only a fraction of the per capita income of wealthy industrialized countries as the basis of their economy and as their starting point for the future.

By the year 2000 the world will be even more overpopulated, more polluted, ecologically more unstable and more vulnerable to disturbances than the world in which we live today. The peoples of the Third World are particularly affected by this.

The threats to our planet are:

- the desertification, salinization and erosion of valuable soils;
- the danger to the global climate;
- the pollution of the seas, inland waters and the air;
- the impoverishment of genetic resources as a result of the irretrievable disappearance of numerous species of animals and plants; and the depletion of irreplaceable natural resources which have matured in the course of billions of years.

The gap between world food production and world population will widen even further. There is a likelihood of grave and acute shortages of energy, including a shortage of fuelwood. Other onerous problems are the supply of drinking water as well as the disposal of waste and sewage in the huge conurbations, particularly in the countries of the Third World.

This truly apocalyptic scenario – whose individual premises may be questioned, though not the message as a whole – will become a reality for our children unless we bring these trends to a halt. The eleventh hour has already come and gone. The time for action is dramatically short. Nevertheless, we are still in a position to reverse this threatening development. We bear responsibility for the livelihood of future generations and this responsibility places an obligation upon us to exercise international solidarity and to adopt international measures. What we need now is not empty declamation, but appropriate action in the right place.

Environmental protection begins at home. Those who call for international measures on environmental protection and at the same time neglect environmental protective measures in their own country, even though able to carry them out, lack both credibility and solidarity. After all, environmental pollution – particularly of the air and the water – is no respecter of frontiers.

The FRGermany therefore strongly advocates international recognition of the idea of combating air pollution at its source. The fact that half of the sulphur dioxide pollution of the air in the FRGermany (causing the death of forests because of acid rain) comes from other countries makes this easy to understand.

But we ourselves are also responsible. We have therefore immediately intro-

duced several measures. We are preparing as a matter of urgency a legal provision in order to reduce still further the emissions of sulphur dioxide, which have already recorded a slight fall, by stipulating requirements for old and new plants. The government has proposed to the European Community a limitation of the emissions of the nitric oxides from car exhaust gases; negotiations are also taking place with the automobile industry about measures to this effect. Provisions on the licensing of plants are being further improved. For the first time particularly stringent threshold values have been laid down for carcinogenic substances. The FRGermany regards the national protection of its waters as the precondition for limiting the pollution in international waters and in particular the seas.

As a densely populated and highly industrialized country, FRGermany was forced from an early stage to adopt national measures to protect the environment. These were successful, particularly in reducing the pollution of waters and the air. Progress has been achieved in saving and making better use of energy. Environmental protection techniques have now reached a high level.

We are convinced that, in the long run, environmental protection can only be practised successfully on a preventive basis. The important thing is to avoid and to reduce harmful effects on the environment from the very beginning and not – as is unfortunately still the practice today – to eliminate them afterwards at great expense. This naturally calls for long-term future planning by all responsible parties. It also calls for consideration to be given to the manifold, systematic interrelationships between living beings and between them and the inanimate environment. This principle of prevention which we are advocating should form the basis of the ecological approach to environmental problems which has become indispensable, particularly from a global standpoint. In economically difficult times, measures for protecting the environment are just as necessary as in periods of economic upswing.

We are further convinced that the economy and ecology need not be opposite poles. Industry can only function in the long run on the foundations of an intact environment. In the final analysis, the securing of workplaces at the expense of the environment worsens social inequalities in the living conditions for the present and future generations.

My country wishes to offer its special cooperation in the area of waste. Unsuitable sites on land must not become waste dumps for the world's refuse. Equal importance attaches to the recycling of waste. Against the background of the depletion of natural resources, we cannot afford to see valuable raw materials disappear forever on the waste dumps of the world.

There must be no long-term North-South differential in environmental pollution. It is irresponsible that environmentally harmful products and plants which are prohibited on domestic markets are still being exported. Environmental pollution must not be transferred to countries of the Third World. The risk of environmental impairment from the use in Third World countries of products from industrialized states must be kept to a minimum. Countries of the Third World have given us to understand that their possibilities for controlling imported plant treatment agents are limited. These countries would therefore welcome it if exporting countries would help them define which substances are appropriate for which crops, and will not cause damage to human beings, animals or the natural environment. As my government has great sympathy for this concern of Third World countries, it is examining the possibility of creating a code of conduct designed to make a decisive contribution towards solving these problems.

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Environmental protection and development aid must be linked in such a way that ecological aspects are always taken into consideration in development projects. With this in mind, we should re-examine development projects in terms of their environmental compatibility. We are endeavouring to assess the impact of development aid measures upon the environment and to establish their compatibility.

Projects for Third World countries must be more closely tailored to their given circumstances. Highly specialized prestige objects do not provide any help. In fact, they usually waste both the scarce resources and the time available for developing environmentally sound technologies. The government is willing to cooperate actively in establishing a pool of experts to be made available for the competent bodies in Third World countries in planning, implementing and evaluating environmental projects.

International policy on environmental protection is a peace policy, for it is the declared aim of this policy to reduce the dangerous potential conflict deriving from environmental pollution in conjunction with the explosive increase in populations, the growing disparities in income between industrialized and Third World countries and worsening food and energy problems. A policy based on international solidarity which ensures the foundations of our existence and preserves a worthwhile environment fit for human habitation makes a major contribution towards guaranteeing peaceful international relations between nations.

It is all the more painful to have to say that now, when mankind as a whole faces great global challenges, it runs the risk of using its forces against itself. At the present time, when we should be concentrating all our strength on improving the world economy, developing the Third World and maintaining living conditions on our planet, five hundred billion dollars are still being wasted on armaments throughout the world.

The first decade since Stockholm has largely produced a greater awareness of the environment, an expansion of our knowledge, a growing need for the necessity of international cooperation and a number of noteworthy approaches to solutions. In the second decade, we must manage to make environmental preventive measures a natural part of our everyday life. It must be our continuous quest and inspiration to translate the Stockholm motto of 'one earth' into practical reality.

Ghana

The major challenge facing man in his evolution today is that of the environment, the environment of self, the institutional environment and the physical environment. Man's ability to be at peace with himself and therefore to survive cannot be dissociated from his control of the institutional environment which he himself has helped to evolve.

Our double ethical standards, hypocritical social norms involving falsehoods in our behaviour and pronouncements, and our contradictory sociopolitic and economic systems, have created such stresses in ourselves, that many find themselves in mental hospitals, engaged in violent protests and antisocial behaviour, or in drug abuse. In the international sphere, man's refusal to understand the institutional environment he himself has created is vividly portrayed by the refusal of many developed countries to modify or change international trade and monetary structures to accommodate developing countries whose voluntary or involuntary contribution to the world economy has been considerable.

Population control must be mentioned here, but we should recognize the fact that family planning will only succeed when all children who are born survive their parents. In the richest country of Africa, 50% of the black children born never attain the age of 15 and the majority of those who attain that age, never reach 34. I leave it to the imagination of distinguished delegates to suggest what kind of population control is required in this and other similar countries. What is needed, I submit, first and foremost, is to improve family life. The dangerous explosions today are not those of human populations. They are those of bombs, other weapons of mass destruction and supersonic aircraft. We in Ghana have no fear of a black or yellow peril.

The major problems in the physical human environment in Ghana are not those caused by industrial pollution or the spoliation of pleasure beaches by oil from huge tankers, but the simple, elementary ones of biological pollution, such as the disposal of human excreta and the removal of disease-bearing organic matter from drinking water. To tackle these problems we need both human and material resources. We therefore ask those who are so concerned about the human environment to raise their voices and demand the implementation of commitments to enable the developing countries to earn enough for their development. In Ghana today we obtain about 78% of our foreign exchange earnings from the sale of cocoa. Fluctuations in cocoa prices are so violent that we cannot plan improvements in the human environment. We have been promised equitable, stable and remunerative prices for our primary commodities; but when we ask for implementation through concrete measures, such as an International Cocoa Agreement, we meet with aversion, evasion and sympathy without tea.

The government of Ghana is committed to the mobilization of the total resources of the country for economic and social development. Self reliance is the watchword and we are determined to succeed whether we are supported internationally or not.

My delegation believes that by far the major part of environmental pollution has been caused by the developed countries and that they must bear major responsibility for control and amelioration. It is only natural that developing countries should

insist on the provision of additional resources by developed countries to service the rehabilitation and preservation of the environment.

Our planet is small and human ingenuity shrinks it every day. The gigantic problem of the environment is best approached within an international framework. We live on only one earth but unfortunately we are not one people. But even the wretched of the earth want to belong to one earth. Do the privileged want them in? Despite the fact that the door is not yet fully opened, we are determined to play our part to create that one world of one people for which all people everywhere yearn.

Here in Stockholm we are assembled to discuss only a part of the great challenge of the environment which faces man. This is right, for we cannot do justice to all the other aspects of the problem in the few days at our disposal. But ultimately, man will only succeed in removing or controlling the pollutants and other threats to the human environment when he has established on our small planet one people, each individual at peace with himself, and all peoples drawn together by the harmony of music, enriched in experience by the diversity of cultures, and inspired by the art of man and all that is bright and beautiful on our small and only one earth.

Ghana

The Stockholm Conference was a powerful force in increasing public awareness of the significance of the environment and the implications of environmental changes. Since that conference, additional governmental and non-governmental organizations have been established at all levels. There has been considerable progress in environmental sciences. Education, information dissemination and training in the environmental field have also expanded considerably. Environmental legislation has been adopted in almost all countries and some important international agreements on environmental cooperation have been signed.

But ten years after the Stockholm Conference environmental deterioration is on the increase. In particular, deforestation, and soil and water degradation continue to pose serious dangers to living conditions in many parts of the world. Changes in the atmosphere, careless use and disposal of toxic substances, pollution of open oceans and inland waters as well as the extinction of animal and plant species constitute grave threats to the human environment. There is consequently an urgent need for us to take a hard look at our priorities and the actions we propose to take to protect and enhance the environment. In this connection, we would like to suggest that the priorities established for serious environmental problems in developing countries should be given early attention. We wish to emphasize that among the serious environmental problems in the developing countries are such basic problems as malnutrition, lack of safe drinking water supplies, endemic diseases, inadequate supplies of energy for domestic use and lack of proper methods of refuse disposal.

In order to provide urgent solutions to some of the serious environmental problems in the developing countries, the session should consider the following actions towards the achievement of goals for the immediate future:

- Effective action to attain the objectives of the Drinking Water Supply and Sanitation Decade, in particular, using existing institutions, technical assistance and the mobilization of the masses to provide safe and durable domestic water supply to rural areas.
- Further development and effective application of principles and practicable guidelines to rational water management procedures.
- Continued efforts to increase food supplies through accelerated programmes to control pre- and post-harvest losses and promote reduction of wastes, including recycling, in agricultural processing.
- Development and effective application of improved environmental measures to combat environmentally induced diseases.
- Development and application of effective programmes for basic health care in developing countries.
- Support for the provision of technical assistance to promote research and development of simple and low cost technologies for the exploitation of solar energy.
- Technical and other assistance for accelerated expansion of fuelwood plantations in developing countries on environmentally sound lines.

Greece

The moment has come when man should consider the extent and possible catastrophic consequences of his own activities in the scientific and industrial fields and of the achievements he himself masterminded in his endeavour to achieve a higher standard of living and comfort. Man's continuous striving to create an environment that will ensure economic and social prosperity for his descendants has unfortunately undermined and put at risk the natural environment of this planet and possibly the very existence of humanity itself.

Protection of the human environment covers activities relating mainly, but not only, to natural – and therefore exhaustible – resources such as the air, the sea, flora and fauna etc. It also covers the preservation of the man made and the social – cultural ecosphere, such as a country's cultural inheritance, about which Greece is particularly concerned. All three aspects of environmental protection deserve adequate attention.

The diversity and variety in the fundamental conditions and aspirations of specific countries should not be overlooked. The successful handling of these will be the result of cooperation, understanding and a sense of realism. There are many different views regarding the main issues on the agenda. The industrialized countries, for example, look at the environment and its problems from their own standpoint. The developing and the underdeveloped countries in their turn see the same problems in a different way. And yet the environment we all want to protect is only one and is the same for all.

Environmental pollution is a preoccupation for almost every country today. What varies from one country to another is the degree of pollution and the polluting sources. Nevertheless, other forms of environmental damage can be seen in various countries. Greece's environmental problems have been until recently those of deforestation and soil erosion. In addition to those two problems evidence exists in recent years of growing air pollution. Air, water and noise pollution are now becoming apparent in Athens, and Thessaloniki. Chemical pollution is threatening to corrode ancient monuments in these two historic areas. These environmental problems are more acute in the central business districts. Seen as a whole, however, pollution in Greece is not as yet alarming and, when present, is of a local significance. Because of the particular morphology of the territory and the existence of a mountainous massif in the middle of the country, there is no real problem of river pollution in central and southern Greece. However, the fact that most of the country's activity is concentrated on the eastern coasts and, on the other hand, the existence of semiclosed gulfs in the country's coast line, could create problems of sea and coast pollution in the future.

The modern environmental crisis has found Greece in a period of great development effort which has resulted in a considerable increase in the national income and a rise of the standard of living. In a spirit of optimism about the future we have adopted a long-range programme for development which integrates economic, social, cultural, environmental as well as regional and physical aspects.

The environment, both natural and historic, is of major importance to Greece. In order to protect the coastline, plans have been completed for the purification of sewage and industrial liquid wastes. In the field of marine pollution an efficient

surveillance of all Greek seas and coasts has been organized to prevent oil pollution deriving from ship discharges. Studies and projects for the preservation of the cultural heritage and the flora and fauna of the country have also been undertaken.

For Greece environmental protection is almost as important as development. We are trying to have them both running parallel for the benefit of the country.

Greece

Since the beginning of the 1970s there has been a growing concern about the numerous environmental problems which have resulted from past means of meeting the needs of economic development. These include:

- The overconcentration of industries, services and labour force; air pollution; traffic disorder; declining green areas; the danger of the destruction of cultural monuments, particularly in Athens and other large urban areas;
- the decay of the countryside and the danger of losing its traditional character;
- the irrational management of natural resources and the dangerous rates of deforestation, erosion and chemical alteration of the soil; mining extraction; the pollution of underground water tables by the intrusion of the sea; water and sea pollution; the extinction of rare species of flora and fauna as well as of ecosystems and biotopes.

The need for action has been obvious but the measures we have taken have not had the expected results. Legislation has been contradictory and administrative structures have been characterized by an irrational distribution of competences and by duplication of effort. Investment has been insufficient and badly planned and has often aggravated the problems.

On account of its geographical position, at the crossroad of three continents, and its natural characteristics, Greece has been concerned to develop international cooperation and attaches paramount importance to the signature of international conventions and agreements relevant to the environment.

Today the Greek government gives primary importance to the protection and conservation of the environment. We are aiming at the economic, social and cultural reconstruction of each of the historical regions of the country, so that each individual can meet his basic economic and social needs where he lives. This will avoid the depopulation and underdevelopment of the provinces and the overpopulation of the capital. Among our specific goals are:

- the preservation, the renewal and the planned exploitation of natural resources;
- the maintenance of the unique Greek landscape and Greek cultural heritage; and
- the guarantee of healthy living conditions for the population of large urban regions and, in particular, of Athens.

Priority is given to the protection and conservation of the vital renewable natural resources such as soil, water, flora and fauna which are facing serious problems of disruption. The Government puts particular emphasis on:

- soil conservation and erosion control;
- the protection of the productive lands from urban development;
- the protection of forests and the systematic reforestation on a large scale;
- the protection and systematic culture of marine and aquatic living resources; and
- the protection and rational exploitation of water resources.

The new environment policy of Greece is based on regional development.

Therefore, physical planning is necessarily the regulating institutional factor which dynamically reconciles the development and the protection of the environment with regional development. Other goals of our new environment programme are the systematic interrelating of primary and secondary production on the basis of environmental criteria; the protection of the sea against pollution and the rehabilitation of coastal pathogenic soils; the protection and promotion of the landscape, coasts and historical archaeological sites; the protection and promotion of the identity of the islands; the economic and demographic revitalization, the protection and the promotion of traditional human settlements; protection against pollution and the improvement of the quality of life in urban areas; and improvement in general living and working conditions.

Guatemala

Development must be the result of the combination and balancing of two great variables – man and his environment. Man's actions are causing unexpected adverse changes in the biosphere and in the abiotic environment that threaten the survival and the balance of biotic communities.

If the possibility of preventing or surmounting the deterioration of the environment depends on the degree of cultural development, such development depends in its turn on the possession of a collective ecological awareness, a feeling of human solidarity and a clear appreciation of the meaning of truth and freedom.

A growing population in pursuit of higher levels of living requires food, clothing, water, minerals, fuels, services etc to an increasing extent, and puts ever greater pressure on renewable and non-renewable resources. To face up to this growing demand requires careful planning of the use and management of natural resources, the improvement or replacement of traditional technologies, particularly in the sphere of agriculture, and more efficient integration of the new technology into an increasingly complex environment.

Central America, which is made up of agricultural countries, has used pesticides to control diseases and pests so as to increase food production; their residues have polluted the rivers, coastal lagoons and seas, thereby altering the habitat of their hydrobiological resources and causing a slow down in reproduction, affecting the survival, and even causing the death of, many species. Variations or changes in the environment and modifications to aquatic ecosystems such as excessive sedimentation, the alteration of riverbeds, dredging and the dumping of organic and inorganic wastes in riverbeds also affect aquatic life.

To deal with these dangers, we need greater national and regional awareness as well as help from the international institutions and from countries which, in the course of their own development, have gained sad but valuable experience.

Holy See

Technological civilization has compromised the basic symbiosis between man and his environment. Any attack on the environment is evidence of an incomplete conception of development. The disarray into which the environment crisis has thrown the industrialized world shows that there are no developed countries but only developing countries and where the environment is concerned, those who come first in terms of other indicators of progress have a more lowly position in the listing. The environment and its successful management are a part of development and have a decisive influence on meeting man's basic needs which are the subsistence, health and education of the individual and the cultural and social balance of nations.

If the environment is given its true place in a situation of authentic development, it will become possible to define more accurately natural and international policies for it and to identify more than one practical conclusion.

The so called developing countries will show awareness of the environment issue by including it in the civilization model they select. Making suitable decisions on ecological problems and their relative importance requires increasingly wide and well ordered knowledge.

The environment and resources are for universal use, they are owned by all and inalienable; there can be no discretionary sovereignty over them which absolves us from responsibility towards either present or future generations.

Development means the progress of man towards his highest aspirations. The worst pollution is poverty and the most needy suffer the most from the deterioration of the environment.

While our observations place a weighty responsibility on our civilization, scientific resources, together with the regenerating power of nature, give us the right to go forward optimistically now that we recognize our ills and are boldly preparing to remedy them.

Hungary

We should bear in mind that the expression 'environmental protection' is a relatively new one. Its coming shows that mankind has been faced with a number of new problems. The world itself has changed and reacts to changes in a different way from before.

In Hungary, as in many other countries, environmental activities became more important in the 1970s. Last year the Hungarian parliament reviewed the implementation of legislation. It was concluded that improvements in the quality of life so far have been achieved only by severely testing the environment's carrying capacity. However, our political objectives and planned national economic system safeguard the present and future fate of environment.

We have to start from the fact that environmental protection is a kind of art of living with economic development and technical progress. Mankind has abused the opportunities offered by the environment for as long as it can. Today, when the carrying capacity of environment has reached its critical limits, our attitude towards economic issues must change. In Hungary a long-term strategy has been worked out, based on the recognition that environmental problems should be solved as an integral part of economic and production processes. We pay special attention to the rational use of natural resources and environmentally sound management.

The protection of the environment needs a very broad, new scientific basis. As an example let me mention the assessment of the agroecological potential of Hungary prepared recently. We expect that its results, in addition to serving production purposes, will make a considerable contribution to the protection of natural environment and renewable resources. We consider the increased role of natural resources the most important lesson to be drawn from the past ten years. Their conservation and rational use should be managed in a way that takes responsibility for the future.

It is obvious that environmental activities serve the interests of man. At the same time the environment requires man's full support. The protection of environment safeguards the future. Education and disseminating information are central to this issue.

As a result of changes in the past ten years some problems have come to the fore, new ones have evolved, interrelationships have become more complex and environmental priorities have changed. All this has to be taken into account when the trends and problems that need to be tackled over the 1980s are defined. In the world today, when economic conditions have got harder, money is limited. A selective environmental strategy is therefore required, which on the one hand protects the environment from further degradation today, and on the other envisages more radical corrective measures as economic conditions improve. The priority areas of Hungary's environmental concerns in the 1980s are to protect water and to develop and use environmentally sound technology and protect the environment against harmful effects of toxic wastes.

The realization of intentions is not an easy task. We are aware of the fact that the most important precondition for resolving the global problems of mankind is disarmament and the maintenance of international security and peace. This has been demonstrated by the results achieved, among others, in the field of

environment protection during the *détente* years. We are firmly convinced that peace, environment, development including human welfare are inseparable. The Hungarian government will spare no efforts to meet the challenge of the 1980s and live up to the expectations of our age.

Iceland

The active participation of developing countries in this conference is of the utmost importance. It is equally important to assist the developing countries to make their participation in the common task a reality. Through aid and exchange of information they will find it easier to avoid the dangers which the industrialized part of the world has brought upon us through the pollution of the environment. This matter is an important part of the task to raise the standard of living in developing countries through real and worthwhile cooperation. The government of Iceland is ready to contribute its share towards this worthy endeavour.

Due to the subArctic location of Iceland, the ecosystem of the country is in a very precarious balance. Iceland was settled only eleven centuries ago, and we are in the very exceptional position that the whole history of our nation in its homeland is recorded. Modern scientific research has confirmed the evidence of historical documents that vegetation and soil cover has suffered enormous damage since man brought his herds to graze on marginal grassland.

The ecology of Arctic and subArctic regions is very peculiar and vulnerable to human impact. Iceland is much concerned with everything relating to the environment of the circumpolar regions. In this field regional cooperation between the nations inhabiting the circumpolar areas is natural and likely to give valuable results.

Returning to the specific situation of Iceland, it has been established that considerable erosion is still taking place over wide areas of our pasture land. Unlike former generations we now have the knowledge and means to take up the battle against the forces of destruction of our land resources and my government is urgently preparing a comprehensive policy of land use and reclamation.

Grim experience has taught us that the principal natural resource of Iceland, the rich fishing grounds off our coasts, is threatened by overexploitation. Consequently the Government of Iceland has for decades consistently championed the cause of international cooperation to conserve and husband the precious resources of the sea by scientific methods.

We have from the beginning taken an active part in the work of both the North-east Atlantic and North-west Atlantic Fisheries Commissions, but I regret to say with insufficient results. We do not underestimate the importance of the international agreements which have been concluded to control the destructiveness of fishing gear and protect the breeding grounds of certain species, but we have on our part imposed on the Icelandic fishing industry regulations that are much more stringent than the international rules. The conservation and wise exploitation of marine resources is for Iceland a matter of supreme importance.

The government of Iceland regards it as a matter of fundamental importance that effective steps are taken to deal with marine pollution, which is a fast growing threat to the marine environment and the living resources of the sea. Pollution should be controlled at the source; but as long as this is not done, we have to deal with wind-borne pollution, pollution from run off, pipelines and river outflow, and last but not least the deliberate disposal at sea of wastes. This is of great concern in Iceland, due to the relatively differentiated distribution of pollutants from pipelines and dumping areas comparatively close to the country. For good measure we are

subjected in Iceland to much more than our fair share of air-borne pollution into the sea, because the famous low pressure area over the north Atlantic, often named the Iceland low, carries pollution-laden air from the industrial areas constantly over the ocean currents washing our shores.

Our concern with Iceland's affairs should by no means be taken as an indication that Iceland does not concern itself with other matters. The value of a conference such as this lies precisely in that it shows us all better than any other event, how closely connected and similar are the really vital interests of all the nations of the world. We are all aboard the same boat and will only sail in safety if full and mutual concern is shown for the vital needs of the vessel's crew and the environment through which we make our common voyage.

India

Terms like 'conservation', 'ecology' and 'environmental protection' have gained remarkable currency in recent years. Basically, however, man has lived with the kind of problems in relation to which these terms are now applied ever since he realized that he could manipulate nature for his comfort and advancement. In this process of man's continual interaction with nature, a number of factors have been at work simultaneously; but two have been all pervading. One has been the manifold increase in the size of the human population; the other has been the expansion and diversification of his wants. Since the turn of the nineteenth century, advances in science and technology have given to man tools of enormous and unprecedented power for utilization of natural resources. The sustained application of these tools has wrought disruptive changes in the environment and modified the very tone and texture of life on this planet.

There is growing awareness that an unbridled advancement and diffusion of technology, propelled by growing material needs, upsets ecological balance, degrades the human environment, debases the quality of life and corrupts human values. For any effective remedial action, we shall need to reorder our priorities and to redefine our goals. Let us recognize that only that change is worthwhile which humanizes man and adds to his dignity; the only worthwhile progress is that which adds to human comfort without adding to human tensions; the only true happiness is that which enriches the human spirit and enables man to live at peace with himself, with his fellow men and with nature.

Anxiety about pollution and environmental distortions is now widely shared. It needs to be translated into concrete plans of action. Technology has contributed immensely to human welfare but some of its manifestations cause concern. Let us not, however, swing to the other extreme and denounce *all* technological changes or renounce *all* material improvement in living conditions. For the poor of the world, a better environment means an end to misery, an end to the burden that they carry because of poverty and not because of unregulated and reckless economic development. To the majority in these countries, 'environment' is a term that stands for a mud hut providing inadequate shelter against the elements; it means an unlit and unpaved path to a communal well with water that is unclean. It means an inadequacy of clothing, of medical care, of education and, above all, of nutrition. Economic development for us is thus not the cause of environmental inadequacies but the cure. The aspiration of the majority of the world's population is to fulfil their basic minimum needs and not to compete at the level of ostentation or waste. The basic imperative in these countries is thus development itself, but development conceived in terms which do not look upon the rate of growth of GNP as a unique indicator of all progress.

Current low levels of living, together with the rapid growth of population, in the developing countries make it imperative for them that they seek greater productivity in agriculture, more power, transport, industry, communications and other life supporting services. In striving for this goal, however, we shall not ignore the deeper aspirations for a life lived in harmony with nature.

We in India are late comers on the path of economic development. Yet we are faced in some crucial pockets with quite a few of the environmental problems

familiar to more developed countries. Many cities of India already have problems in regard to water supply, garbage and sewage disposal. With the growth of population and with greater urbanization, these problems are likely to become intensified and more widespread unless remedial measures are initiated in time. Inadequate regulations on the use of urban land and unplanned urban settlements have led to the creation of slums and shanty towns that offend even minimal environmental norms, let alone aesthetic considerations. The need to plan and properly manage human settlements for protecting and enriching the quality of environment is very much with us.

The more general problem of a rational use of natural resources is also a matter of growing concern. There are many gaps in our knowledge of the resources available for development. Accordingly we have initiated action for obtaining a more detailed inventory of our assets, as a basis for planned, long-term action. In our approach to development, our policy is to use our non-renewable resources with great care and also emphasize the recoupage and regeneration of all renewable resources. The growing demand for raw materials and the increasing hunger for land have led to a shrinkage of forests. This, in turn, has cut into our heritage of wildlife, particularly tigers. India has possibly a much larger percentage of land under the plough than what might be ecologically desirable. We may need, as the years go by, to produce more and more food from less and less land, particularly because population growth will create additional demand for land for pasture, housing, roads and factories. We are also conscious of the fact that anticipated demands for water surpass the likely availabilities, particularly in the arid and semiarid regions.

Advances in science and technology fortunately offer alternative solutions to these difficult problems. Today's Green Revolution, or the movement towards scientific agriculture, rests upon four major planks: genetic engineering, irrigation, chemical application and improved implements. We now have a fair knowledge of the consequences to the soil and to the life system generally of the excessive or unbalanced use of agrochemicals. We are also aware that unregulated tapping of water and its unscientific use without attention to drainage can result in problems of soil salinity and alkalinity.

The question then arises as to how can we use science and technology to improve living standards, while preserving the long-term productivity of soil. Many Asian and African nations have to find solutions to such emerging problems. Efforts have to be made to develop varieties of cereals capable of fixing atmospheric nitrogen so as to reduce dependence on nitrogenous fertilizers. Integrated biological control methods for the control of pests and diseases and development of disease resistant varieties have to be given greater emphasis so as to minimize the use of pesticides. A war on waste and a greater emphasis on control or recycling of nutrients, sewage and other waste materials are prerequisites to achieving increased agricultural production without impairing the environment.

The pattern of production and consumption in any part of the world carries with it definite environmental consequences not only to that part but to other countries as well. The increase in demand for minerals in developed countries leads to an exhaustion of natural resources in distant Africa or South America. The growing demand for oil in Europe and America exhausts the only asset of many West Asian countries. In dealing with this problem of rational management of natural resources, governmental action, necessary as it is, is not adequate. There is need for international cooperation as well as for mass education within countries.

Judged by international standards, the industrial structure in India is still nascent. Nevertheless, it has begun to create some problems of air and water pollution. We believe that there is scope for collaborative research for evolving technologies which will avoid or minimize such pollution in the first instance.

A country's environment can be preserved and enriched only if there is an all round awareness in that country of its importance. This awareness needs to be reinforced by the will to mobilize the resources required for initiating remedial action. On the negative side, nations can agree as to what they will desist from doing because it pollutes the air, transmits disease or spoils the ocean bed. There are equally vital areas for positive collaboration among nations. This common endeavour can encompass exchange of information, monitoring, development and research. The more positive and definitive thrust will, however, have to come from, and be related to, each country's priorities and patterns of development.

Environmental considerations cannot but impinge on international economic relations. It will be self-defeating if, in the name of environmental considerations or of pollution standards, curbs are put on trade and growth. In evolving standards for environmental protection, therefore, it is but natural that there should be prior consultations among nations. This means that international cooperation and development has to take on a new dimension based on a more imaginative adaptation of life to the environment. Environmental problems have come to stay and their remedies call for sustained study and action.

India

There is no manner of doubt that the most important environmental problem faced by the world today concerns the damage and degradation which natural resources, constituting the very basis of the earth's life support system, are suffering in the developing countries. International development strategy has singled out the environmental problems of land degradation, soil erosion, deforestation and desertification for special attention if the very basis of economic development is to be sustained and ecological disaster avoided.

Soil is our most basic resource. It is the source of all the agricultural, forestry and animal products which sustain human life on this planet. The degradation of the soil must therefore be prevented by all possible means. However, this must be done not only in the obvious interests of sustained, and if possible, increased productivity, but also in order to prevent crippling losses to national economies by way of devastating floods, the premature silting of expensive and often irreplaceable reservoirs, and the loss of a great deal of priceless sweet water to the sea on account of increased run off from denuded slopes (water which would otherwise have remained conserved as ground water for the use of the community).

In arid tracts susceptible to wind erosion the insidious expansion of the desert is a grave threat to surrounding areas. Desertification is also caused by damage to some of our best lands by waterlogging in areas which have been provided with irrigation at enormous cost but not simultaneously with adequate drainage arrangements. It has also to be remembered that in many cases the silting up of reservoirs will result in a serious loss not only of irrigation but also hydroelectric potential at a time when the world is facing an unprecedented energy crisis.

For all these reasons, continued land degradation undoubtedly constitutes the most serious ecological threat to the environment and, indeed to the very survival of many developing countries. It must therefore be tackled with the utmost vigour, and not looked upon as merely one of the numberless environmental tasks before us. It must indeed be appreciated that unless this major threat is removed, and the national economies of the concerned countries placed on a sound footing there will never be sufficient resources available to them to deal with other environmental issues. In fact the countries which are affected with serious problems of land degradation are finding it difficult to secure sufficient resources even to fight on this front, so urgent and unending is the demand for funds required for the relief of populations repeatedly hit by floods, droughts and rural unemployment caused by land degradation itself. The need to arrest desertification, deforestation and land degradation in the developing countries is a matter of life and death for them. These countries have in fact no hope whatsoever of conquering poverty and lifting their growing populations from a subhuman level of existence unless their degraded lands can be saved from further deterioration and brought back into production.

Another objective which must figure in any core environmental programme relates to the need to preserve the unique genetic resources represented by threatened species of flora and fauna throughout the world, but more particularly in the tropical and subtropical forests of the developing countries; these are being destroyed at a frighteningly rapid rate. The attainment of this objective, if it may be

mentioned, is closely bound up with the success of the land management programmes we have just discussed.

A third constituent of a minimum environmental programme will be the control of industrial pollution of water, land and air.

Hazards to human and ecological health posed by various kinds of pollution, whether chemical, radioactive, or thermal, are well known. What is however not adequately appreciated is that as far as the developing countries are concerned, the pollution caused by insanitary conditions represents a far greater health hazard to impoverished populations which are already suffering from malnutrition and debility. The disease and ill health attributable to the lack of facilities for the proper handling, disposal and treatment of human, animal and domestic wastes are compounded by the contamination of drinking water supplies.

There is no reason we should feel diffident about the future provided we take account of present realities, reorder our priorities and speak out boldly in the cause of the environment.

Indonesia

Low income, population pressure and poverty create environmental problems such as human pollution, poor housing, lack of adequate water supply and waste disposal, poor health and disease. All this inhibits development and hence pushes a country into a vicious circle where underdevelopment breeds pollution and pollution creates further underdevelopment. Development and ecology is not an either or problem: they are rather two sides of the same coin. Underdevelopment and pollution should be tackled simultaneously. By meeting development problems, we are dealing also with the roots of pollution; by tackling environmental problems we are aiming at further development.

Environmental problems around the globe have reached new dimensions, especially in the highly industrialized countries. Actions in these countries to meet their environmental problems have had broad repercussions in Indonesia, as revealed in our trade, aid and investment figures. In dealing with development and ecology we feel the constraints imposed upon us by a lack of financial and effective national resources and by a lack of competitive ability to meet world competition, especially *vis-à-vis* the rich countries.

There is indeed little hope of environmental efforts succeeding on a global scale, if at the same time the problems of international development are not solved. Intensive efforts are needed to make the transfer of knowledge, technology and skills from the rich to the poor countries more rapid than they have been so far. It is, however, important to realize that what is needed is not more technologies of convenience, serving the markets of the rich countries, but technologies that will be able to deal effectively with the massive problems of international poverty at the lowest possible ecological cost: a technology that enables mankind to utilize and develop natural products that are not detrimental to the environment.

Let us have no illusions about the cost of what we want to achieve and the sacrifices that will be required of all of us. While cost and sacrifices are required, it is perhaps useful to bear in mind that burdens and sacrifices are already many in poor countries, due to underdevelopment. The additional cost of development efforts that arises out of environmental endeavours must in no way be allowed to widen the gap between the rich and the poor countries. The environmental policies and programmes of the highly industrialized countries and the cost involved should not lead to a deterioration of the terms of trade of the primary products of developing countries. A higher quality and quantity of development assistance from the highly industrialized nations is required to strengthen the national capabilities of the developing nations to deal with their environmental as well as their developmental problems.

In our efforts to create a new more equitable and peaceful international order that will enable man to survive, one that can be maintained at a lower ecological cost, one that would also ensure a more rational distribution and utilization of the world resources, we will have to find the political courage to bring about painful structural changes in the rich as well as poor countries.

We face the need to regain control over the thrust of science and technology and to relate them more closely to the requirements of a more humane global society.

We need also to develop new cultural and social arrangements that will enable us to live peacefully, happily and creatively in a increasingly densely populated world.

Mankind will, in the coming decades, have to come to grips with many moral problems of great complexity and of great consequence. He will have to learn to live in harmony with nature and his neighbours in a much crowded world. He will have to curb his greed for material things, to broaden his sensitivity so as to encompass not only his tribe, his nation or his region, but the whole of mankind. In facing the future of our earth then, man is ultimately confronted with himself. Searching his soul as to whether he is willing to assume the terrible responsibility for the care of this earth he comes face to face, not only with the question whether he has the capability of ensuring that he survives, but almost more importantly, whether he has the wisdom to make certain that he survives as the kind of man he wants to be.

We can only hope that man, turning to his own spiritual resources, will find the moral strength and direction to give his answer in the affirmative.

Indonesia

In order to plan our common future we need not only to assess what we have achieved but also – and perhaps more importantly – what we have not done, what we have failed to do. We need to consider present global conditions, political and economic, in addition to assessing the common perceptions we hold with regards to the world's environment.

Our common plans for the future, to have any chance of success, must be founded upon a common vision of the future. To develop such a vision is our common task. Another is to rededicate ourselves to the principle that brought us together in Stockholm ten years ago, the principle that is based upon the awareness that after all, we have only one earth. In the past ten years we have all too often bickered about how to distribute among us the bounty of our one world, the resources of our one world. It is time now for us to worry about the continued ability of our world to sustain us and to sustain our efforts at bringing human dignity to all.

Too seldom have we acted in concert, too seldom have we carried out activities as an integral part of common global programme initiating, planning and implementing programme and consciously directing them towards a common global objective. The persisting order or pattern of relations between nations is still characterized by dependency relations rather than by interdependence. Whether political or economic, those relations continue to be lopsided, in favour of those nations constituting the North and to the disadvantage of the nations of the South.

What we need today is not seek blame, not to point accusing fingers at probable causes of the present disorderly state of things. What we need today is the common will to generate the determination to meet impending change in a concerted way, based upon a common vision of our future, a future where man's dignity is of paramount value. The ability to will and plan the future is a manifestation of man's dignity and also the source of his hopes. We ought to realize that our past experiences can no longer serve as milestones for the future and that a total rethinking of economic and political concepts is now necessary, a rethinking that is focused upon that aspect which determines our continued existence, namely the environment. Unless man learns to establish harmony with his environment, he will not have much of a future.

We have observed how environmental concerns have dropped in the priority ratings and we have also observed that some countries of the North have lowered their environmental quality standards for the sake of short-term economic expediency. In addition to adversely affecting the global environment, this also been harmful to the economic interests of some countries of the South.

All in all, there has been a general lowering of concern for the environment in the North, just at a time when such concerns are being recognized and institutionalized in the South through legislative and other acts. Many economic actions of the North have caused the South to doubt the North's sincerity in pursuing professed environmental concerns.

The major problem facing the South – and the world – is the persistence of poverty. It is a heart wrenching and humanity destroying poverty and to overcome it is our foremost concern and preoccupation. Yet we are aware that to deal with

the problem of poverty successfully today and in the future we must safeguard the environment in our development efforts. Hence we seek to integrate environmental concerns into all our development efforts. In so doing, we are assuming an additional burden as precious resources must be allocated to the environment, resources that have been diverted from the battle against poverty.

In the struggle against poverty and in our efforts to develop, it would seem that poverty itself is our major obstacle. I am not maintaining that this obstacle cannot be overcome because history shows how poverty was conquered in the past by today's industrialized nations. But the conditions under which they were able to overcome poverty do not exist today. What exists now is an international economic order that imposes severe external constraints upon the efforts of the South to develop, overcome poverty and to safeguard the environment.

Cognates of the problem of poverty are the problems of food and energy. As they act in tandem upon seriously strain our development efforts and impose heavy burdens upon our financial resources and our environment. Yet, we in the South believe that the world's food problem is not only a problem of insufficient production; it is also an aspect of the existing global distribution system and price mechanism. This once again points to the need for change in international economic relations.

At a time when the world is beset by economic problems, it appears that there is a continued preoccupation on the part of the world's leaders with matters that impose an additional strain upon the world's economy. There are matters that pertain to issues of political competition worldwide, issues of armament and the development of even more potent weapons of destruction. Not only do these issues drain valuable resources but they have also distorted man's skills, technology and research efforts into specific directions. Man's capabilities are directed towards waging war rather than managing peace. His technology has enabled him to develop fearsome weaponry, to explore space and to put a man on the moon; but it has not been sufficient to make barren deserts productive, to keep the seas clean and bring greater dignity to man upon his planet.

There is the need for the acquisition of new knowledge and concepts regarding the environment. In order to implement environmental education at all levels of the formal educational system, teachers and instructors must be trained or retrained. For environmental policies and legislation to become effective, there is the need for new skills on the part of planners, policy makers, administrators and even business managers. To heighten environmental awareness generally an extensive system of non-formal education must be established in order to reach vast and ill informed populations. Both formal and non-formal education are needed to secure the participation of the public without which environmental efforts cannot possibly succeed. It is in this latter context that the role of non-governmental organizations and other concerned groups can be of great significance provided they have the means and the skills.

Education can also disseminate the new values needed to cope with environmental demands; values that will form the basis of an appropriate lifestyle where man can live in harmony with his environment. In this respect, while possibly directed towards a specific purpose such as national development, environmental control or any other purpose, in the end any effort at developing human resources must be understood as an effort to improve human existence in itself, to improve the quality of human life. This is a function clearly inherent to environmental education, for the ultimate aim of our environmental efforts is not to merely guarantee man's

survival but to achieve the highest quality of life as befitting human dignity. In this function, and in the formation of new values, education will affirm the moral imperatives that are based upon our religion and that, in turn, support our environmental efforts.

We are engaged in a common effort to safeguard, perhaps even to rescue, our common global environment. In so doing we safeguard the source of our existence and the source of our capabilities to ennoble that existence. Our common objective is therefore to sustain the environment so that it may sustain our efforts to achieve the best possible quality of life for man. It must be a common cause for we only have one world, one global environment and one mankind. Our global environment knows no national boundaries, nor social divisions or distinctions between the rich and the poor. Similarly, human dignity should not know any boundaries but the fact is that alongside a fortunate minority, a large segment of humanity is still composed of the wretched of the earth. Thus our common cause should include the commitment that human dignity should be brought to all of mankind. These two aspects the commitment to safeguard the earth and the improving of life, for all people, should form the basis of a global compact that is to lead us into the future.

Our common cause necessitates that we consider the resources that form nature's bounty and that we share on this earth. These resources need the wisest possible allocation and use, the wisest possible management if we are to meet the objectives of our case. Within our respective national boundaries we have made a start at managing our respective environments, but on a global scale this is not enough. For global environmental management global coordination is needed, leading to global integration of efforts. We are still a long way from that achievement; but we should bend all our efforts to reach it.

Iraq

Our gathering here is historic. For we have all come to realize and feel the signs of danger which undoubtedly threatens the very existence of the human race. The dangers which threaten our being and, to a large extent, the existence of our future generations make it all the more necessary to declare a universal war against the cause and effect of the human environment problems.

We in Iraq believe that among the disastrous factors which threaten the human environment are aggression, occupation, exploitation, war, racial segregation and colonization. Unless serious and active steps are taken to eliminate these factors, neither valuable nor far reaching results will be attained by man in his efforts to preserve the environment.

It is evident that developed countries are able to find adequate solutions to their environment problems by virtue of their wealth and technology, while, on the other hand, the developing countries have none of these advantages. As all human beings are close to each other and mutually interdependent, it has become cardinal that the developed countries should extend all possible help, financially and technically, to the developing countries so as to ensure implementation of the objectives of this conference. It is furthermore expected that measures taken by the developed countries should not cause harm to the development process and the international trade of the developing countries.

On the national level, each state must have the opportunity to wisely and freely utilize its natural resources with the objective of attaining adequate and satisfactory implementation of development projects to improve environmental conditions. Iraq, being a developing country, ambitious as the rest, is striving, by using all possible means, to overcome its various environmental problems. The prime target of my country is to achieve full use of its natural resources; chief among them is oil. But the oil companies operating in Iraq have pursued a unilateral policy of disturbing oil production in such a way that it hampers Iraq's development efforts. This obstruction has resulted in the failure of our national plans for proper use of our natural resources. The situation has become so acute that Iraq was recently obliged to suspend its modest development plan. It is therefore mandatory that developing countries should be in full control of their natural resources.

One of the main environmental problems in Iraq is soil salinity. The total area requiring drainage is about three-quarters of the total cultivable land. This is one of our major problems, affecting not only the cultivable land and its productivity but also river waters. In order to overcome this problem, we need capital far beyond our means.

Due to the large influx of rural population into urban centres and rapid expansion of towns, considerable parts of these towns have turned into slums. Plans are under way to redevelop and improve these areas. Policies have been outlined to reduce rural to urban migration by distribution of agricultural land and improving the living conditions in rural areas.

A substantial proportion of the rural population in Iraq at present lack the supply of drinkable water. The government has planned to supply these people with water in about ten years.

The modern sewer system in the country serves only 10% of the total urban

population. Expansion of the sewerage system is very expensive. Iraq cannot manage on its own resources to extend it in a short period of time. Other environmental problems such as waste disposal, dust and soil erosion are an immediate cause of concern in our country. Nevertheless, we are trying our best to find the proper ways and means to ameliorate the situation.

Ireland

Some thinkers have expressed the deepest pessimism about the future viability of our world. We do not share this, but we *are* deeply concerned that damage to the environment could well affect our existence no less seriously than world war, uncontrolled plague or nuclear holocaust.

Ireland is a small country on the western perimeter of Europe which has reached a particular stage of development. In the past fifteen years there has been rapid economic and social development in Ireland. Before then, for historical and geographical reasons, the country was in many ways outside the mainstream of European industrialization. When industrialization began to intensify, we could already see from the experience in other countries that the process could bring serious adverse consequences and disruptions to the natural order, as well as major and much needed material benefits. We therefore tried from the beginning to plan and guide the new phase of development so as to reflect a proper regard for the natural environment.

I believe we have been reasonably successful in this. Our environmental problems in Ireland are not nearly as serious or as complex as those in many other countries. This is not to suggest that we have no environmental problems in Ireland, or that we are not dealing with them, or that we are in any way complacent about the challenges which we will have to face in the future as national development accelerates still further.

While we have had a programme of industrialization for some years now, agriculture is still of vital importance to our economy, and a high proportion of the population lives in rural areas.

The discovery of new mineral resources on a large scale has brought new economic activity to many rural areas. But the urban population is growing rapidly and there is a tendency for this to occur in an unbalanced manner.

My government has just announced a new regional strategy and regional plans for industrialization aimed at ensuring that future economic growth is reasonably distributed throughout the country, including large-scale expansion at a number of main urban centres. It is recognized that strong urban areas are necessary to counter regional imbalance by, among other things, providing elsewhere some of the conditions and qualities which make the capital city, Dublin, so attractive a centre for population and employment.

The scenic and natural amenities of the Irish countryside are highly prized. Their preservation and sensible use for tourist and recreational purposes is a high priority in our environmental programme, as tourism is of great importance to the Irish economy. We believe that the image of the country as a place relatively undisturbed by pollution in all its forms is an important element in its tourist attractiveness, and one which will be even more important in the future.

We have a particular concern to preserve our water resources free from pollution, whether from industrial, residential or agricultural activities. A survey of all the main rivers of the country has just been completed. It shows that while there are some badly polluted stretches – about 7% of the total of the main river channels surveyed – the rivers generally are in good condition. We are at present reviewing completely the arrangements for controlling the use of water and the discharge of

effluents in such a way as to ensure that, despite industrial and agricultural development, existing high water standards in the great bulk of rivers will be maintained and suitable remedial action is taken in the case of polluted sections.

Nature's gifts can often be improved by judicious treatment. Some of the finest of the wild land areas in Ireland have potential for national park status in the internationally accepted sense of the form. An overall plan for the creation of such parks has been formulated, and good progress to that end is being made.

While we do not have the same pressures on our natural resources as many other countries, the relatively good condition of our natural environment is due in no small way to our comprehensive physical planning system. Under this system, physical and environmental planning is conducted by local planning authorities with control coordination. This system is based on local plans for land use and development, environmental objectives and constraints are built into these plans, and physical development – public or private – must be consistent with the plans in all essentials. I refer to this system because I believe that the effective way to prevent water pollution and other environmental damage is through the development process itself, the process which both threatens environmental damage and yet must be rolled on to produce the resources which will be needed to undertake increased environmental investment.

I believe that this has implications for action at the international level as well. The operation of an effective physical and environmental planning system depends on ever improving information about the natural resources that are coming under pressure and about the implications for them of development in its various forms. This, in turn, calls for comprehensive and continuous research into environmental matters.

Ireland is an island, and the condition of our environment is in our own hands to a greater degree, perhaps, than is the case from many other countries. But neither circumstance nor inclination permits us to take an insular view. As an island people, we are especially concerned about the complex problems of marine pollution, particularly the problems of pollution of the seas by oil. Ireland's concern with this problem is very real, given the close proximity of the country to one of the world's busiest oil tanker routes, and the existence on our south-west coast of an oil terminal which can take the largest tankers now in use. Our coastline is particularly exposed to the hazards of oil pollution from the sea and we would wholeheartedly support any action taken for the prevention and control of such pollution.

We also have a joint interest with many other countries in such matters as air pollution and, generally, in cooperative effort and exchange of information and experience in environmental planning and pollution controls. More fundamentally, we regard our store of natural resources as part of a European and of a global system which is the endowment of international communities and of the whole of mankind.

Virtually all human activity affects the environment or is affected by it in various ways. All countries, in dealing with their environmental problems, have to establish and observe some order of priorities. The same must be recognized of international action, if a feasible programme is to be established and achieved. Many countries will have a shared interest in research in these matters: in the improvement of methods of measurement of pollution; in ways of assessing the costs and benefits of the different courses of action; and in the problems of meeting the extra costs involved in combating these problems. We recognize that there will be different

views on what the priorities should be and we will support recognition, within the programme to be established, of the distinctive needs and problems of the developing countries. As a basis for deciding on priorities we would suggest that the emphasis must be on those aspects of environment which are truly international in character and where international action is either essential or is indicated by a very broad basis of common interest.

This approach will recognize that it will be for each country, while contributing to and benefiting from international action, to decide on its own environmental policies, in harmony with the policies of any wider community of countries to which it may belong. Conditions in some highly industrialized countries may necessitate environmental constraints on new developments of a severity which would not be relevant or appropriate in many other countries, where environmental conditions are much better and the need for additional development great. These latter countries will be concerned that environmental policies affecting them should be realistic and that progress towards the adoption of common international standards should not lead to unnecessary obstacles being placed in the way of their economic and social development.

Ireland

The Conference on the Human Environment which took place in Stockholm in 1972 was rightly recognized as a watershed in global environmental affairs. The principles adopted at Stockholm have had considerable influence worldwide. There is now a much greater awareness of the world about us: of the need to conserve and nurture our resources if mankind is to enjoy the fruits of the natural world, of earth, water, wildlife and the man made world of our towns, villages and cities. In other words, there is a far greater realization that there is but one earth and that there is an essential unity in the world's environmental systems. Resources are not inexhaustible and our heritage, and the heritage of future generations, must be preserved.

In Ireland, the past decade has seen a major change in environmental awareness and a recognition of the need to protect and improve the physical surroundings of life. People are increasingly concerned about incidents of pollution. There is also a much sharper interest among local communities in the quality of their physical surroundings, where they live and where they work. There is much greater appreciation of our places of natural beauty and concern that they should not be despoiled.

The main aim of our environment policy is to protect and improve the physical environment side by side with economic and social progress, so that there will be a better quality of life for everybody, now and in the future. The central theme of national policy is the promotion of environmentally sound development in both the public and the private sectors, to the benefit of environmental, social and economic aims. There is also an undertaking to ensure that planning and pollution control systems are adequate and operating effectively. It is not the government's intention either that the environment should be sacrificed to development or that development should be seen as the enemy of the environment.

Ireland relies on a comprehensive physical planning system as the main means of reconciling potentially conflicting demands of the development process and of environmental protection. The environmental content of planning is being broadened. Provision has been made for certain major development proposals to be supported by a formal assessment of the environmental impact before a decision is made on planning permission. Increasing importance is attached to correct advance assessment of major industrial and other developments. The basic planning system is being supplemented by new pollution control systems relating to water, waste disposal and so on.

In the sphere of waste disposal the government has adopted a strategy aimed at securing the environmentally suitable disposal of wastes of all kinds. The strategy provides for the setting up of a national centre at which arrangements will be made for the disposal by acceptable means of potentially hazardous wastes for which existing outlets are inadequate. The strategy also provides for a network of landfill sites to be developed by local authorities at which industrial and other wastes can be disposed of safely. It is recognized that an adequate system for disposal of wastes is essential not only for protection of the environment but also as a basis for industrialization and provision of employment. New regulations controlling the disposal of waste have been introduced and are now being put into operation. In

other respects, too, legislation aimed at the more effective protection of the environment has been developed. A comprehensive water pollution act has been in operation throughout the country for a number of years. The main feature of this legislation is a licensing system for the control of discharges to waters and sewers. Water quality management plans are being prepared for a number of the main river catchments and monitoring and analytical services are being developed and extended.

It is important to recognize that there can be very positive links between the environment and provision of employment. A major youth employment programme recently initiated in Ireland includes a special scheme for works of environmental benefit to be undertaken, mainly by young people, under the control and direction of local authorities. In this way young people are provided with work in their own areas while at the same time the environment is improved and a more caring attitude towards it is encouraged.

In other respects, too, conservation and development needs can be brought together with advantage. Tourism is one example and for Ireland it is a very important industry having close links with the environment. Ireland has been favoured by nature in a variety of ways including an attractive and varied coastline, a beautiful countryside and many attractive towns and villages as well as areas and features of cultural and historic interest. These are assets with important tourism potential and potential for employment related to tourism, and they must be protected if the potential is to be realized. There is therefore a strong emphasis on the protection and improvement of amenities in our approach to physical planning and control of development.

Israel

The environmental predicament itself can be briefly described. It is the story of a vastly increasing mass of people insisting, legitimately, on a higher standard of living. The result is an excessive use of the earth's limited resources. The increase of consumption flings immense aggregates of waste products into the environment, with poisonous or congestive effects. These processes have all gone forward headlong for many decades with no conscious restraint and little awareness of any obligation towards the environment. Consumption and waste of the earth's resources are bound to increase, not only because of population growth but also because equality is the central dynamic of contemporary life. Men are no longer willing to put up with traditional conditions of inequality, either as citizens in national societies or as nations in the international community. High standards of life and consumption have so far been achieved only by minorities; that is to say, by advanced groups within society and by developed nations in the world family. But the dispossessed two-thirds of mankind are resolved to attain the levels which the privileged one-third have already reached. Similarly, the hundred developing nations are determined to pursue equality with the few dozen that have inherited the fruits of the scientific and industrial revolutions. The dimensions of the problem today, impressive as they seem, are only a fraction of what they will inevitably be by the end of this unique century.

It is not difficult or frivolous to follow the line of prediction to its most pessimistic conclusion. Let us review the possibilities at their worst. The atmosphere will become polluted through the burning of fossil fuels and the discharge of particles. This pollution will be washed by rain into the soil, rivers, lakes and oceans which all become contaminated. With the balance of the atmosphere disturbed changes of climate will ensue, filtering out part of solar radiation. Vast aggregates of waste products accumulating in urban centres will be released into the soil, ground water and oceans. Industrial wastes and oil pollution will poison the oceans. All this will lead to the 'killing' of lakes and the disruption of the cycle on which man's existence in the biosphere depends.

Many of the new materials created by chemical technology are not broken down and returned to the nature's cycle: they find their way into animals or plants. They enter the food chain where they produce chronic poisoning or tamper with genetic processes. Excessive use of limited raw materials will lead to irreversible depletion. Increased population will stimulate an uncontrolled development of agriculture involving the extermination of wild plants, thus decreasing man's ability to develop new varieties. Tropical forests will be cut down to create more land space; this will result in the disruption of the moisture and gaseous exchange in the atmosphere.

I do not wish to dismiss this as a hypochondriac nightmare. All of it could conceivably come to pass. But in my conviction, based on the consensus of our scientific community, it is still not too late. There is no valid scientific evidence to support the belief that there have been irreversible changes in the atmosphere or we are in danger of climatic dislocation. Atmospheric pollution today is still more a local than a global problem; and in many places it has been checked. There is evidence that several biodegradable chemicals such as DDT have penetrated the ocean on a global scale and are in the food chain. But this is not an irreversible

trend and can still be controlled. Local deteriorations, however ominous, do not yet add up to a global crisis.

I have stressed the need to avoid an overstatement of the dangers, not only because a sanguine temperament is indispensable for the prevention of insanity, but also because a premature diagnosis of irreversible damage to the human environment could have harmful effects. It could lead to a revolt against scientific research and technical inventiveness, as if the trouble really sprang from them and not from a social and political ineptitude in their application.

Worst of all, an extreme ecological alarmism could inhibit the international movement for the accelerated progress of developing states. That movement needs to be intensified, not slowed down. The gap in standards and capacities between the advanced and the developing states is still a greater threat to universal peace, a stronger affront to man's equal dignity than any threat arising from admitted neglect of ecological prudence and restraint. The developing nations resent being told that because the advanced nations have dealt recklessly with nature, the developing nations must remain frozen in their disabilities. Our solutions must come to terms with industrialization and technical advance; they cannot be based on the false dream of their cancellation. Scientific inheritance is not to remain the monopoly of a few advanced states in the northern part of the world. Underdeveloped states are not going to remain underdeveloped because this would be a convenient way of preventing additional industrialization or pollution. The aim is to find a positive reconciliation between development and the preservation of man's natural legacy.

If it is true that the advanced countries have created most of the pollution, it is also true that they suffer most from its effects. The tendency to interpret the needs of mankind with Northern and Western eyes must be consciously resisted. For example, DDT may do nothing but increase crops in North America and Europe; but it saves children's lives by malaria control in South America, Africa and Asia. Thus a global ban on DDT is neither fair nor feasible. A control system for minimal use would be salutary and correct.

We have gone on to ask ourselves whether it is technically possible to prevent deterioration of the environment. Our answer is affirmative. There are scientific or technical solutions to most of the problems; but most of them cost money and need further research and development.

It is possible to build filters, which will prevent atmospheric pollution; but it would often be less expensive to find ways of changing the production process so that it will not have polluting effects. Water can be purified, but the cost will be great. The depletion of natural resources can be checked by the reutilization of existing resources; recycling of fresh water in some regions of the world will be necessary. Copper and zinc will have to be reused and not thrown away. Waste products can be used for the generation of energy and production or reutilization of materials. Nearly every problem has a possible technological or scientific solution, provided that there is a desire to solve it and to make financial means available.

But our next conclusion is less comforting: irreversible changes in the pattern and cycle of nature have not yet taken place; but there is a very real danger that they will, if existing development policies continue without controls or restraints. The present linear growth of industrialization, population, urbanization and agricultural exploitation could lead to irreparable damage to lakes, streams and oceans. We are not too late, but we are certainly not acting too soon. Solutions are viable only if they are conceived and put into effect on a global scale.

Every national society has a specific experience to bring for comparative study. Israel is part of the destiny of the Mediterranean which is the carrier of much of the Middle East's oil resources and has now become the sink of its effluents. We are especially sensitive to the fragility of the environment because our country's rebirth is a continuous ecological drama. It began in the immense nostalgia of a people, exiled far away in urban ghettos, but still following the rhythm of the seasons in their original home. In the centre of its emotional world the movement for Israel's renewal placed the dream of rehabilitating a scarred, eroded, denuded landscape, of redeeming fertile valleys degraded into buzzing malarial swamps, of reversing the rapacity and neglect which had created the deserts. There are few examples in the literatures of national movements of such compassion for a suffering landscape. This solicitude is deepened by a religious tradition which, thousands of years ago, enacted laws that land should lie fallow each seventh year; that domestic beasts should be the objects of humane care; and even that there should be permissible heights for building in Jerusalem.

In our own days, Israel, which now uses 90% of its available fresh water, has understandably given unique emphasis to conservation, purification and desalinization under strict centralized control. Of our tiny area, more than 65 000 acres have been set aside as nature reserves.

But the central gift of Israel's experience to the hope of environmental improvement lies in the Negev adventure. Believing that the desert is man's creation and not the inexorable decree of history we have launched a campaign against aridity with results that are being shared with other parts of the thirsty world. When the parched yellow turns green, man repays something of his debts to a severe but occasionally benign and forgiving nature. With all this, we are now beginning to pay some of the penalties of accelerated development, such as the myriads of automobiles discharging their fumes, the danger of contaminated coastal waters, the hazards of urbanization.

We can avoid each others' errors, and emulate each others' success. Nothing is more urgent than a programme of environmental information, compilation, dissemination, and monitoring under international auspices.

Israel

If we were to pinpoint the major shortcoming of the past decade, it would be the lack of progress in incorporating environmental concerns into the general framework of socioeconomic development planning. While the concept of ecodevelopment, a word coined to describe the process of ecologically sound development for human benefit, first emerged at Stockholm, the compatibility between the two has only become evident quite recently. If the 1970s brought about a dramatic change in man's attitude towards his environment, the 1980s must herald an equally radical change in man's understanding of the relationship between environment and development.

If we appear to overemphasize the case for the reconciliation of development and environment as a major priority for the coming decade, we do so as a nation which has striven to adhere to the principles of ecodevelopment over the past three decades. Indeed the very rebirth of the state of Israel rests upon these twin pillars without which existence itself is threatened. The parched land with its shocking scarcity of natural resources which greeted the first settlers has been transformed, with amazing rapidity, into a country productive in both agriculture and industry. The love of the nation for its land has been paralleled by its confidence in the power of science and technology to increase the capacity of its few natural resources to serve human needs. Thus development and ecology have merged.

Facing such challenges as accelerated growth, mass immigration and absorption, and the greening and development of the desert, Israel's founders and early developers did not forsake such eternal values as conservation of agricultural land and establishment and protection of nature reserves and landscapes.

The cornerstone of Israeli developmental-environmental policy was laid as early as 1965. The creation of a national ministry focal point for environmental activities brought new momentum to the environmental movement enabling the systematic application of the principles of ecodevelopment. The increase in environmental awareness generated by this body parallels similar growth in awareness elsewhere in the world, but we believe Israel's progress in the incorporation of environmental considerations into the physical planning process through the past decade may serve as a model to developing nations. By utilizing the country's hierarchical land use planning system consisting of three levels of planning, national, regional and local, and introducing environmental guidelines, environmental advisors and environmental units at each planning level, Israel has succeeded in ensuring that all major development projects undergo environmental assessment.

While the introduction of environmental considerations into the physical planning process may be considered Israel's major achievement in the past decade, other environmental successes may be enumerated as well. The Israeli government has established of sewage treatment plants in the majority of urban areas and small towns; pollution of streams, rivers and the Mediterranean Sea will be prevented while reclaimed waste water will be made available for agricultural purposes. Nearly 30% of Israel's water designated for agricultural use already originates from treated effluent. This percentage will be more than doubled, reaching 65%, with the completion of two more major sewage projects.

In the realm of pollution prevention, knowledge gained as the result of the

establishment of sophisticated national monitoring networks throughout the country has helped pinpoint problematic areas requiring special attention. Data accumulated and analysed are utilized in practical, concrete ways for the improvement of environmental conditions.

While ways and means to abate pollution are applied, increased efforts are devoted to preserving the country's unique nature and landscape values. Ways have been found to ensure the preservation of such sensitive ecosystems as our desert areas, despite vast development projects. Numerous nature reserves, marine preserves, national parks and sites of national and historic significance are preserved to benefit future generations.

Another important area of success over the past decade has lain in the realm of education and the accumulation of new knowledge on the state of the environment in Israel. No efforts have been spared in achieving the all important goal of increasing public consciousness through information campaigns utilizing media cooperation, teacher training seminars and manuals and a multitude of environmental publications reaching decision makers and the general public alike.

Environmentally conscious men and women from all walks of life, making their voices heard, are Israel's guarantee that environmental values will always accompany technological progress and development. It is our hope that these men and women – our so called environmental trustees – will enable our country to grow and flourish, basing its development upon sound environmental guidelines.

If the first environmental decade in Israel has been devoted to education and increased awareness, coupled with pollution prevention, we expect to devote a lion's share of our efforts over the next decade to enforcement of environmental legislation. We hope to strengthen the administrative basis for environmental management in the country giving priority status to such areas as the national project for recycling of solid waste, to energy conservation and the development of alternative energy sources, and to the preparation of environmental standards appropriate to Israel's specific conditions. And perhaps, above all else, we hope to create and to instil in our people, over the next decade, an environmental code of ethics which they, in turn, will pass on to their children.

Italy

The problems we face are not new, since for thousands of years man's efforts to better his immediate living conditions have led to extensive modification, if not actual mutation, of his environment. The results of this action have often been far from satisfactory: hence the phenomena of land denudation, of deforestation, of soil erosion and of the ravages caused by poor water management; hence also the extinction of certain species of fauna and flora.

But what has caused a radical deterioration in the environment – a deterioration now about to become exponential – is population disequilibrium coupled with the tumultuous growth of a technology (the long-term negative effects of which have not sufficiently been foreseen) and the priority given to purely economic indicators. This fetishism, distinguished by an indiscriminate growth in production in all the fairly advanced countries, has already been openly criticized by the most modern economic theories.

We must also remember that, thanks to some new trends of scientific and technological research, prevention is possible. A preventive approach must play an outstanding role in solving environmental problems. In this framework, we must foresee, for instance, some radical modifications in the utilization of oil products. We should also consider measures to reduce air pollution originating from fuel; we must develop new propulsion systems, establish consistent and more coordinated transport policies within a wider utilization of urban structures.

It is generally recognized that the problems involved in improving the environment, although of interest, on account of the interrelation which characterizes them, to the planet as a whole, must be tackled at various levels. The countries of the world differ radically in numerous aspects. The more advanced countries must bear responsibility for the pollution and degradation of the environment as a consequence of their very high degree of industrialization; and a campaign against pollution in developing countries might have adverse effects on international trade and on development.

Since the problem of environment is set in spatial and temporal limits, it is necessary to classify the problems into categories. There are worldwide problems of global character, problems which either, on account of their dimension, concern humanity as a whole, such as protection of the marine milieu and drawing up an international programme to safeguard the world's genetic reserves, or which form a prerequisite for the rational solution of other problems (such as supervision and continuous control of the environment, the setting up of a reference system to assure a prompt exchange of information for, *inter alia*, the analysis of the problems under their interdisciplinary aspects and, finally, the identification of the most dangerous sources of pollution).

The protection of nature itself, but more especially the campaign against soil erosion, as well as proper water management, should also be given absolute priority. In the developed countries this task can be performed by using national resources, whereas in the emerging countries international cooperation will be needed.

A programme of action at worldwide level should be embarked upon, bearing in mind certain priorities of a global character, while other priorities of equal

importance must be considered having regard rather for the needs of the developing countries.

It is fashionable today, in the more advanced countries, to attribute to industrialization, to consumption, to the monstrous urban agglomerations and to all the ills of modern technical civilization, the disorders which afflict us and which we are now dealing with. But we must not forget the evils that have afflicted and still afflict nowadays a great part of humanity: starvation, epidemics, mortality, the plague of economic underdevelopment, which are the true pollution of underdevelopment.

We cannot therefore agree with those who recall a golden age our planet has never known and which none the less lurks in the ancestral memory. Pascal wrote 'What progress perfects, progress also destroys'. This sentence can be paraphrased by saying that progress must be constantly renewed to remain as such.

As to the irrational and rudimentary exploitation of nature and its resources – which has been going on now for centuries, and which has recently taken a very dangerous direction – a common effort should be made to call a halt to it, and eradicate the poverty, the inadequate information and lack of technical education, that give rise to it.

I am convinced that humanity is not threatened by excess production and consumption but by defective distribution of both. Remedial measures need to be adopted at both national and international levels, based on the real needs of one and all, bearing in mind the future of humanity and the peace of the world.

Italy

While the aspiration to defend the conditions of our environment is shared by all, the points of departure are many and different. Some aspects of the protection of the environment demand collaboration at the world level, without which even national and regional initiatives run the risk of proving ineffective. Global systems should, however, be adapted to the specific characteristics of the different geographical areas.

We are very interested in following the lines of action which could be set in motion for the protection of estuaries, wet zones and coastal areas, the prevention and mitigation of the effects of earth tremors, the management of water resources, the transformation and erosion of soils, the expansion of specialist training, the future convention on the protection of the ozone layer and in ways and means of giving more consideration to the environment factor in preparing and executing development programmes.

Ivory Coast

It is not man's efforts to dominate nature which should be called in question, but his relative inability to master the indirect and long-term consequences of his interventions. Pollution is as much a technological as a political problem. It is not speeches, even the best intentioned, which will resolve it, but the scientific discoveries and technological processes which man's inventive genius will produce to deal with this new challenge.

Pollution is a byproduct of growth, but the fight against pollution, far from requiring the cessation of growth, involves increased growth in order to meet man's basic needs and the requirements of the new measures to be introduced in order to restrict and then cut back pollution.

Pollution is a worldwide phenomenon and therefore calls for attention from mankind as a whole. World action against pollution will only win the active support of all nations if, instead of working against the least advantaged nations, it is expanded to include its true purpose of control of the earth for the benefit of mankind and all men. Reflection and organization will allow us to plan within our national territories greater harmony between man and his surroundings.

The careful siting of regional agricultural centres, the balanced distribution of industrial and services activities, the hierarchization of communication arteries and of the poles of a functional urban structure are means of avoiding, as far as is possible, urban overenlargement and rural desertification, the exaggerated development of one part of the territory and the almost complete abandonment of another, reliance on a single industry or a single crop – all excesses which give rise to the rapid degeneration of soils, sites and societies. We must also keep a watch over the balance between population increase and economic growth.

The first pollution against which it is urgent to fight is that of poverty. Respect for, and domination and improvement of, the environment require a high level of development. Today and in the future, respect for the environment which nature has handed down to us and the environment that men can give themselves, will not be the prerogative of noble savages but of politically balanced, harmoniously organized, economically strong, socially advanced and culturally dynamic national communities. To seek a solution by restricting or stopping growth would be an aberration or even a criminal act. Only the speeding up of growth and its dissemination to all nations can bring about the conditions for a slowing in world population growth, a response to the legitimate aspirations of the poor nations for greater well being, and concerted action by nations to reduce pollution and to engage in the common undertaking of the conscious management of our planet.

To promote the environment is simply to integrate it into a dynamic process of global development of individual and human society. Development of this kind is a continuing act of creation and man has not yet learnt to be a creator.

Basic education, teaching, vocational training, adult education, lifelong education and social advancement are the necessary components of a value system that will be at once specific to each individual and universal and will lead to the greater well being of men in a harmonious relationship with their animal, vegetable and mineral environment – and perhaps in the future with their cosmic environment.

It is as part of a concerted development strategy that the fight against pollution

and for the environment should be waged. The need is to master our future for the medium and long term, and this can be achieved only by a common effort of forward looking reflection, and a common will to devote the necessary means to it. It is not only the survival of the human species which is at stake, but the construction of a genuine civilization for all mankind.

Ivory Coast

Today few people can be unaware that environmental issues are inseparable from the destiny of nations and the entire human community. The Ivory Coast shares the conviction of the entire international community that the environment must now be taken into account in the development process. It is fully aware that no genuine or sustainable development is possible without the rational exploitation of natural resources and sound environmental management. My country is endeavouring to achieve the objectives of harmonious development and I am convinced it will succeed.

It is, however, realistic to say that the task is not easy. There have been authoritative assessments of the ten years of work by the international community, stimulated by UNEP, to preserve and improve the environment. But even if no assessment had been made one could say without fear of contradiction that not all the objectives have been achieved, as they have not been achieved within states, particularly in the developing countries, where poverty, even relative poverty, gives rise to so many ills militating against environmental preservation and resource conservation.

The great hope of the developing countries, almost all of which are convinced of the need for harmonious development, is that the international community has become aware that only at the international level can suitable adequate solutions be found to serious environmental problems.

The countries directly affected by these problems are, of course, the first victims. Governments therefore have a major responsibility and there is no substitute for action at the national level. However, everyone agrees that for the most part the developing countries have not found solutions to these problems. That is why the principle which was reiterated time and time again at Stockholm that the industrialized countries should assist the developing countries remains valid. After all, in the long or not so long term, all mankind, in one way or another, will have to suffer the consequences of pollution or environmental degradation, the destruction of nature and the depletion of natural resources.

The Ivory Coast attached great importance to international cooperation and invests much hope in worldwide solidarity. It is therefore pleased that the industrialized countries and international organizations are prepared to assist the developing countries, in many different ways, to solve the serious environmental problems obstructing their development.

The developing countries are trapped in a vicious circle and forced to resort to a necessity that is unworthy of them. They are inevitably unable to take account of the dangers that may threaten life on earth. But there can be no compromise when it comes to maintaining essential ecological processes and life support systems or preserving nature and natural resources, matters of growing interest among the developing countries.

We must therefore consolidate the bases for joint action at the world level to conserve nature and natural resources. The concept of common heritage of mankind seems to be a particularly rich one at the strategic level and full use should be made of it to stimulate cooperation at all levels.

The Ivory Coast is prepared to propose or support any recommendations or

resolutions promoting the idea that nature and natural resources constitute a common heritage of mankind and that international solidarity is called for to promote their protection and rational management, while respecting national sovereignty.

Jamaica

The planning and management of human settlements is of vital concern to the countries of the Third World who have inherited housing and urban problems of tremendous proportions. We are hard put to it to find techniques to enable us to finance – on a sufficiently massive scale – the low cost housing which each of our countries must provide. This problem is further compounded by the fact that comparatively little research is being undertaken in the field of planning and housing which is relevant to tropical areas.

It is not possible to deal with environmental problems *in vacuo*. No matter how grave environmental problems may be, all warnings are likely to go unheeded unless developing countries can attain satisfactory levels of living.

In our quest to improve the quality of life of our citizens, the government of Jamaica is extremely concerned with the management of natural resources. This is a complex field of planning and economic management, involving the analysis of a complicated range of related factors. Among other things, it involves the preservation of the purity of the atmosphere, conservation of forests, fisheries and soils and the avoidance of pollution of surface and subsurface waters. It includes the programming of the utilization of non-renewable mineral resources in such a way that the social development of the population is enhanced and scenic beauty is preserved. It underscores the enormous possibilities which could be opened up by the application of environment-oriented technology to the utilization of mineral wastes which now disfigure the landscape and threaten the environment in many ways. The improper storage and disposal of such wastes by multinational corporations operating in the developing countries leads us to request the developed countries to provide stricter guidelines for home based companies operating overseas. These companies should also be made to observe better safety standards in the establishment of mining and industrial installations in developing countries. In this context, everything possible should be done to prevent the export of antiquated technology and the consequent export of avoidable pollution-generating techniques to the developing world.

Scientific controversy has developed over the significance of DDT as a pollutant. Indeed, the developing countries are here caught in a dilemma. No one can disregard facts as to the dangers of DDT, but, at the same time, no cheap and safe substitute seems to be forthcoming which might help developing countries to obtain low cost protection from pests, fungi and other nuisances. We look forward to further advice from the scientific community which will take into account climatic factors and their effects on the rate of absorption and decomposition of potentially harmful pollutants. We recognize that without proper exchange of information regarding basic research in each specific environment, there cannot be rapid progress in the establishment of norms and acceptable levels.

But all the efforts of the scientists and of the specialized agencies will be of no avail unless public awareness is aroused and kept constantly informed of the implications and benefits to be derived from new research. A most important aspect of any information campaign must be proper education at an early age, based on the current state of knowledge. Every national government has a responsibility in this sphere.

With regard to the action to be taken in the field of environment as it affects development, it is unfortunate that there has not been, up to now, a wider area of agreement between developed and developing countries. Equitable relations between developed and developing countries are necessary in dealing with environmental problems. While the government of Jamaica is willing, *a priori*, to comply with regulations designed to protect the environment, my delegation wishes to state emphatically that the good intentions of the developing countries may well come to nought unless there is a firm commitment of technical and financial assistance for global research and support of national organizations from the developed countries to aid compliance and future implementation of conventions.

We are here considering the basis and the future of life on earth. We are concerned with man as the central user of the environment; man, the main destroyer of the environment; man, the main beneficiary of the environment. We cannot escape our responsibility or our need for commitment; for if science and technology have produced most of our problems, it has been because of insufficient knowledge and foresight on the part of mankind that detrimental conditions have been produced. The winds continue to blow freely across oceans and continents, the waves and the tides still roll from shore to shore. Only if we seek in a sophisticated way to harmonize our economic and social activities with these preordained aspects of nature, realizing that there is only one earth in the universe, may we claim with assurance that we are maintaining a steady course on the road to survival.

Japan

In the latter half of the 1800s, Japan carried out a dramatic reformation known as the Meiji Restoration, opened its doors to the countries of the world, and strenuously endeavoured to enter modern civilization.

After the war, Japan proclaimed the eternal renunciation of war and adopted democracy and pacifism as the basic principle of the state. It embarked on intensive expansion of economy, placing priority on industrial activities centring on the energy, heavy and chemical industries. The Japanese people had worked assiduously for twenty years and seemed to come close to their target, when they realized that they were faced with the serious destruction of the environment. The air is unclean and water is polluted. Urban areas are overpopulated and precious nature is beginning to be ruined. Pollution has come to cause many cases of illness and death. The Japanese people, who had thought that greater production and a greater GNP were the recipe for human happiness and passionately bent their efforts to those objectives, were rudely disillusioned.

The pollution of the environment has above all caused a serious hazard to human health and lives. One of the typical cases of such hazards in Japan is an illness known as Minamata disease, poisoning by organic mercury which occurred in the city of Minamata. A chemical factory in that city was using inorganic mercury as a catalyst, a portion of which was converted into organic mercury in the process of reactions and discharged into the sea. Through the food chain, from plankton to fish and to man, it accumulates in the human body and causes a dreadful disease with disturbance in speech and walking, sensory disturbances and possible mental disorders and death. Similar cases of death and illness from mercury poisoning have also occurred in the reaches of the Agano River. There have been cases of itai-itai disease, the principal cause of which is presumed to be cadmium contained in waste water discharged from mining plants; sufferers complain of fracture or pains in the bones. In some industrial cities, such as Yokkaichi, Kawasaki and Osaka, there have been cases of chronic bronchitis caused by smoke emitted from heavy industry and chemical factories and other sources.

It is natural that the Japanese people should have started a serious rethinking. 'GNP for whom, for what?' is the key question. Japan's politics has been reoriented to respect human life.

The Japanese government has established an environment agency and organized a system for effective administration of affairs relating to environmental and nature protection, in pursuance of their new ideal of giving top priority to the preservation of the environment. The cardinal principle of private law in Japan, the concept of no liability without negligence, has been revised to make it possible to impose liability for damages on parties causing pollution even without negligence.

My government is also endeavouring to improve the social overhead capital, which is far too inadequate, for the improvement of the environment. To that end, we have put into effect long-term plans for parks, sewerage systems and waste disposal. In the meantime, the awareness of the need for pollution prevention is also increasing in industrial circles. It is estimated that the ratio of investment relating to pollution control to total private capital investment will exceed 11% in the fiscal year 1972.

We must fully realize that the fight against pollution will continue for a long, long time. We have only just begun. In some areas, however, its effects are beginning to appear. We intend to carry on, with a pollution free Japan as our target.

We are part of nature. It is imperative that we keep that clearly in mind in applying science and technology. Ethics that teach how man should live have so far treated merely of the relations of man to man. But man, if he is to live as man, must not forget his harmony with nature. We have a legend in my country. An old priest was absorbed in grafting in the garden of his temple. A visitor said to him, 'You won't get fruits while you are alive'. The priest calmly replied, 'Nature has an eternal life. I am grafting for the benefit of our children and children's children.'

In developing countries, various studies are being made of development plans for the improvement of the living environment. When they are put into practice, it is most important that careful consideration should be given to not causing deterioration of the human environment. In this respect, I believe that the experiences of my country I have described will be very useful. It is my earnest hope that our knowledge and experiences will be fully utilized by many developing countries.

I believe that the greatest aspiration of mankind is for peace. To realize that aspiration, constant efforts are required. We may say that the history of the world to this day has been the annals of struggles for peace. The basic condition required for that purpose is that all peoples should live without excessive economic discrepancies, maintaining their respective characteristics. So long as there exists a wide gap between the developed and the developing countries as at present, we still have a long way to go to reach our ideal. Now is the time when developed countries should extend as much cooperation as possible to the developing countries for their speedy attainment of development and prosperity. At the same time, the developed countries should not fail to help the developing countries avoid following the path of environmental destruction that Japan has trodden.

Japan, as a nation with a serious interest in the seas, wishes to carry out comprehensive measures against their pollution and earnestly hopes that international standards for the structure and operation of vessels will be expeditiously strengthened to prevent pollution. Tankers and other vessels entering Japan are obliged to dispose of bilge and ballast water only after proper treatment. Oil discharge should be decreased.

The Japanese government have concluded a treaty with the USA for the protection of migratory birds. It is the first bilateral treaty in the world that has been concluded between two countries across an ocean for that purpose. The migratory birds, innocently flying across the national boundaries, may well be called the symbol of international cooperation for the protection of nature. Very recently our country came to a basic agreement to have a similar treaty with the USSR. Japan also hopes to enter into agreement on the exchange of information concerning the protection of the habitat of migratory birds and their ecology with China, Canada, Australia and other countries concerned of South-east Asia. I expect that such treaties for the protection of migratory birds will be successively concluded in other areas of the world and that a network of such treaties will ultimately cover the whole earth.

Efforts for the solution of the problem of the environment should be continued with patience over a long period. It will take a long time to reach a solution. But the future can be bright.

Japan

I should first like to outline Japan's environmental policy and administration in the last decade. When the Stockholm conference was held in 1972, Japan had just begun promoting thoroughgoing measures for environmental conservation. At that time grave social problems and forms of pollution had emerged. Legislative and administrative measures were adopted to coordinate and promote government action for environmental conservation. In the ten years since then, and with increasing national concern regarding environmental problems, various steps have been taken for the prevention of air and water pollution. These steps include the strengthening of regulations, the development of antipollution technology and the building up of social infrastructure. As a result, the most critical stage has passed and it is generally felt that the environment has improved.

I myself have lived for many years in Tokyo, and I am very pleased to be able to tell you that the air in Tokyo has become considerably cleaner during the last decade. We still have problems, however, such as noise and other traffic-related forms of pollution and water pollution resulting from eutrophication in semiclosed bodies of water. We must, therefore, make further efforts to overcome these problems.

In the field of harm to health caused by environmental pollution, the Japanese government, in order to ensure that victims are adequately protected, has introduced a system of absolute liability and established a system of compensation for those whose health has been damaged by environmental pollution.

For the purpose of preventing environmental pollution caused by persistent and potentially harmful chemical substances, the government takes necessary regulatory measures, based on the results of tests of new chemical substances, monitoring of existing chemicals and other research.

With regard to the conservation of the natural environment, we have enacted a law which lays down the fundamental concept of nature conservation in Japan. Based upon periodic nation-wide surveys conducted in accordance with the law, the government has designated wilderness areas and natural parks for environmental conservation. In the area of the protection of wildlife, in addition to promoting domestic measures, we have taken other steps such as the conclusion of treaties for the protection of migratory birds.

I might add that the Japanese government is endeavouring to promote environmental education and to strengthen the country's research capacity in the areas related to environmental conservation.

From our country's experience in implementing environmental policy, we have learned that, for the improvement and preservation of the quality of the environment, concerted and continuous efforts should be made by people, enterprises and government by combining their knowledge and wisdom. It is considered that as socioeconomic activity increases in Japan, increasingly greater importance will be given to measures for environmental conservation. Such being the case, the Japanese government intends to enact a system of environmental impact assessment, as a means of preventing environmental pollution and to take measures necessary for environmental conservation matching the expected changes in the energy supply and demand structure. The government will also promote a

comprehensive environmental policy taking into account the natural, social and other conditions of different geographical areas.

We should not, however, overlook the fact that, despite international and domestic efforts, environmental deterioration continues on a global scale, with the rapid growth of population and the expansion of human activities being major contributory factors.

I believe that the protection of the global environment is the common task of the human race, and needless to say, the maintenance of world peace is a prerequisite if such a task is to be accomplished. It is essential for both developed and developing countries to strive, through worldwide cooperation, for a constructive solution of global environment problems, and for that purpose, we must ensure sustained harmony among the land, oceans, atmosphere, flora and fauna and mankind and it is important to regard man and nature as an integral whole, rather than as opponents.

I believe it is also important to study the incorporation of environmental considerations as one of the guidelines for the conduct of transnational corporations.

In recent years environmental deterioration due to various factors has continued in developing countries. In view of the indivisibility and integrity of the global environment, I consider it important to promote economic cooperation which will contribute to environmental conservation in such areas as afforestation. In other development assistance, also, it is important to give appropriate consideration to environmental conservation. My country has been promoting development aid based on this thinking. Donor countries and recipient countries should talk thoroughly to each other bearing these points in mind.

It goes without saying that further research is urgently needed in the problem areas where much remains to be established scientifically and which may have environmental implications on a global scale, such as increasing atmospheric concentrations of carbon dioxide. At the same time, in order to avoid a situation where environmental deterioration has developed beyond the point of no return, it is worthwhile pursuing research on how to make adequate decision making with existing elements of uncertainty in long-term and worldwide perspectives.

Conservation, along with the prevention and elimination of pollution, is an important factor in environmental conservation. In my country, energy consumption per unit of real GNP fell by 22% in the period from 1973 to 1980, and this decrease has contributed to environmental conservation. I consider it necessary, particularly in the developed countries, to promote technological innovation for the conservation of resources and energy. In this context, it is also necessary, I believe, to promote the development and utilization of renewable resources and sources of energy. The world must tackle this problem seriously and further international cooperation in this area is essential.

Finally I should like to refer to the importance of education, which will bring people to understand the importance of conserving the global environment. The foundation of environmental conservation is adequate knowledge and understanding of environmental problems among people. Thus, the importance of environmental education cannot be overemphasized. In this regard, in school education in particular, appropriate education to enhance awareness of environmental problems should be given from the elementary school stage according to the physical and mental development of the child.

With its dense population and small land area, and as a result of its rapid

industrialization, urbanization and other developments, Japan has been facing, and endeavouring to solve, serious environmental problems. Recognizing that environmental problems are of vital concern not only to Japan, but to all the countries of the world, I wish to assure you that my country will continue to work for the conservation and the improvement of the environment of our 'only one earth'.

Jordan

Our experience during the past few decades underscores the huge gap between international aspirations and the efficacy of international action. This is not, of course, an opportune time to assess the performance of international institutions. But it pays to emphasize the saddening realities of international cooperation in the spheres of both political and economic activities. Imbalances in the political and economic relationships of man far outweigh those between man and nature. In fact, a considerable number of our environmental deficiencies are nothing but the outcome of political and economic imbalances. In the Hashemite Kingdom of Jordan the environmental dislocations have generally emerged from such acute problems as occupation and forceful evacuation. Habitats shattered and denied to their rightful owners and camps congested with uprooted victims are the factual signs of ominous ecological problems. A country which has almost half of its population denied access to the natural resources which accommodated them for centuries is a country of salient environmental hazards. At stake in such a country is mass pollution and the problem of life conservation. To speak there of the latent environmental risks is, I am afraid, to overstretch the irony. For the only predicaments to which the masses are subjected are those posed by the action of aggressors and persecutors. Specifically, it is undernutrition, poor housing conditions and low sanitary standards that have produced critical environmental degradation. Problems so created have adversely affected the living conditions not only of the inflowing masses taking refuge in Jordan but also of the original population. This is clearly seen in the major cities and towns which presently suffer badly from distorted community development and urbanization.

We in Jordan wholeheartedly subscribe to the principles which inspire this conference and to the aspiration that the correction of imbalance between man and nature should facilitate and be conducive to a wider improvement in human relationships. We do so despite the deep frustration which we are experiencing in the international political arena. For we cannot afford to lose faith in the cooperative efforts of the international community. Environmental problems, more than anything else, have amply demonstrated the common fate of man, the oneness of the universe and the fatality of national irresponsibility. This is markedly so, because environmental hazards transcend national frontiers and boundaries by their very nature.

Jordan

People are growing aware that their natural environment is being eroded by dereliction and insensitive development. Their awareness is not yet matched by an effective methodology for stopping the destruction of the very resources on which the future of mankind depends. The problems are complex and there are no easy solutions. However, since these problems are man made, they can also be resolved by man, provided he applies his ingenuity and efforts in the right way.

A correct diagnosis of these ills is essential and a full knowledge of the range of possible courses of action indispensable if we are to safeguard what is still left of civilized urban life and assert environmental values. The Stockholm Conference was the first of a series of international meetings on global environmental issues to safeguard natural resources for the benefit of present and future generations and to halt serious damage to ecosystems. Special importance was given to the need to maintain the productive capacity of the earth, safeguard samples of natural ecosystems and guard against the exhaustion of non-renewable resources.

What should be done within the next decade after Nairobi? If the present situation is to be changed, this must be done by modifying the factors that have produced it or by introducing new ones. In the early part of the next decade efforts should be focused upon arresting those environmentally destructive activities which, if continued, would cause irreversible degradation or destruction. The purpose should be simply 'to stop the bleeding'. Regulatory measures to protect resources should be passed; educational and consciousness raising campaigns should be mounted. The base line investigations of air and water quality should be continued and environmental legislation should be enforced. More fundamental curative and preventive actions should be given greater emphasis. Management agreements should be negotiated more widely to secure resources conservation and desired environmental practices.

The accumulated, long neglected problems are much and the interdependencies of the systems involved so extensive, that it cannot reasonably be expected that environmental resources can be managed properly before the end of the century. But the needed instruments and basic programmes can be fashioned and put into use and the long-term process of rebuilding, building and keeping a habitable realm can be initiated.

Kenya

The problems of the human environment must be viewed from two differing perspectives: those of affluence and those of poverty. Many major environmental problems derive from the excesses of affluence; the creation of huge productive capacity which tends to pollute the air and the water and the evolution of massive urban conglomerations which inevitably result in damage and distortion of the human environment.

In drawing this distinction I do not intend to infer that we are unconcerned about the environmental problems of affluence; their outreach is often global in scale and we of the developing nations already exhibit to a lesser degree some of their symptoms. We are forced to stress, however, that the major environmental problems of the developing countries are of an essentially different origin. They are predominantly problems which reflect the poverty and the very lack of development of the societies concerned. The environmental problems of the developing countries stem, therefore, from both rural and urban poverty wherein the quality of life and even human existence itself is endangered by poor water resources, shanty housing, poor sanitation and inadequate nutrition. All these insufficiencies are in turn exacerbated by the growing pressures on the carrying capacity of our agricultural land, our forests and our rangelands; with populations expanding at rates of 3% or over per annum, we lack the necessary scientific and technological inputs to counteract these deficiencies. The environmental problems of poverty just outlined are in our view as important and certainly no less pressing than those arising from industrial, urban and agricultural pollution which have so far engaged the undivided attention of the developed world.

The developing states must adopt a blueprint for action which stimulates and encourages the formulation of environmental policies conducive to continuous development and growth, while avoiding the diseconomies and distortions which have marred such growth elsewhere. It must be a plan which strengthens the national, regional and global capacity for activities designed to ensure the rational exploitation and conservation of natural and human resources. In this connection I must stress the need to incorporate to the full in any such plan the employment, interest and cooperation of the countless thousands of our young men and women, who through no fault of their own, are unable to earn a living wage while on every hand there are, paradoxically, numberless projects crying out for willing hands.

On this subject of human resources, I believe that we are touching on an issue which strikes at the very heart of humanity and the spirit of man. Man is at the core of our concern for the human environment. 'What shall it profit a man if he gain the whole world and yet shall lose his own soul?' And what shall it profit a man if he lives in relative affluence and a tolerable environment and yet has not in his own hands the disposition of his own body and soul? The oppression of the spirit of man, not by the circumstances of his history or the constraints of his environment, but through the arrogance and inflexibility of a police state, of some men who set themselves up to determine a nation's political and philosophical direction – that is the greatest infringement of a man's fundamental environment that can be imagined.

Kenya is committed to the reduction of regional, economic inequalities and in

particular to the rapid development of rural areas and regional growth centres to counteract internal migration to main urban centres. International assistance in development of regional growth centres and rural areas are spheres in which assistance would be most welcome as a contribution to environmental improvement.

We are very conscious of the many and extensive gaps in our knowledge of the state of the environment and would welcome financial and technical assistance in the establishment of research capabilities to enable us to take action at both the national and international levels. We wish to underline the need for periodic seminars at regional and international levels to take stock of and redirect our activities in the field of the human environment.

In view of the crucial importance of water supply to human settlement, Kenya wishes to urge that very high priority be given to programmes of assistance for the provision of safe water supplies and in urban areas of sanitary and sewer services. In the field of population the agencies interested in supporting projects should give priority to equating the need for population stabilization, where appropriate, with the cultural and social imperatives of the people involved so that the pitfalls of family disintegration are avoided.

On the issue of the environmental aspects of natural resources management Kenya wishes to stress the following aspects which are of special application to developing nations. We hold that the establishment of international criteria, the preparation of a world map on soil degradation hazards and other such activities should not detract from concentration on the field extension work which is urgently needed and for which no special research is required.

We oppose any attempts by industries of developed nations to dump banned pesticides or agrochemicals in the unprotected environments of developing nations. Such acts should be outlawed. We further suggest that immediate and intensive research be carried out to determine the short- and long-term effects on human health and natural environment of the agrochemicals already in use in the environments of developing nations. It is essential that the introduction of new agrochemicals and pesticides to developing nations be subject to control by an international monitoring agency. In the area of control and cycling of wastes in agriculture we suggest that special attention should be devoted to the use of labour-intensive methods of recycling wherever possible.

Special research should be initiated into labour-intensive methods of rehabilitating degraded forest and rangelands together with special research into the selection of tree species suitable for arid and semiarid lands and for use in rural afforestation schemes. We in Kenya have a small forest estate on which there is increasing pressure for human settlement. We therefore support the view that not only should there be continuing surveillance of the world's forest cover, provided for through the establishment of an appropriate monitoring system, but also that serious changes or deficiencies in forest cover revealed by such monitoring should result in the focusing of special assistance to the region or nation affected. In order to facilitate quick dissemination of information on forest fires, pests and diseases we maintain that in addition to international programmes, regional research efforts should be considerably strengthened to carry out their own locally oriented work. This approach should be further strengthened by assistance to developing regions with similar ecological zones to enable them to stimulate the distribution and sharing of useful knowledge.

Wildlife experts from the developed countries should not attempt to impose

ready made solutions to problems without thorough consultations with national authorities. The compilation of inventories of genetic species already initiated should be expanded, and be strongly supported by member governments. Where possible resources should be made available to developing countries to draw up comprehensive inventories. Kenya further supports recommended actions on plant and animal germplasm, micro-organism germplasm and the establishment of an international liaison unit for plant genetic resources. In all these programmes emphasis should be on developing and improving national capabilities in parallel with internationally based programmes.

With regard to water we in East Africa are already alive to the need and value of regional cooperation and would suggest that an African Water Resources Development Centre be established with subregional centres.

On the issue of minerals and mineral processing, while supporting the proposed action, it is our view that the important issue is availability of financial and personnel resources for the adaptation of techniques evolved by industrialized nations in the control of degradative effects of mining activities on the environment. International agencies should make resources available to the developing countries to enable them to undertake reclamation of degraded mine sites.

Our experience to date on pesticides and fertilizers in a country whose economy is based primarily on agriculture indicates that some pesticides are both cumulative and persistent and may have long-term effects on entire ecosystems which are as yet not clear to us. Some fertilizers and pesticides may get to man through various food chains and could prove harmful. On the other hand, with the ever increasing need for food in the world, especially in the developing world, it is not practical to categorically ban all environmentally dangerous pesticides or restrict the use of fertilizers. A major effort must be made to unravel the complex interactions of these agrochemicals so that in future we may be able to make firm decisions on their use and control. Meanwhile it is urgent that such hazards as we know are involved in their use and abuse are avoided and especially that nation-wide education on these hazards is put in hand.

Man as a social animal has made technological advances which have caused marked changes in his environment. Vast changes have taken place as a result of man's mining activities, industry, communications, energy production and many other activities have had a cumulative effect on the biosphere. New environmental problems have consequently been created. But who will save mankind from his own follies? Is it to be left to these scientists and researchers? No. The problems are so multitudinous and so ubiquitous that scientists alone cannot cope. The politicians, the policy makers, youth, the clergy and laymen everywhere must come together to educate and exert positive public opinion against the numerous evils affecting the human environment. Conventions alone will not help us maintain a healthy environment. Conservation for its own sake without taking into consideration the role of man will not provide the answer.

Many have spoken of the grave dangers of pollution to our very existence. Pollution knows no boundaries, colour or creed. It is all pervasive. It is inescapable if man in his folly does not use his faculties to the full for his own salvation. But while pointing at some of the industrialization dangers and pitfalls which result in degradation of the environment, I must hasten to add that these should not be used as an excuse to retard the pace of industrialization for economic growth and enhanced living standards, or be used as an excuse for the setting up of pollutant industries in the developing countries.

Kenya

Concern for the well being of the environment has manifested itself throughout the history of mankind, particularly with regard to the consequences of the destruction of resources such as soil, forests and water. However, this concern has often been narrow, since it has been resource-specific, and did not appreciate the interlinkages which exist between the various components of the environment. In more recent years, with the advancement of knowledge and the growth of interdependent economies, the approach to environmental problems has changed. Today we are acutely aware of the interrelationships between the various components of our common worldwide environment.

Most of the problems that led to Stockholm ten years ago are still with us. Population increase continues as a major concern, especially in developing countries. Uncontrolled increase of human population has greatly added to pressure on scarce natural resources thereby causing serious degradation of the environment, destruction of vegetation, deforestation, desertification, and decimation of wildlife and its habitat. These are crucial environmental facts that call for practical and urgent solutions.

Related to problems of overall population increase are problems reflecting the rapid growth of human settlement and urban areas, especially in developing countries. Excessive rates of urban growth pose major environmental problems, including shortages of such basic necessities as food, water and shelter, accompanied by shortages in sanitation and health facilities. The problem of increasing human population should be addressed and acceptable programmes for its stabilization initiated, especially in Third World countries. Attention should be focused on the improvement of life in the rural areas and on alleviating the problem of rural-urban migration in search of elusive opportunities in the exploding Third World cities.

We would like to underscore our conviction that preservation of natural resources is not an end in itself. Resources must be preserved, managed and utilized for the benefit of the people. In this connection, we must emphasize very strongly the need to consider the social, cultural and economic factors prevailing within a community when formulating strategies for sustainable use of natural resources. We firmly believe that if such management proposals and plans are to be successful, they must incorporate traditional indigenous science and technology.

Provision for basic human needs, such as health services, shelter, clean drinking water and food are matters of great concern in the developing regions of the world. Environmentally induced diseases such as malaria, cholera and bilharzia continue to afflict people in tropical regions. Most of these diseases are due to lack of adequate provision of safe drinking water and sanitation. The problems associated with water and sanitation are matters of life and death to millions of people in the Third World. An environment programme should promote activities in the control of water-borne diseases including immunization programmes to check these diseases and where possible to eradicate them altogether.

Another area of immense concern, both environmentally and economically, is energy. The increasing demand for energy has resulted in serious environmental degradation in almost all regions of the world. For many years, the world, and

especially the industrial countries, has exploited cheap energy resources, primarily oil, for their development. As we are painfully aware, these cheap sources are no longer available. The increase in oil prices has had severe consequences for the economies of many countries, especially those of the developing world. If I may be permitted a personal, or more properly a national note, the situation facing Kenya is typical of subSaharan developing countries, most of which have not been blessed with commercially viable supplies of fossil fuels. On the one hand, rising costs of petroleum have contributed to domestic inflation and a lowered growth of the provision of basic needs services. On the other hand, the lack of alternative sources of energy has led to the destruction of valuable forest resources with serious consequences on the environment, including the risk of desertification, disruption of the water cycle and climatic change.

Kenya's experience is unfortunately typical of much of the developing world. Increasing energy demands will continue to exert persistent pressure on environmental resources such as forests and other types of vegetation. In the face of continued high prices for petroleum, developing countries, lacking the expensive technology which is needed for the development of nuclear programmes, must make every effort to develop renewable energy sources such as fuelwood and charcoal, biomass, solar and geochemical energy. In this connection we wish to call upon the environment programme to ensure the implementation of a renewable energy plan of action without further delay. The escalating demand for energy has brought untold damage to our environment and we feel that the development and application of energy from renewable sources should be accorded the highest priority.

Environmental pollution from industrial and agricultural chemicals will continue to be a major environmental hazard in the 1980s. We feel that the environment programme should initiate action against pest control methods based on environmentally harmful chemicals. Effective and positive steps should be taken to initiate the control of the pesticides trade.

Pollution from industrial and agricultural effluents, domestic and solid waste is also a matter that we view with great concern. This includes the dumping of toxic waste materials in developing countries by manufacturing firms in the North. Kenya is particularly worried about the consequences of pollution from various agrochemicals and pharmaceuticals that are increasingly being introduced into the environment. For quite some time now, developing countries have been used to test out the effectiveness of chemicals and drugs which are banned in their countries of origin because of their proven hazardous effect on the environment and on human beings. Our views on this matter are well known. We would like to reiterate in strongest terms that we are firmly opposed to developing countries being used as dumping grounds for hazardous chemicals in the name of trade.

Kenya is greatly concerned with the dumping of baby food formulae in developing countries by multinational corporations. These formulae mislead many mothers in the Third World countries as to their contents and nutritive value. Conditions in developing countries render these baby foods unhygienic to administer and they therefore become health hazards to thousands of children. I am glad to report that Kenya has already launched a nation-wide campaign in favour of breastfeeding.

In the ten years since Stockholm it has become generally accepted that economic development and environmental protection are not two opposed concepts but are indeed mutually supportive and dependent. It has also been realized that poverty

produces many environmental problems such as disease, deforestation, desertification and mismanagement of natural resources. It is true that many of these same problems exist in developed societies, but they exist with a very important difference. That difference is a level of national income that permits the problems to be coherently addressed, provided the political will is present. In the developing world we do not often have the luxury of adequate funds. This is particularly true where energy requirements must be imported and paid for with foreign exchange and where nations are dependent on a limited number of exported commodities.

Development must be geared towards the alleviation of poverty and the provision of basic human needs such as food, shelter, clothing, health and education. This form of development calls for an equitable balance of income between developed and developing countries resulting from the exploitation and utilization of natural resources, the application of appropriate and environmentally sound technologies and the adoption of less wasteful lifestyles.

Related to questions of equity in the distribution of income are undesirable social practices which include apartheid, racial discrimination and colonialism. These practices cannot be divorced from the environmental hazards we are pledged to fight. This is because the consequences of these practices have adverse effects on how the environment is protected and managed. They contribute to the unequal distribution of not only natural resources but also the responsibilities involved in preserving the environment. They are not consistent with the principles of peace and security which are crucial factors if we are to achieve our objectives, either as individuals or collectively. It has been repeated here time and again that our call for environmental protection is due to the fact that a healthy environment is a basic right for each individual. For this, among other reasons, it is increasingly true that these practices cannot be viewed apart from the issues we are deliberating upon.

Environmental problems transcend national and regional boundaries and therefore require a cooperative and collective approach. National, regional and international cooperation in the field of environment is an essential prerequisite to the establishment of a new international economic order, responsive to the environmental requirements of the developing world. Kenya firmly believes that environmental problems cannot be resolved successfully unless individual countries have developed sufficient national capabilities to deal with their most pressing environmental problems. In this connection, developed countries and other donor agencies should mobilize the necessary resources to assist developing countries to achieve an improved level of self reliance in integrated environmental management.

The environment belongs to all mankind. The present generation has a moral obligation to ensure that future generations inherit a habitable environment with a viable life support system. The preservation, management and enhancement of the environment is the collective responsibility of all nations. Kenya calls upon the international community to rise to the challenge confronting us now to ensure the continuation of life as we know it on our planet. World governments must mobilize sufficient political will, manpower and financial resources to implement the Stockholm Plan of Action. Kenya is prepared and willing to join hands with the rest of the international community in such an effort. With it, we can work toward the solution, on a global basis, of our environmental concerns. Without it, we will have failed in our most basic responsibilities as leaders to pass on to future generations an environment which can support with dignity and with equity the most fundamental needs of human beings throughout the world.

Republic of Korea

With the completion of the first and second five-year economic development plans and now proceeding with the third one, Korea has been successfully achieving rapid industrialization. On the other hand, to our great regret, this has given rise to various socioeconomic pathological phenomena, such as city problems and public nuisances. These problems are not confined only to Korea but are omnipresent worldwide as inevitable byproducts of the process of industrialization. I believe these problems are best solved not only through national measures but also through coordinated, regional and international approaches and cooperation.

The environmental problems faced by the developing countries have twofold characteristics. One is the elimination of the adverse effects on environment in the process of, or as a result of, development itself. The other is the lack of development. The environmental problems resulting from poverty can be solved only through further economic development. Thus, developing countries are forced to pursue to allocate limited resources between industrialization and environmental improvement and to meet the growing social cost and mounting demands for social welfare.

As the result of the growing concern over the environmental conditions of the country, my government has taken in recent years a number of measures to control and improve the environment in Korea, by passing legislation to control environmental pollution and waste disposal.

Family planning had reduced the rate of natural population increase from 3% in the early 1960s to 1.9% in 1970. This rate is expected to be further reduced to 1.5% in 1976. Thus, in the last decade, the efforts of the government to check population increase has been successfully rewarded. In parallel with this family planning, the government has launched a programme to control the excessive concentration of population in urban areas by encouraging transfer of industrial facilities to rural areas. The programme also aims at decentralization of governmental and public organizations and establishment of new residential towns around big cities.

In the third five-year economic development plan the government has placed high priority on the improvement of the rural conditions by launching diversified projects for housing improvement, electrification, a modernized water supply system, extension and expansion of roads and for a better communications system. In order to narrow the income disparity between rural and urban areas, to curtail the inflow of population into urban centres and to improve living conditions in rural areas, the government has since 1968 been carrying out special projects to increase rural incomes.

A master plan for comprehensive land development has been adopted for effective utilization and management of land, safeguard of natural resources and for improvement in living circumstances. In particular, the plan envisages the dispersal of population, establishment of sites in rural areas, development of water resources and improvement of transport and port facilities. In certain densely populated urban areas green belts have been established. The government has taken various measures for protection of wild animals and for prevention of contamination of marine products and soil erosion from many polluting sources.

Finally, to control pollutants, new monitoring systems are to be set up in the

main cities for precise evaluation of environmental conditions. Simultaneous research on the effects of those pollutants on the human body as well as on the environment is to be carried out.

The importance of education in our efforts to control the human environment cannot be overemphasized. My country plans to introduce the environment into school curricula, and it also plans to initiate the training of experts on environmental problems. Since Korea has become a member country of the Group on Environmental Measures and International Trade of GATT, my government has followed with keen interest the measures taken by the developed countries in connection with control of the environment. The environmental measures which were undertaken by developed countries have not yet had a very far reaching effect on international trade in general or on the export possibilities of my country. Nevertheless, we cannot summarily dismiss the possibility of those measures adversely affecting the exports to the developed countries from developing countries. My government believes that there should be a set of criteria to distinguish between cases where trade restrictions are genuine environmental actions and where environmental considerations are used to disguise protectionism. It goes without saying that the latter measures should be opposed, like all other restrictive and discriminatory trade practices.

The government of the Republic of Korea fully recognizes that the pollution of environment is not only a national problem but also a regional and global one. In this conviction my country is ready to participate actively and faithfully in any collective international initiatives for effective control of environmental pollution.

Korea was once called the Land of Morning Calm. Like many other developing countries it was relatively poor, stricken from time to time by the harassments and invasion of neighbouring countries. Throughout many difficult times of their history my people have never given up their just struggles for their right of existence and self preservation and have always overcome their hardships.

The new task confronting my country today is how to attain the affluence which is already being enjoyed by many developed countries. This is not an easy task. It will demand enormous efforts and energy from our people. Yet it is not unattainable.

The new enemy to this rightful aspiration which appears on the horizon is the product of that aspiration and effort itself: the pollution of the environment which is already felt in my country. My government and people are earnestly aspiring to reach the goal of affluence without sacrificing their right to call Korea the Land of Morning Calm.

Republic of Korea

The efforts made to conserve the environment during the last decade have varied from country to country. In the advanced countries, environmental conservation became a matter of concern to governments, enterprises and the public as they gained experience in dealing with their environmental pollution problems. As their efforts and material investment to prevent further pollution have increased, they have made various achievements in this field.

The developing countries, however, faced a different situation. To them, the fight against poverty was more urgent and their primary concern was, among others, economic growth. As a result, the quality of their environment rapidly deteriorated due to increased economic activity, industrialization and urbanization. Although they have tried to improve their environmental quality by enactment of environmental laws, establishment of environmental agencies and investment in pollution control, many problems remained unsolved.

Their problems were, *inter alia*, insufficient resources, shortage of manpower and inadequate technology. In addition, they were apt to import foreign technology not appropriate to their unique situations. Environmental pollution problems are therefore, most serious in the developing countries and the promotion of international cooperation to jointly solve these problems is urgently necessary.

Environmental conservation in the Republic of Korea could be divided into two periods, before and after the beginning of the 1970s. As in most developing countries, environmental pollution did not pose a serious problem to Korea until the 1960s and her primary concern then was economic growth. Governmental policies supporting economic growth caused some industrial pollution problems in some areas, but they were dealt with by *ad hoc* measures.

In the 1970s, many large-scale development programmes were vigorously implemented and industrial establishments progressively grew larger and became more complex. It subsequently became clear that *ad hoc* measures were no longer effective to prevent pollution and that a comprehensive approach was necessary to deal with complex and serious environmental pollution problems.

The increasing awareness of environmental pollution has brought about some significant legislative and institutional changes in the country. In tandem with these, a pan-national movement for nature preservation was launched. The movement has been expanded from the initial phase of cleaning up the natural environment to wildlife protection, preservation of natural monuments and systematic research into ecological systems. The proclamation of a Charter for Nature Preservation in 1978, together with afforestation activity, provided a bright prospect for environmental conservation in our country. In addition, Korea designated many green belt areas throughout the country to lessen environmental pollution and minimize the expansion of urban areas.

Korea has already prepared a second ten-year overall land development plan. The basic idea of the plan is to harmonize growth with welfare. Its primary goals are decentralization, improvement of social welfare, conservation of the natural environment and the balanced development of the country.

By 1991, the national population growth rate is expected to be reduced from the present 1.6% to 1.3%. Through decentralization, the population growth rate in the

big cities will be reduced to 1.8% from the annual average of 3.4% in the 1970s. Efforts will also be made to improve the living environment in rural areas.

In energy supplies, the current system which relies heavily on fossil fuels will be substantially modified, and new energy sources such as nuclear energy, natural gas, solar energy and others will be developed.

The nationwide afforestation project which was initiated in the 1960s will be continued. During the next decade about three billion saplings will be planted in 1.5 million hectares.

In pursuing housing programmes, the average housing rate will be raised from 74.5% in 1980 to 81.3% in 1991. Drinking water supply capacity will be increased by 240%, boosting the population coverage from the current 55% to 81% in 1991 at the national level. This increase will provide a coverage of 97% for people living in cities with a population of more than a hundred thousand. In rural areas those villages having more than 20 households will be provided with simple piped water supply facilities. Total water use is expected to increase by 44%, necessitating the construction of eight more multipurpose dams.

Democratic People's Republic of Korea

The protection and improvement of the human environment are important matters with implications for the better welfare of people and the overall development of economy and society. The environment is a valuable foundation of life that cannot be separated even for a moment from the people; it is an important and common task of mankind to protect and enhance the environment as best it can to the benefit of present and future generations.

The government of the Republic has vigorously conducted projects in pursuance of the policy of environmental protection. For the last decade, our country has carried out land construction, river improvement, reclamation of tideland and afforestation with the result that land and water resources are well preserved and utilized; animal and plant resources are steadily increasing; and good material standards of living for our people have now been secured.

Our people are now carrying out four good projects; one is the construction of a large-scale lockgate on the downstream of the Taedong-gang river; the second is the building of a hydroelectric power station; the third the comprehensive development and utilization of rivers; and the fourth reclamation of 300 000 hectares of tideland and cultivation of the resulting 200 000 hectares of new land. The implementation of these projects will open new prospects in the development and utilization of land and water resources and offer our people the benefit of a richer environment.

A law adopted in 1977 elaborates the principles of a general plan of land development; it gives details for the conservation and proper readjustment of farmlands, the protection and comprehensive utilization of the forests and rivers, the preservation of fauna and flora, the rational use of natural resources including mineral and marine resources, the building of cities, factories, roads, canals and railways and the prevention of pollution and so on.

The work of protecting and improving the environment, the common heritage of mankind, requires regional and worldwide joint action and cooperation. Every state and nation should conduct itself not only so as to protect and improve the human environment under its jurisdiction in a responsible manner, but also to deepen international cooperation to protect and improve the human environment in conformity with the aspirations of mankind.

The government of the Democratic People's Republic of Korea will make every possible effort to protect the environment in order to provide its people with a more bountiful and cultured life and environmental conditions, thereby fulfilling its responsibilities to protect and enhance the human environment, the common estate of humanity.

Kuwait

We are at a turning point in man's history. We hope that the decisions taken at this conference will help to create a safer world for us and the generations to come. To create such a world is a basic necessity. With this goal in mind we have been looking at the problems of our environment in Kuwait. We have managed in a short period of time to transfer a small fishing, pearl diving and simple trading community into a reasonably modern, industrial one, where every product of modern technology is being utilized in all aspects of life. Such a sudden transformation has had some adverse effects on the psychosocial and physical well being of the population. This has led us to study our environment in all its aspects. We keep a continuous watch on the environment. We are ready to cooperate fully on a bilateral, regional or international basis, to set up monitoring system and to exchange information and technical knowledge in the field of human environment in general.

Development versus pollution is a vexing problem. The rich countries got to where they are now by relying on a technology that was largely polluting. This is the technology available at present for development. In my opinion the most important way the rich and industrialized countries can help developing nations is by conducting research to find non-polluting development methods. The developing countries would welcome non-polluting technology offered at a reasonable price. No one has any special wish to pollute the environment. But if we cannot get a clean technology, development will continue to cause environmental pollution. No developing country can seriously be expected to adopt a strategy of zero development. If we cannot offer a non-polluting technology to developing countries most of the recommendations arrived at here will go largely unheeded.

We sincerely believe that humanity is one and indivisible. The only way we can affirm this belief is by accepting that we have only one earth. It is for all of us.

Kuwait

Environmental protection is a subject in which the world is showing great interest today. It has been noticed in many parts of the world that the state of the environment has deteriorated so much that many of the countries affected have made great efforts to stop the deterioration and maintain environmental balance within their borders and regional waters. This has led to the ratification of agreements among countries and the launching of various regional programmes.

Universities and research centres all over the world conduct studies and researches to determine the factors affecting environmental pollution. Educational programmes on different levels have been designed to help improve understanding of basic concepts and achieve positive cooperation from the people. The situation in our region is no different. The Gulf states realize the importance of coordination among them; this had led to the emergence of the Regional Organization for the Protection of the Marine Environment.

Some years ago, government agencies realized the dangers of environmental pollution and great efforts were taken to protect and develop the environment. At first this was carried out by various government agencies dealing with the problems of the environment separately. Subsequently Kuwait integrated the activities of different bodies in order to implement the Human Environment Project. The most important achievement of this project was defining criteria for testing the pollution level in the atmosphere and water. This is still being applied as a guiding rule.

The second state objective was to create a practical method of coordinating the activities of organizations and government administrations concerned with environmental affairs.

Kuwait is located in the desert part of the world. It shares with similar countries the problem of desertification. The Kuwait Fund for Arab Economic Development is financing several projects for the control of desertification in several friendly states. This includes the supply of technical aid for an irrigation and agriculture project in Lambobo, and the project of securing and preserving forests and soil erosion in the Riverine.

The preservation of nature ie natural resources, animals, plants and other natural constituents and prevention of its demolition as a result of irresponsible exploitation of natural constituents, renewable and depletable resources should be a major aim. This should include control of pollution in the natural environment, as well as industrial and urban expansion. Another should be design and implementation of policies aiming at preserving traditional energy resources. This could be achieved by regulating both production and consumption. Similar efforts should be directed towards traditional energy projects and their effects on nature ie marine, coastal, land or atmospheric environment, and encouragement and support of researches to find alternative renewable resources and exploit other resources, such as solar, water and air energy.

We must decrease the passive effects of man's use of technology on both man and environment, support scientific researches to define the environmental return from the use of technology on human health, social and psychological aspects, and set up information and educational programmes for the masses dealing with the effects of the use of technology and means of best usage with the least harm.

The arms race and military conflict have dangerous effects on the environment, resulting in environmental pollution and destroying renewable and depletable resources. All international bodies should cooperate to stop the arms race and avoid military conflict as a solution to international disputes; thus we can keep the globe a suitable place to live on, where we can protect our environment and develop its resources for the benefit of all humanity.

Lebanon

For centuries, man has dedicated himself – with imprudence and lack of foresight – to a frantic exploitation of nature. Served by increasingly sophisticated technology, spurred by a desperate need for material progress and by the demands of production to satisfy consumers' ever growing appetites, he has behaved like an egoistical hedonist, devoting himself to accumulating wealth at the expense of the quality of life and the conservation of his environment.

The urban crisis and its psychological and social ramifications, the exhaustion or depletion of animal, mineral or vegetable resources, the generalized pollution of the air, of fresh water and of the seas and the oceans are merely the most striking examples of the general deterioration of our environment, the consequence and the price of the uncontrolled race for progress. However, more than two-thirds of mankind suffers from an even more tragic and distressing deterioration of the environment: that of poverty, deprivation of all kinds and underdevelopment. Long dominated, often exploited in the past, forced to contend with the political and social upheavals inherent in the very condition of underdevelopment, this vast majority of mankind struggles desperately, although constantly handicapped by the unfavourable situation of international and economic and trade relations and by the crushing weight of escalating population growth, to achieve a standard of living which will ensure dignity.

Action on behalf of the environment cannot and must not harm economic growth or national and international development efforts. The main effort in the domain of the conservation of the human environment must be achieved at the national level. The work of research, analysis, planning and implementation must be carried out by each country according to its own order of priorities, taking due account of legitimate development requirements.

However tenacious national efforts to protect the environment may be, they will remain incomplete and ineffective if not supported and stimulated by international action, by a collective undertaking on a par with the global problems which the environment poses to all mankind.

It is important not to lose sight of the tragic state of underdevelopment of the vast majority of mankind. The conservation of the environment and the progress of the Third World are inseparable and are similarly dependent on an international morality which substitutes right for might and a sense of justice and solidarity for the egoistical imperatives of power.

Aggression against man whatever its form – against his freedom, his right to a legitimate share of the resources of the earth, against his land and against his dignity – must cease, as must the exodus of human beings harried and pursued by poverty, greed, the thirst for power, by military conquests and war.

Liberia

The basic problems of the human environment in Liberia are by no means unique. As in other developing countries, they are essentially the result of lack of development in the modern sense, as exemplified by poor methods of farming, poverty and disease and second, the process of industrialization and development, reflected in rural-urban migration, overcrowded urban and industrial slum areas, polluted water supplies, poor sanitation and transport hazards.

Optimal environmental conservation in utilization of resources is an imperative criterion for all nations of the world in all stages of development. In order to maximize the environmental quality of a nation's resource base, great care must be exercised in the planning and management of human settlements; environmental quality can no longer be taken for granted as an end product, but must be now more than ever adequately planned for and managed.

The health aspect of the planning and management of human settlements for environmental quality covers curative and preventive measures. The preventive measures are of paramount importance and should be emphasized as prevention is always better than cure. In the area of preventive measures, environmental conditions are of primary concern. These conditions include water, quantity and quality, sewage disposal, waste disposal, swamp clearance, housing and communicable disease control.

Recently, pollution has become the object of intensive scientific research and efforts are being made to control it on an international level. It is a fact that one of the consequences of technological progress is environmental pollution. Scientists have repeatedly warned the public of the rise in pollution and its harmful effects but narrow national interests have prevented effective implementation of even those controls which exist.

The pollution of greatest concern today is marine pollution. But before the control and prevention of this form of pollution can be attempted, the sources of pollution must be first distinguished. There has been a great deal of international activity geared towards controlling marine pollution. International agreements have gone a long way towards solving the problem; but prevention is still bogged down over the issue of enforcement. No international solution has yet been adopted. In Liberia it is becoming evident that the educational, social and cultural aspects of environmental issues are basic in that they both cause and affect the deterioration of the environment. Economic growth and development, necessary and essential as they are, do not by themselves guarantee the easing of urgent social and human problems. It is no wonder that high priority is now being accorded to the attainment of educational, social and cultural goals as part of development and the health of the human environment.

Environmental problems are everybody's business. The resources of the environment must be democratized and measures must be taken to encourage public participation in the policies relating to the environment and their implementation. The proposed new curricula for primary and secondary schools take into consideration the conservation and wise use of natural resources. The new policy that an elementary school be established in every town with a population of 600 or more

and a junior high school in every clan, is intended to curb the tremendous rural exodus which has characterized the last decade.

The consequences of industrial development, with particular reference to the effects on human beings in developing countries, are virtually the same. The period over which these effects occur varies depending upon controls exercised, but industrial growth and development certainly change living habits, customs and tradition. Experience has shown that in spite of precautionary measures taken by city and town planners in developing countries, a complex of problems develops in industrial areas.

Liberia, like any other developing country, is burdened with all sorts of intricate problems of industrial development affecting its people and their environment. The greater majority of their problems can be attributed to the opening of mining concessions, timber operations, rubber cultivation and extraction petroleum industry and other important substitution industries. There is no doubt that industrialization provides an atmosphere for national and economic growth and development, but stringent controls must be exercised to avoid depletion.

Liberia

The *Global 2000 Report* warned that 'if present trends continue, the world in 2000 will be more crowded, more polluted, less stable ecologically and more vulnerable to disruption than the world we live now'. This means that every aspect of our ecosystem could be adversely affected, including its flora, fauna, water resources and climate. The *Okita Report*, presented to the government of Japan, says among other things that 'once this destruction progresses beyond certain limits, recovery will be extremely difficult and the earth's support capacity will be greatly reduced'.

Our environment is an inestimable natural resource for development of our various nations. Rivers supply vast amounts of water for various needs: drinking, industrial uses and so forth. They also serve as transport systems linking many towns and villages to one another and to the sea. The falls and rapids of some of them generate large supplies of hydroelectric power. Their fish supply is a large potential source of food. The vast amounts of water also serve as an immense playground for human relaxation, through boating, swimming and fishing. Our environment also supplies flora, fauna, minerals etc.

We are troubled that the viability of our environment is by no means assured. The industries and populations that have grown up around this attractive resource have accelerated their natural ageing. The destructive agent is pollution. Pollution not only makes the environment unclean, but it speeds up its dying and eventual extinction.

It is a truism that environmental problems do not respect national boundaries. What is needed now is continual support for all established environmental agencies dealing with the protection of human health, because above all things, people are the most important. All of us have a right to a healthy environment and a similar right to help protect the environment and to maintain it for the survival of future generations. For us to do this we must develop our economic and social conditions by removing some of the impediments to development. This means that we will have to manage our resources rationally and ensure stringent policies around industrial and other areas where there is a rapid growth of human population. We must also improve our methods of planning and implementation of environmental policies. There must be a good rapport between governments and international environmental agencies. We strongly feel that the warnings which emerged from Stockholm must be translated into national and international action in order to improve the quality of life and prevent further deterioration of the environment.

Those countries with abundant resources, especially the industrial countries which consume 70% of total global income, must be prepared to direct some of their resources to the development of the less developed countries since underdevelopment is a major environmental problem.

Liberia, with its limited resources, has been able to accomplish the following in the area of improving the quality of life for its people:

- industrial waste control to minimize pigmentation and pollution in our drainage basins;
- studies on beach erosion and their effects on natural and man made structures;
- expansion of urban and rural health facilities;

- reforestation;
- development of low cost houses;
- improvement of sanitation facilities;
- development of potable water supply systems for major cities and expansion of rural water supplies;
- programmes for systematic development of energy projects, including new and renewable sources;
- new legislation for the protection of the human environment; and
- establishment of the Wildlife Society of Liberia, its primary objective being the protection and conservation of wildlife.

Our future plans include programmes in environmental assessment; water balance studies; improvement of hydrological and meteorological services such as data analyses, information transfer and data bank development; river basin studies for minihydropower generation and rural electrification; technology transfer; further development and expansion of new and renewable sources of energy and detailed exploration of hydrocarbons; and regional and subregional cooperation in the protection of the environment.

Let us realize that the struggle to provide a healthy environment for all of our people has just begun and must continue.

Libya

We wish to emphasize the principle of the sovereignty of each nation over its natural resources and its right to develop these resources in the manner that would realize its progress and rid it of underdevelopment. This logical principle stresses the legitimate right of developing countries to claim appropriate compensation for their drained wealth and for the destruction and damages imposed by the excolonialist forces in two world wars. The developing nations are still suffering from their remains nowadays, as minefields in the land of the Libyan Arab Republic and other countries show. These mines lead to a great loss in life and property.

We must mention one example of the pollution committed by big states in the areas and seas surrounded by many nations and the serious harm this pollution has caused them and their vital resources. This example is the Mediterranean Sea, which we strongly claim should be neutralized and turned into a lake of peace and security; all foreign fleets that threaten its security and tranquil environment should be withdrawn.

The developed countries should offer technical assistance and financial support to enable the developing countries to invest their resources and develop their lives to achieve the progress they are fighting for. There should be a halt to every exploitation that does not accord with the principle of nations' sovereignty over their own resources and the establishment of real and just partnership for developing those resources.

In our efforts to provide a suitable environment for man let us concentrate on the creation of conditions for a dignified life. We believe that the right way towards such a goal lies in adopting science as a means to achieve economic growth and by the creation of development programmes. Any action to protect the natural environment that springs from ideas of turning the clock back on progress and development will take us back to the Dark Ages from which humanity has fought so long to escape. We therefore reject this approach and warn the developed countries against it. But we welcome any assistance offered to develop resources and create progress within the framework of justice, equality and respect for sovereignty.

Libya

The last ten years have shown clearly the scale of progress achieved in the various environmental fields: the concrete progress made in the field of natural sciences, environmental education and training; the establishment of special environmental institutions at the national, regional and international levels; the increasing international concern evidenced by the signing of agreements for cooperation in the field of environment protection; the establishment of national committees concerned with environmental matters; and the promulgation of legislation aiming at the protection of the environment from all kinds of pollution.

The environmental goals adopted in Stockholm in 1972 aimed at achieving the best ends and benefit for mankind at various environmental levels. But the implementation of that ambitious plan has not advanced evenly. That was a result of man's actions leading to environmental imbalances threatening the very existence of both the animal and the plant kingdoms. To this should be added increasing threats to the basic elements of all life, including man's life, resulting from air and water pollution and soil erosion. There is also the threat to which vast areas of land are exposed as a result of desertification. All these serious problems have become a source of concern in many parts of our contemporary world. The relationship between environment, development, people and natural resources has become contradictory.

The natural resources of the human environment are a common heritage of all mankind. To make use of such resources requires every international effort in environmental cooperation and in solving environmental problems. This is what can achieve for people a decent and secure life, a life free from all fears. In our view, this can only be achieved through concerted efforts in protecting the environment, using science and technology to serve the people and not to destroy the environment, as is happening now in many parts of the world. It is because of this that we should stress the continuity of our modest efforts and the need for more cooperation between developed and developing countries. All our capacities should be used for solving environmental problems; the wide gap between rich and poor countries should not be used to destroy the environment. Affection and cooperation should be the basis for achieving the desired results through implementing the various environmental programmes.

The responsibility for protecting the interests of present and future generations is shared by all states and should be mainly shouldered by the developed countries, especially the superpowers that are engaged in the arms race and go on producing more and more lethal nuclear weapons that are damaging to the environment and that bring only catastrophe and suffering to mankind.

An ambitious national development plan in Libya aims, in the long term, at reclaiming vast areas of land to be used for agricultural and animal production. In accordance with that plan, wind shields are being built, trees are being planted in vast areas and the encroachment of sands is being dealt with in a scientific manner in order to check desertification.

Luxemburg

Europe has not only given rise to substantial pollution but is also most gravely threatened by it. This threat cannot be dispelled by isolated action by one state or another, the pollution of the seas being a particularly striking example in this respect.

In Europe preparatory work for the protection of the environment has advanced fairly far in several spheres – although overall it is still inadequate – but we are still very far from believing that we have nothing more to learn in this regard.

We are aware of the dangers, for example, of unilaterally established criteria and standards for products selected by the industrialized countries, for they can substantially hinder trade with developing countries or even disrupt their production to a still greater degree. We are also aware of the problem of what has been called the export of polluting industries to developing countries, although it would be advisable to study the various aspects of this problem in detail and deal with it in different forms according to the circumstances. Although we are directly concerned by only some of these problems, we are very sensitive to them since they are closely linked with aid to developing countries, which should be regarded in a new light.

The pollution of the seas constitutes a major problem. Regional agreements are needed to resolve this problem.

The determination on a world scale of the main pollutants, the creation of a monitoring network and a referral system are the prior conditions for any efficient protection of the environment. It is also important to advance in scientific research into pollution and to coordinate it in such a way as to make it efficient and fruitful for all nations.

Malawi

My government fully appreciates the importance of good clean water to the well being of its people. Through the International Drinking Water Supply and Sanitation Decade, strategies were formulated to meet the water requirements of both the urban and rural population. Existing water plants have been expanded and connections extended to serve people living in low income areas. At the rural level, the provision of the basic quantity of 27 litres per head per day of clean water has been achieved by the laying down of gravity fed water pipes on a self-help basis. It is now planned to extend the programme to the entire countryside where suitable river catchments exist. Where such catchments do not exist hand operated boreholes and shallow wells are being sunk.

In the energy sector Malawi has taken positive steps to safeguard its supply of fuelwood, which accounts for 94% of the energy consumed in the country for both domestic and industrial purposes. Two country-wide projects, a fuelwood and poles project and a wood energy project, have been started under my ministry with the object of rendering the country self-sufficient in fuelwood and construction poles through the establishment of family woodlots, community forests and commercial plantations in all wood-deficit districts. The protection of the country's river catchments through the preservation of indigenous woodland has been actively pursued, with the result that 7.7% of the total land mass is forest reserves and a further 3% is proposed as forest reserves and protected hill slopes. To give practical meaning and significance to rural afforestation, my government has also initiated a National Tree Planting Week. During this week, seedlings are sold to the people at a highly subsidized rate as an incentive for them to plant more trees.

Turning to fresh water ecosystems, about 75% of the animal protein consumed in the country annually is derived from fish harvested in the country's lake and river systems. In the coming decade and beyond, fisheries development efforts will concentrate on better management aimed at increasing sustainable yields, expansion of fish farms and the improvement of fish processing methods to reduce wastage. My government attaches great importance to the conservation of natural resources in general, and wildlife in particular. National parks and game reserves representing selected and differing types cover 11.2% of the total land mass. In addition to providing sanctuaries for wild animals, a high proportion of the reserves are catchment areas for some of the country's most important river systems. In the sphere of human settlements much of our attention is focused on the rural community which makes up 92% of the population, with the object of providing decent but low cost rural housing through the use of local materials.

Malawi's environmental concerns are essentially of a national nature; but management of natural resources on sound, economic and sustainable basis on a regional level is recognized as being of paramount importance. In this connection, my government has been given the responsibility for coordinating the management and development of fisheries, forestry and wildlife resources in the SADCC region. In discharging this very important responsibility my government will endeavour to ensure that there is a harmonious balance between resource development and utilization on the one hand and environmental protection on the other.

Malaysia

Demands for a better life for people everywhere and the nature of modern development, with its enormous impacts on our resources, make early action imperative. But efforts to safeguard and to improve the environment must be carefully considered. They must recognize differences among nations and our varied priorities as well as our common interests. Nations have attained great economic wealth, but often not without costs in degradation of their environments and to those of others. This is rightly a cause for concern. It is also an opportunity to learn from experience and to share goals as well as responsibilities.

Objectives and restraints must be set now to deal directly with problems in accord with their severity, taking full accord of other goals of nations. We must now devise and set in motion the means of alleviating present environmental disorders.

The problems of the human environment that concern Malaysia are, like those of most countries, overwhelmingly national. Serious degradation is linked to areas of remaining poverty. Economic growth has done much to improve the physical and cultural surroundings of Malaysians and this process must continue. But measures that bring about development are themselves not without environmental worry. New technologies, especially chemical processes and those of modern agriculture, employ methods and introduce materials with potential for serious and long lived disruption. The increasing concentration of people and economic activities is giving rise to environmental costs as crowding and congestion detract from everyday amenities and as waste discharges tax and diminish the quality of our air, water and land, posing health hazards, decreasing fish populations and denuding and eroding soil resources.

Malaysia's efforts to preserve her natural beauty and to enhance the quality of the environment for her people will be continued; but the cost of doing this must be related to and be consistent with the objectives of growth, eradication of poverty, and equality of opportunity. Progress toward a development of greater benefit to Malaysia will be maintained, including the dimension of the quality of the environment important to the quality of life of all Malaysians.

The problems and needs of all countries, including Malaysia, cannot be solved by the imposition of uniform pollution controls and undue restrictions on sovereign nations. But progress can be attained by the sharing of knowledge and experience and by appropriate and equitable initiation of new efforts. Knowledge and advances in technology and science must be shared by all if we are to deal effectively with problems. Let us not all be called upon to pay the highest price for improving the quality of our surroundings.

The pooling of knowledge for the benefit of man should and must receive support from all nations. There is still much to be done as there are many gaps still to be filled in our knowledge. Diverse activities need more thought and new ways must be found if the environment is to be protected from further degradation. Nor can the environmental impact of development projects be ignored. We welcome further efforts to more adequately describe these effects so that projects may be more fully appraised to best assure that they serve all of our objectives. However, project review by international agencies cannot be allowed to exercise final control nor unduly delay critically needed projects.

Malaysia welcomes the many suggestions and recommendations for international initiatives to aid all nations in bringing about improvements to the human environment. But we must call for realism and warn that added resources devoted to these purposes must not detract from those of other even more critically needed programmes. In this connection we support efforts to merge environmental progress and concerns with other current development efforts.

Different nations must take varied action to best accommodate environmental concerns. These actions, however, cannot be used to restrict trade and development. Barriers must be lowered, not raised, if environmental and economic progress for all is to be maintained.

In addition to the environmental problems within her boundaries, Malaysia is also increasingly concerned with the rapid growth and potentially harmful effects of transnational forms of pollution. Action, including cooperative agreements, is needed immediately, especially to control oil spills and ocean dumping, of particular concern to people dependent on the resources of the seas for their food or other means of livelihood.

Even though the responsibility for controlling global pollution may be widely shared we still need a differential distribution of the costs. Environmental values and the costs needed to preserve them rank differently in each country depending on physical, social and especially economic factors. Some nations, especially the more wealthy, would have more to gain because of the higher value they can afford to ascribe to these efforts relative to how they value the sacrifices necessary to take the corrective action. Poor nations called on to take action must value the costs higher relative to the gains; some could conceivably even be made worse off. We must therefore realistically accept that the rich have relatively more to gain than the poor.

The environmental resources of the world have been, and continue to be, used and degraded disproportionately by the more industrialized nations. It is, for example, not the small fires in the villages of rural Asia that are altering the carbon balances of the earth's atmosphere, nor is it our fishermen who introduce mercury and other heavy metals into the seas, though they bear the consequences. Malaysia believes that the financial responsibility for controlling international pollution and other forms of global environmental degradation must be with the industrialized nations. Equitable responsibility must be with those most able to afford it and where it rightly belongs.

The environment is a concern of all mankind. Malaysia fully agrees with this. But efforts to deal with its preservation and enhancement must respect the wishes and priorities of all nations; and they must be responsible and fair.

Malaysia

For centuries mankind has lived seemingly confident of the permanence and nurturing capacity of nature. The tendency has therefore developed to equate development with the more narrowly conceived objective of economic growth, as measured by increases in gross national product from year to year. In essence, development and growth have been measured by physical indicators only. Since the epoch making Stockholm conference in 1972, it has become increasingly recognized that nature is by no means an infinite asset to be exploited at will but rather a fragile and finite resource in need of comprehensive protection and environmentally sound management. Though the major environmental problems in developing countries stem predominantly from the relative lack of development and inadequate infrastructure – poverty itself is polluting – it was increasingly recognized that the high rates of economic growth necessary, particularly to developing countries, did not in themselves guarantee the easing of urgent social and human problems. This has served to provide new dimensions to the development concept itself; developing countries today, in the light of many advances in science and technology, can be said to have better access to the means and the knowhow to effectively deal with environmental issues before they assume crisis proportions.

From our experience it seems crucial for developing countries, particularly those not richly endowed with a variety of resources, to pay particular attention to the negative side effects of development. This is important to ensure that development does not impose an undue strain upon limited social, medical and other services. Developing countries need to protect their resources, both those currently available and for the future, on the principle that renewable resources can best be husbanded on a sustained basis from a healthy environment. These countries must be constantly aware that because of their limited size, their most basic resources are finite; far sighted resource husbandry is therefore of crucial importance.

Malaysia's strategy has been to protect its environment while forging ahead with economic growth and development. The forest sector of Malaysia contributed significantly to the implementation of socioeconomic development programmes designed to achieve the objectives of the New Economic Policy launched in 1971 to eradicate poverty and to restructure society. Paradoxically, while the programmes generated substantial socioeconomic benefits, they also created serious environmental problems and generally had adverse impacts on the natural as well as human environment. Many of the programmes were based on the extensive exploitation and processing of the natural forest resource and the ultimate conversion of the land to agricultural uses. Malaysia has now initiated several measures necessary for the sound development of forestry in the country.

The tropical rainforest has been recognized as a vital component of the global environment. Unless urgent, appropriate and effective action is taken not only to conserve the rapidly depleting tropical rainforest but also to manage it as a renewable resource, the ultimate impact on the human environment could be disastrous. It is, therefore, imperative that concerted efforts be directed at all levels to save the tropical rainforest, not only for the socioeconomic benefit of the respective countries concerned but also for the greater benefit of all mankind.

Malaysian wildlife continues to attract interest both by reason of dwindling

numbers and the economic impact on development consequent on loss of habitat. While elephants have caused extensive damage to plantation crops, this problem is being overcome both by electric fencing and relocation schemes. More areas are being designated as sanctuaries and wildlife reserves.

Pollution control has been an important activity; efforts have been concentrated on the development of administrative procedures and regulations for pollution control. However, the regulations in existence are in themselves not sufficient to meet the increasing demands of environmental management as, with time, problems become more complex.

The most effective methods of controlling the environmental problem lie in the advance or forward planning in environmentally related activities in terms of the long-term conservation of environmental assets. To this end it is necessary to ensure that the imperative of environmental protection is integrated into development projects, to avoid environmental degradation and costly and time consuming remedial measures.

In view of this new approach to be adopted for the 1980s, giving emphasis to integration of environmental protection into development planning, Malaysia, while continuing with the task of pollution control, will be channelling its efforts into the development and application of new methodologies such as environmental impact assessment procedure; environmental information systems; cost-benefit analysis; criteria for resource use and conservation; and alternative patterns of development and lifestyles which are in harmony and give due consideration to the protection and enhancement of the quality of the environment.

Environmental education will also be given considerable importance as this has a vital role to play in reforming our society. We need new knowledge, new perceptions and new attitudes, not only at all levels of the government but also throughout the private sector and individuals. What is needed is a basic rethinking of the way our society looks at problems and makes decisions, especially as regards the management and development of our natural resources.

In line with the above objectives, a comprehensive environmental management programme has been evolved which encompasses, among others, the following elements:

- resource management and ecosystem preservation;
- research into land use management;
- forestry management;
- wildlife management;
- pollution monitoring;
- ecosystem conservation;
- environmental pollution control;
- pollution of the marine and coastal environment;
- plans to combat oil pollution;
- dispersal of industries;
- environmental impact assessment; and
- environmental education.

Of all the social, political and economic changes, perhaps none is more important to the future of Planet Earth and the survival of succeeding generations than the change that is needed in the way we look at the biosphere and its finite resources. Our well being and the health, the safety – indeed the very survival of succeeding generations – depends on the outer limits and the carrying capacity of the

environment not being transgressed. Developing countries still hold 57% of world population and their hopes for the future are increasingly pinned on national development. Accelerated development continues as a global phenomenon of our times.

The new decade of 1980s is full of challenges caused by population pressures, the energy crisis and the depletion of resources and other environmental concerns in the light of accelerated development. There is therefore a need to revive the sense of urgency and commitment by governments for national, regional and global cooperative action to protect and enhance the environment.

Mali

Present firewood requirements far exceed the productivity of our forests. This situation inevitably means that we have to live off the very substance of our forest heritage.

The system of animal production, where transhumance predominates – the perpetual movement of animals from north to south and from south to north, seeking water or fleeing from the insects which are the vectors of telluric diseases – is a major cause of the deterioration of the ecosystem.

Fertilizers are too costly for cereal production.

There are many indeterminate causes for the bush fires which have become a national curse and are today one of the basic reasons for the deterioration of the framework of life.

We are convinced that environmental problems are central to the whole issue of development.

Malta

Malta's interest in the environment stems from a number of reasons which I shall try to illustrate as briefly as possible. In physical terms, it is an island which, with only 120 square miles of territory, has to support 320 000 people; an island consisting mainly of rock, poor natural irrigation and not too fertile soils. In consequence, man in Malta has, from the dawn of times, tried to carve out for himself an existence out of the island's main natural resource – its strategic position in the middle of a historical sea. And over the span of centuries, the landscape has been affected, at times positively, at other times less so, by the hand of those who fortified the island and transformed it into an environment of war.

Happily, the island is now diversifying its economy into one oriented ultimately towards the pursuit of peace, attracting to its fabled shores industrialists and tourists from all over the world. In the process of so doing, Malta – often described as a microcosm of the global human environment – is seeking to achieve a balance between the ecosystem, economic goals and, most important of all in our view, the sum total of human happiness. For Malta, small nation though it is, places highest in the hierarchy of ecological values the relationship of man to his total environment in an atmosphere of freedom.

Malta is ready to cooperate with all nations who have the human environment at heart. Malta hopes that the real achievement of Stockholm will be the realization that it is only one earth because it is only one humanity, only one man. May we go forward from Stockholm in peace and in harmony with nature and with our fellow men.

Mauritius

My country is a small country of about 720 square miles in the Indian Ocean with a multiracial population of over 800 000. We are an island community and for that reason our well being is inevitably connected with the ways the seas are cared for and used. We are deeply concerned not only about the pollution of the open seas and of our coastal waters but also at this juncture about the fact that great naval powers have started competing with each other by increasing the size of their navies and establishing naval bases in the once peaceful oceans of our part of the world.

Having obtained our independence in 1968 we, as a sovereign nation, have succeeded in establishing friendly relations with many countries of the world and we hope that those countries that are more developed and prosperous will begin to help us in those areas where we will need the increased financial and technical assistance consistent with creating and expanding those industries which will help us to reduce our poverty and unemployment as well as to avoid the industrial pollution that would wreak such havoc on our delicate and finely balanced island ecology.

We are grateful, of course, to those countries who have begun to help us in many ways and we hope they will continue to do so in an added degree along lines consistent with the maintenance of a healthy environment.

We have come here to benefit from the experience of others and hope thereby to provide ourselves with the ways and means of avoiding disasters, chaos and all the evident dangers to humanity currently being discussed. We seek to better the quality of life for all Mauritians and we enthusiastically join with the other nations of the world in our desire to raise the quality of life of all human beings.

By their own testimony it is the developed and prosperous countries of the world who have polluted it. If we take this fact into consideration, along with the added fact that the poor countries of the world are experiencing great difficulties coping with the financial and technical problems of keeping their collective heads above water, then the conclusion that must be drawn seems to us to be inevitable: that the rich and prosperous countries should provide the needed finances and technical services and equipment which will allow their less fortunate brothers to better their development prospects as well as doing so in a clean and healthy environment. This does not mean that the poorer parts of the world will just sit and wait. But it does mean that if our efforts are to better our environmental prospects in the relatively near future heavy commitments must be made from those best able to do so, but without any strings attached and without any direct or indirect interference in the internal affairs of the countries to be helped. When we all realize this and put our efforts at betterment into an operational form we will have taken the first hesitant steps toward achieving the real brotherhood of man.

Mexico

The President of Mexico has stated that 'the gradual deterioration of the environment greatly affects humankind as a whole. On the other hand, there exists a close relationship between environmental problems and industrial development. However, the serious matters resulting from contamination, should not result in measures which discourage the economic progress ambitions of peripheral countries.'

Mexico, my country, has joined the campaign against ecocide. Our government supports motions, studies or actions in favour of the improvement of the environment. A proof of this is the juridical and administrative infrastructure that has created a subsecretariat of state in charge of the improvement of the environment.

This will to preserve our environment is defined by a permanent search for solutions to the difficult problems with which we have been confronted. These solutions must in turn lead to national reforms which cover various fields of human activity. Nor can our noble goal be achieved without the joint and coordinated effort of all nations.

It is true that the major responsibilities fall upon those countries which possess greater resources and which are principally responsible for the environmental deterioration. But it is also true that the less fortunate countries should give their open assistance to the task.

Although nothing can deflect us from the absolute priority which we give to the prosecution and consolidation of our process of development, we are conscious that we still have time to avoid the negative effects of industrialism when these are the product of lack of foresight and negligence.

There is a close relationship between development and environmental matters and this should be one of our principal preoccupations. A large part of the problem which faces the countries of the Third World, with regard to the environment, can be solved by an improvement in social and economic conditions.

Mexico

In 1972, during the world conference on human environment, man accepted the responsibility to preserve his environment and the necessary resources to guarantee an adequate standard of living on the planet.

On behalf of the government of Mexico, I shall present this meeting with a brief outline of our progress towards this goal. Modern Mexico is the product of the social revolution which started in 1910, the principles of which are contained in our political constitution.

Constitutional provision was subsequently expanded to include actions such as the nationalization of petroleum in 1938; the first bylaw on industrial pollution in 1940, the nationalization of the electrical industry in 1960, the enactment of the federal law to prevent and control environmental pollution in 1971 and the establishment of the undersecretariat of environmental improvement in January of 1972.

Mexico has undertaken actions for the protection of the environment through national plans for urban and industrial development, energy programmes, urban ecology and environmental improvement. These are all integrated into a global development plan. The Mexican food system is one strand of our overall development plan.

The plan has the following postulates:

- that the natural characteristics of each region and the anthropometric and cultural features of human settlements produce different types of environmental problems and therefore call for specific solutions;
- that economic and social development should be fair, balanced and distributed notwithstanding the protection of the environment and natural resources;
- that the state is responsible for overseeing that the activities carried out within its territory do not disrupt the environment outside legal national boundaries;
- that environmental pollution represents a serious social problem – the prevention, conservation and improvement of the environment is the duty and responsibility of all citizens; and
- that the environment and development related problems cannot be solved through the isolated actions of one country. International cooperation is indispensable.

The Mexican government has tried to carry out the recommendations established in Stockholm; the environmental evaluation of air, water and food quality is an important component of our national programmes.

Human settlements management is among the priorities of the government of Mexico. The national plan of urban development was set up in order to obtain balanced urban organization within the country. In order to improve the standard of living in these human settlements we have established and implemented a national plan for drinking water within the framework of the International Decade for Drinking Water Supplies.

My government has placed great emphasis on the control and prevention of environmental deterioration of the earth ecosystems and oceans. We have established specific bylaws in this respect and have carried out studies and research

to adequately diagnose problems related to environmental pollution. Another of our basic priorities is natural resources management, especially fuels, given their utmost importance for national development, as well as for international and regional cooperation.

Education of the population, the real basis of success of environmental programmes, includes the teaching of ecology in school programmes. We are trying to reach all levels of population through mass media so as to obtain the participation of the public.

All the countries of the world must become aware of the importance of their active participation in the preservation of our planet, the inheritance of all mankind. A decade has gone by since the Stockholm conference and reviewing the situation retrospectively we can observe important progress; however, many of the Stockholm recommendations have not been implemented, mainly due to lack of financial resources.

Thus, taking into consideration the various forecast patterns which generally predict a chaotic situation by the end of the century, due to the deterioration of the environment and the scarcity of resources, it is imperative that this meeting outline concrete recommendations that take into account the dynamics of our ecosystems and define strategies that allow for permanent development so that future generations may inherit a more humane and livable planet.

Nepal

Environmental problems have been created by the ruthless exploitation of natural resources and by the cumulative effects of the process of intensive industrialization and urbanization in the industrialized countries, following the industrial revolution at the beginning of the nineteenth century. There is no doubt that the rising wants and requirements of succeeding generations of ever increasing population have led to a manifold increase in the economic and industrial activities which have subjected the natural environment of our earth to tremendous pressures. On the other hand, environmental problems in the developing countries arise essentially from the conditions of their underdevelopment. The developing countries have to accelerate the rate of development for their economic and social advancement, for the elimination of poverty, improvement of the physical environment in cities and villages and above all even for the preservation of their natural environment. Thus development growth can be regarded as a contributing factor to the protection and enhancement of human environment in the developing countries. It must not be considered as a cause of environmental deterioration. However, development growth in developing countries should be measured not only in terms of the increase of gross national product but also should be oriented to the primary goal of real improvement in human welfare. Environmental considerations should provide an additional dimension to the development strategy in the developing countries and to the total economic and industrial activities in the industrialized countries. The continuing needs of the developing countries for their accelerated development must not be neglected while tackling environmental problems.

A massive programme of research and development should be stepped up for the discovery of new knowledge and techniques contributing to the elimination of the pollution of air, water and soil. Concerted action should be taken to disseminate such newly acquired techniques among all the countries of the world, through systematic exchange of information.

Environmental issues are of global importance and so solutions to this problem have to be found on the basis of international cooperation and worldwide coordination of efforts. It is our belief that this spirit of international cooperation and the spirit enshrined in the theme of only one earth will permeate through the deliberations of this conference.

The Netherlands

While we are still engaged in marshalling our forces, nationally and internationally, for the fight against the pollution that threatens nature and man, new worries appear on the horizon. Mineral deposits which have been locked up in the earth's crust throughout the aeons of geological time are being extracted and are finding their way to the farthest corners of the earth. Not only does this represent in a number of cases a potential danger to health, but it also gives rise to concern that the supply of essential raw materials will be exhausted.

Most of the primary needs of the human race for food and clothing are dependent for their fulfilment on the formation of organic material by plants through solar energy. Our desire to offer increasing numbers of people the prospect of a higher standard of living involves production processes and transport problems of increasing complexity. Modern man's desire for recreation and the exigencies of governing our even more complex society are producing a greater volume of traffic than the world has ever seen. The power required to keep it on the move is making heavy demands on existing sources of energy; on the other hand, the dissipation of such vast quantities of energy is one of the main causes of environmental pollution.

Population density in many parts of the world is becoming too great to allow man to live a life worth living. Demographic planning is therefore also becoming a matter of urgency in an increasing number of countries.

In theory, man's scientific knowledge makes it possible for him, by means of wise management of the resources of nature, to preserve the earth as a dwelling place and thereby to safeguard the future of generations yet unborn. But careful planning and resolute action is needed to accomplish this. It is essential to identify the problems and then institute systematic planning and control on a worldwide scale. Solidarity among the whole world community is indispensable if this is to be achieved.

Human activities should be adapted to what is physically and biologically possible within the limits set by ecological laws. The need for comprehensive and integrated planning becomes abundantly clear, though the details will vary according to circumstances. We cannot lay down as a universal rule that the growth of cities must at all costs be stopped and their populations dispersed over the rest of the country. The reverse is not always true either. The requirements of agriculture, industry, housing and recreation *and* those of nature must be considered within their organic context. Dispersal of the population is one solution, but it might also be advisable to improve the amenities of cities within the framework of physical planning policy.

National and international systems of data collection and monitoring programmes, which need to be improved and extended, are very important. My government wishes to emphasize that measurements and studies fail in their purpose unless they are followed up by international planning and control. The difficulties still blocking the way to joint management of our natural resources by the international communities must be overcome, however great they may be. Naturally, this applies in the first place to the parts of the biosphere which are common to all men, such as the oceans and the atmosphere. It would be of the greatest advantage to all concerned if transnational functional bodies could be set

up and made responsible for the qualitative and quantitative management of the biosphere and of waters that cross national frontiers.

Of necessity, the well being of man himself has priority in all human activities. Man's ability to adapt himself to environmental changes is so great that there is a danger of the human race being exposed to pollution for too long, so that in the end the health of present generations and certainly of posterity will suffer. The long-term effects of small doses of pollutants on man should carefully be studied. The protection of food against contamination and pollution will be a matter of increasing concern.

The conservation of organic life, and, where possible, the increase in diversity of nature – and that includes animals, plants and all living organisms – is not only essential if man is to survive biologically but is also a major component of his mental well being.

My government is aware that a social, psychological and cultural approach to environmental problems is needed in addition to a purely material one. This requires analysis and evaluation of the factors that determine the behaviour of people in their environment. It would be possible in this way to establish a number of standards and criteria with which the environment would have to comply. There will have to be a change of mentality if people are to become genuinely environment conscious and I think I can say that in my own country the first stirrings of this can already be discerned.

But pollution spells danger not only to individuals and communities. There are other aspects that represent a potential danger to the whole human race. As long as our knowledge of the consequences of intervention on our part is incomplete, we should all refrain from indulging in any activity which might cause an irreversible change in the composition of the atmosphere and the seas or an irreversible change in the biosphere.

It is a tragedy that in these days in which all our forces must be deployed, by means of systematic action, to ensure that generations yet unborn will also be able to live lives worth living, a large proportion of the human race is still living today in conditions which are virtually a negation of human dignity. The improvement of the environment and the prevention of pollution cannot be seen in isolation from the process of social and economic growth. They are part of that process and they must be taken into account. But they demand more than just regional and national measures. As far as possible, by applying internationally accepted norms, we must prevent major disturbances in trade patterns due to differences in social and economic approaches to environmental factors. We must take particular care that any such disturbances do not affect the social and economic position of the developing countries.

The hazard to the environment is a fact that must be taken into account in education and training at all levels. Although this is a major responsibility of governments, widespread participation by all groups in society is essential. It is no use advocating the discipline and restrictive regulations which are necessary to preserve the environment, fit for man to live in, without the support of the people themselves. Information must therefore be spread through all media and education in environmental matters must be introduced at all levels of the formal curriculum.

We all recognize the need for the joint management of the environment. The time has now come to set up an effective organization which is also flexible enough to adapt to changing circumstances. The nations of the world will then see once again that it is the United Nations which they have created that is capable of

meeting their most urgent and essential needs. We should all offer that organization our full support.

In fixing the priorities we would urge a quick decision. There is no time to lose. We recommend as a high priority the setting up of a registration system and also the protection of the sea and main inland waters. The collaboration of the scientific community, which has already shown itself to be capable of the high calibre international work, should be sought with greatest urgency.

The Netherlands

There is a need to evaluate the goals set in Stockholm ten years ago; however, our main objective today must not be the problems of yesterday, but the perspective of tomorrow. Transforming learnt lessons and gained knowledge into increased concerted action is an effort in which we *must* succeed, lest we perish together with the environment of which we are part. For in spite of some achievements made in the past years, the state of the environment is more alarming than ever. The depletion of vital resources continues; arable land is being lost to urbanization and overexploitation; desertification and erosion still advance; the soil is more and more poisoned; the atmosphere, rivers and seas are increasingly polluted.

This is no luxurious statement of one of the richer countries in the world. My country is situated in the delta of three large European rivers and half of the land is below sealevel. Densely populated, it is a highly industrialized society with a mechanized agriculture and high energy consumption. These circumstances have taught us – and in many cases we have learnt this the hard way – that only by a policy of prevention can we sufficiently safeguard our environment. The price we are still paying for mistakes we made in the past demonstrates that prevention of environmental damage is better as well as very much cheaper than repair, if repair is possible at all. Preventive action can also generate positive side effects, such as technological innovation, new possibilities for employment, the saving of energy and a more rational management of natural resources.

In view of the twin problems of poverty and environmental degradation, it is most vital that strong support should be given to the developing countries to enable them to put into effect an ecologically balanced development as a prerequisite for sound economic development.

The progressive development of environmental law is another field in which we must pass the stage of paperwork. In addition, unsolved problems like the principles of shared natural resources and the legal aspects of offshore mining and drilling, make it necessary for us to pledge full support to UNEP in translating into reality the programme for the further development of environmental law.

The need to further increase awareness of and concern for environmental problems, makes education and information crucial components of environmental policy. For UNEP to pursue and strengthen an initiating, coordinating and more action-oriented role the continuous provision and exchange of relevant information is essential.

While it is impossible in this address to deal sufficiently with the many environmental problems we have to cope with, I would like to highlight at least some of them which in my view deserve special attention. The oceans and seas of our planet, one of the main sources of our life on earth, are still subject to the most severe threats. In Europe, for instance, we suffer from self-inflicted problems such as the pollution of the North Sea and its tributary rivers.

The proportions of the problems concerning the tropical forests are truly dramatic. Worldwide, half of these forests have already disappeared, enough cause for urgent alarm to all of us here. Countries with tropical forests should be strongly supported in finding alternatives for the use of fuelwood as an energy source, in

their efforts to maintain and restore primary forests and to introduce sound ecological management.

Threats of air pollution are extremely serious. To protect the atmosphere against industrial and urban pollution and to prevent disruption of the climate and depletion of the ozone layer, the establishment of global agreements becomes more and more urgent. The monitoring of air-borne pollution and improvement of early warning systems are extremely important. The relationship between the use of fossil fuels and sulphur dioxide emissions requires special attention for a balanced energy policy, with energy conservation at its heart as a necessary tool for a really effective reduction. The industrialized countries are responsible for approximately 80% of the emission of chlorofluorocarbons that can affect the ozone layer. Sulphur dioxide in the air has become one of the most exported chemicals. Acid precipitation threatens vegetation and ecosystems in Northern Europe and the Northern American continent.

As a special problem, I would like to mention the export of pesticides and herbicides that are banned in the exporting countries but used in developing countries. They contribute to the further degradation of agricultural land and the pollution of drinking water, while leading to crops with a high percentage of chemical substances. Export of these crops closes what may be called the circle of poison. For countries importing chemical products it is often very difficult to be sufficiently informed about the nature of these products and to control their application. The development of guidelines and codes of conduct is very urgent. Due to the international character of this problem the efforts of individual governments must be coordinated and reinforced by international legislation.

Of all the other crucial problems that we have to face in the years to come, let me at least name the necessity of finding better ways for dealing with waste. An environmentally sound waste management, centred around as much reuse and recycling as possible, must be a top priority.

New Zealand

New Zealand is a group of South Pacific islands which stretch from the Tokelau Atolls 6° south of the Equator to the Ross Sea Dependency in the Antarctic. It has the largest Polynesian population in the world. Because of our isolation – 1 200 miles of turbulent ocean between us and our nearest land mass – Australia – we are unaffected by some of the problems of damage to the environment shared by continental countries; but because we are set in the midst of the Pacific Ocean, swept by the winds of the southern hemisphere and washed by the rain from these winds, we are vitally interested in the control of pollution of the sea and the air.

Man is at long last accepting that he needs to have trees, birds, wildlife and open spaces, clean air and clean water although we know these things will not show up in our computers as a plus in our gross national product. We are not yet sophisticated enough to be able to add up the value of what all these things mean in the most important subsection of ecology – human ecology.

May I speak of some of our major concerns as New Zealanders about the environment. We have open spaces, park lands and a comparatively low density of people. We have a relatively high standard of living and we enjoy a culture emerging from the blend of the customs of the Maoris and Pacific Islanders and of the many races who have moved to New Zealand from the northern hemisphere.

Our major concerns are in the sphere of pollution. The major concern is pollution of the sea and air which are shared by us all. Another which we have only recently begun to think of is put to us quite simply and strongly by our young people – the increase in the world's population.

As regards development and the environment my government believes that this is one of the most important and sensitive items on the agenda. It raises fundamental policy issues relating to the environmental costs of industrial development and the gap between industrialized and developing countries. New Zealand has closely followed the continuing discussions on this question. We recognize the fears in developing countries that growing concern for the environment could have adverse effects on their economics, on their trade and on the investment flows to their countries. Indeed, in some important respects New Zealand shares this concern. We have always worked for international standards, for example on foodstuffs, which do not create unnecessary barriers and which are sustainable in terms of scientific evidence. We are also at an early stage of industrialization and environmental action could influence future investment in our country. I am in no doubt that it is in the interests of the international community that these fears should be thoroughly discussed and assessed. The problems of the environment need to be analysed on a global basis. It is the belief of my government that if this is done it will be found that there could be positive as well as negative effects on trade and investment in the developing world. With this in mind it should not be assumed that there is, on this matter, an in built conflict of interest between the developed and less developed countries. Rather we should concentrate our efforts on finding middle ground between the two.

One subject is of extreme concern to my government and to all New Zealanders. This is the continuation of nuclear weapon tests. The problem of nuclear testing has repercussions in a number of fields: disarmament, international law and the

environment are the most important. It is sufficient to note that in the disarmament context the holding of nuclear tests has been condemned by the United Nations General Assembly. Nuclear tests conducted in the atmosphere, and even underground nuclear tests which vent into the atmosphere, release significant amounts of radioactive materials into the environment. Thus radioactive contamination can be spread over huge areas. Where large amounts of long lived isotopes such as strontium 90 are released high into the atmosphere all countries are affected to a greater or lesser degree by the resulting fall out.

My government wishes to draw attention to the double standard adopted by some countries in their attitude to the radiation resulting from nuclear testing. In most national radiation protection policies the paramount principle is that any extra radiation dosage which has to be endured by the population as a whole must be compensated for by some benefit. However, when nuclear testing is considered all we hear about is the low risk associated with any particular source of explosions. Nothing is said about benefits because nothing can be said. My government believes that it is time the principles guiding national policies in activities such as operations of nuclear power stations were applied internationally and that all activities such as nuclear testing which increase the radiation dose experienced by the world's population should be justified in terms of the benefits they bring to the population. So far as my government is aware no one has been prepared to argue that continued nuclear testing brings any such benefits.

New Zealand

I bring greetings to this great assembly from a country which is isolated by geography. We are far removed from every continent represented here. Yet we are deeply concerned about the major environment issues facing the world. Indeed, the reason for my being here is to demonstrate that no country can escape our shared responsibility for the wise management of global resources. Previous generations have passed on to us the task of stewardship. The essence of the human condition is to pass on that task to future generations. By our performance, we must show that we did remember their needs and that we did not do serious damage to their inheritance.

Even before 1972 New Zealand had taken action to understand and protect the environment. Water and soil conservation was covered by legislation twenty years before Stockholm. At that time our universities were already teaching ecology and the theory of continental drift. And it is almost a century since the first area of our national park system was gifted to the nation by a far sighted conservationist, Te Heu Heu Tukino, chief of the Maori tribe living in the Central North Island. In 1972, before the Stockholm Conference, the first Minister for the Environment was appointed and towards the end of that year we established the Commission for the Environment. We also appointed guardians for our most sensitive lakes, and set up a trust to protect open spaces for the future. Most recently, in 1982, a biological resources centre was set up to gather and present information to assist the planning and management of terrestrial and aquatic ecosystems. The non-governmental organizations have also gone from strength to strength, and every significant town in New Zealand has a point of contact for citizens who are actively concerned about their environment.

It is clear to us that many of our environmental problems have come hand in hand with material progress. Noise is the most obvious example. We now find that the level of noise is persistently increasing. We have difficulties with litter and solid waste, although a resource recovery programme has been introduced to notify potential users in industry of waste substances which can be recycled. In the public service a pilot scheme is under way to increase the recovery of waste paper.

I said at the outset that we were isolated. Our hemisphere is mainly oceanic, and many would say we are fortunate in New Zealand to have no land frontier. Because of the importance of the coastal zone we recently published an atlas of coastal resources. This was designed to provide immediate access to environmental information which would be useful in the event of an oil spill around New Zealand.

I draw your attention to the clear commitment in our region to mount an effective programme of environmental protection.

We in New Zealand will give priority to the goals of the developing countries of the region, and have already been able to provide professional services and other assistance. We are keenly aware that in our region, as in other parts of the world, the environment knows no frontiers. New Zealand is an island country and we share similar problems of environmental management with our Pacific neighbours. I would now like to turn to the southern part of this other hemisphere. The continent of Antarctica has attracted increasing attention. One reason for this is the pressure to explore, and possibly exploit, valuable mineral resources. Along with

other partners in the Antarctic Treaty, New Zealand is determined that any such activity should be governed by strict international agreements. One element in such agreements must be specific protection for the physical and biological environment. We plan to take the lead in developing guidelines for environmental protection in Antarctica for consideration by our partners.

This brings me to the core issue of environment and development. In New Zealand, as elsewhere, environment has become identified with conservation, and this is often seen as the antithesis of development. Those who understand natural processes realize that conservation does not equate with the preservation of resources, and that selected resources will still be used for life support purposes and for the development of human welfare. One feature of urban development and material progress is that it cuts us off from an understanding of ecological reality. This has, I fear, been the case for many New Zealanders. I always remind them that the conservation issue is not whether or not resources should be used; it is at what rate should they be used, for what purpose should they be used, and on what basis should they be distributed.

Since we do not have to fight desperately for food, clothing, and shelter, we have to ask what else is needed for man's development. We are conscious that we have in New Zealand a cultural ethic belonging to the Maori and that this adds another dimension to our total development. A feature which is of grave concern to me, therefore, is the threat to the survival of Maori as a living language. Only a handful of the present generation is growing up with a command of New Zealand's indigenous tongue. It is just as endangered as the more widely publicized bird species which are rare or endangered. It is just as important that we take action to reverse this trend. The linguistic heritage is an important feature of the human environment.

I believe that we have been able for four reasons to develop techniques of environmental management which could be of value to developing countries:

- we have a good basis of scientific knowledge and community awareness;
- we have had more time to deal with the emergent problems of pollution than the industrialized countries;
- we are always squeezed for financial resources and we have had to avoid the sophisticated and expensive techniques used in many of the advanced nations; and
- part of being a New Zealander is to care for at least some aspect of the environment.

This has made it easier to take preventive action and legislate for anticipatory measures.

In some areas our own work is only just beginning. We have, however, learned already that we can only make progress if we observe three fundamental principles:

- the community must be openly involved in all stages of decision making about their environment;
- advances in technology should be actively used to attain higher environmental standards; and
- the current tools of economic analysis do not provide an adequate framework for the wise management of environmental resources.

On this last aspect, I welcome the renewed attention which is being given to economics and the environment.

We must manage the world environment in a way which reduces the discrepancies between nations. If the gap increases we will have failed in the task set down at Stockholm ten years ago. New Zealand's environmental challenge is to make do with fewer demands on our non-renewable resources. We must use our skills to promote the welfare of our people on a basis which is sustainable in the longer term.

Nairobi, 1982

Nicaragua

Man as a physical being does not stop at his own body; without nature man is nothing, just as without man nature would be nothing.

We have forbidden the indiscriminate cutting down of our woods; we have begun the reforestation of some regions of the country; we have stopped indiscriminate fishing in our seas; we have extended the green areas in the cities; a law to control industrial waste is being studied; we have implemented a sanitary landfill system to prevent the pollution of persons and of Lake Managua; we have conducted educational campaigns on the protection of the environment through the National Literacy Campaign and public health activities on a national scale.

The active participation of our organized population has made it possible to carry out successfully the various activities we have mentioned.

Nigeria

We may have one earth but we certainly do not have one world economy. We have instead an economically segmented world, a world polarized more than ever before into the haves and the have nots. Is it not now more than a quarter of a century since World War II ended and the so-called Age of Development dawned? Yet, during this period, the rich countries have become richer and the poor countries have become poorer. This is in spite of all the rhetoric of the developed countries about aiding the developing countries.

I would now like to comment on some specific problems. Clearly, the most important question is whether economic growth can be sustained in perpetuity by finite resources. The industrialized nations as the torch bearers and exponents of growth economics have so far refused to face this question. The attitudes of the representatives of some of the countries in this group who have spoken so far have indicated no change in the direction or pattern of industrial growth.

Urbanization, the most obvious manifestation of industrialism, proceeds apace. 'By the year 2000 about 50 per cent of the World's population will be living in urban areas compared to about 33 per cent in 1960. In the industrialized countries, the percentage of urban population is expected to rise between 1970 and the year 2000 from about 65 per cent to 80 per cent, and in the less industrialized countries, from 25 per cent to 45 per cent.' The report from which I have quoted fully recognizes that the problems which this trend is giving rise to are likely to become unmanageable. It could soon lead to a major collapse in many of the large cities of the world. The actual logistics of catering materially for this fast growing urban population may well be beyond man's capacity. If the industrialized nations show no intention of altering course, if they continue to pursue their policy of *laissez faire* technology, then they cannot expect developing nations not to follow in their footsteps. However, in Nigeria, we are determined to pay more attention to the environmental aspects of our development. The Federal Government of Nigeria has recently commissioned a study of the leading urban centres with a view to planning them for environmental quality. These cities were originally centres of colonial administration and associated commerce. The most important of them have since also become the centres of the nation's growing industries and its newly arrived rural population. Slums will have to be cleared, modern drainage, sewage and refuse disposal introduced, new housing and health facilities provided. We are determined to make these a part of the increase in the gross national product as that which can be secured through expansion of agriculture, industry, transport and other services.

Physical planning will also be applied to the countryside, initially in the provision of power, water and other basic amenities. New legislation will be introduced to prevent the pollution of the sea coast as well as inland waterways and lakes. In these respects, we consider ourselves fortunate that the consciousness of the need to protect our environment has come at a relatively early stage in our development.

Although the issue of population control is not specifically on the agenda, we have noticed that it is not far from the surface in many of the interventions already made. I want to say that my country recognizes that population, though an important resource, is also the greatest single consumer of material resources. It is

a matter of elementary logic that excessive population growth could, through the depletion of other resources, prejudice the chance of development. We are therefore evolving a population policy to suit our particular circumstances which, in our case, must deal not only with absolute growth levels but as much with redistribution within the country. However, we resent it when the industrialized countries arrogate to themselves the role of the prophet in this matter. We are disturbed when they argue as if it were simply population growth in the developing countries which was leading to a shortage of key resources in the world, thus endangering the future of mankind. The developing countries may well account for three-quarters of the world population, but they consume only 20% of annual world production. If we are to become convinced of the good intentions of the industrialized countries in this matter, the cry for balanced population and consequent better resource management must be combined with action for better distribution of income between the rich and the poor segments of our one earth.

This conference is a necessary beginning which will succeed to the extent that we are prepared to abandon old ways of thought. But it must be clear that the change which we are all convinced is necessary cannot be brought about if the industrialized nations continue on their chosen path. Concern for the environment is a justified concern of all humanity. It could provide a new platform for international cooperation and a new dimension to our common endeavour to build a better world. To realize this, however, concern for the environment must be matched by an even greater concern for human dignity and social justice everywhere and by a new resolve to redress the gross imbalance in the distribution of world income between rich and poor nations.

Nigeria

The establishment of the much talked about new international economic order could be seen as a major and effective weapon in the global struggle to reverse the environmental degradation. It is only through the equitable distribution of technical and economic resources within and among states that environmental deterioration, which emanates from conditions of underdevelopment, can be tackled. The developed countries could redouble their efforts in assisting the developing countries to find solutions to many of their environmental problems.

We would like to see further efforts made towards the development of environmentally sound, appropriate technologies for the exploration and exploitation of natural resources for economic and social development in the developing countries, with minimum damage to the environment. The development of such appropriate technologies should emphasize the interrelationship between traditional practices and modern or conventional approaches, such as, for example, the development of renewable sources of energy, new methods of cultivation in agricultural practices, soil conservation and replenishment through natural cycles instead of the use of chemical fertilizers, new methods of preservation of food and agricultural produce which will reduce the use of toxic chemicals or dangerous pesticides. Many more examples of this type of need in the developing countries could be cited. The need for this type of appropriate and simple technology in the developing countries is very urgent if we are to arrest the present trend which has contributed so much to the problems of the environment there.

I am glad to inform this distinguished gathering that Nigeria is not resting on its oars in tackling its national environmental problems. We have made much progress since the Stockholm Conference in 1972; however, we have an enormous amount of work to do to overcome many environmental problems confronting us. For this reason, a bill is now before our National Assembly seeking to create a Federal Environmental Protection Agency in Nigeria to cater for the country's needs. We anticipate that this will become law soon. When this is done we shall have a more viable institutional framework for tackling the nation's environmental problems.

Norway

Man has always lived in a world of change. He has himself been an active agent in the process of change. Throughout most of his history man has lived in near ecological equilibrium with his surroundings. During the last 150 years the rate of change has dramatically increased and technological development has brought about an enormous increase of economic growth in certain parts of the world, a growth that has been used to conquer poverty, to create employment and welfare.

This model of development has, however, a reverse side. Limited resources have been overexploited, pollution threatens air, water and soil – nature itself is becoming more and more impoverished. The science of ecology is about to give us a new insight. It has already taught us that man finds himself at the end of a food chain built up by innumerable organisms, small and big, forming the community of nature. In this community it is green plants that carry out the primary production on which our existence depends.

Another insight is the realization of how the biosphere and its resources are limited; in other words an understanding of the constraints of what I may call our ecological budget. Fortunately, ecological realities are now about to become political realities as well. It is being more and more widely understood that we must, in every respect possible, preserve natural resources, that we must use nature without consuming it. This simple necessity should be the basic philosophy behind all our decisions, at the national as well as at the global level.

Although Norway is in a comparatively favourable situation among the industrialized countries, the government has decided to give the environmental questions high priority by establishing a new ministry to be responsible for total physical planning, pollution problems and for nature conservation, recreation and wildlife.

The idea of prudent husbandry of resources leads us to a consideration of the population question. Demographic increase at the rate of doubling the world's population within thirty years or so affects a whole range of environmental issues in a most fundamental way. Above all, it tends to erode the effects of what is being done to improve the human and social conditions of the peoples of the poorer parts of the world.

When I turn to the more specific problems before us, the deterioration of the marine environment is a principal cause of concern. In some way or other most of us are contributing to, and sharing the responsibility for, this sad situation. Appropriate and effective international action is urgently required.

I have in mind particularly man made chemicals and industrial and other waste products. The sea is not a proper recipient for harmful substances. This, I strongly believe, should be accepted by our conference as a general principle. The real question is not merely whether such substances have *proven* effects on human health. Direct damage may in the first instance be limited to marine life. The long-range impact may, however, be very unfortunate for man himself if serious damage is done to any part of the marine ecosystem.

In recent years there has been a rapid increase in the practice of dumping particularly harmful wastes directly into the sea, using one of the main protein sources as a garbage sink. A ban on such dumping would seem to be an obvious first step towards comprehensive international action against marine pollution.

Action against dumping would not, of course, make measures to control other sources of marine pollution any less urgent. I have in mind, particularly, the obvious need for bringing under control discharges into the sea of pollutants through rivers and pipelines and even through the atmosphere.

With regard to air pollution there is similar cause for concern. In Norway we are particularly disturbed by the large quantities of sulphuric acid which are transported from friendly nations in Europe by the prevailing winds and descend upon us. A continued increase of sulphuric acid emissions would result in more lifeless lakes and rivers, less productive land and forests, more corrosion and hazards to human health.

The Arctic seas are highly productive, but in all Arctic areas the balance of the forces of nature is an extremely fragile one. With the increasing economic activity throughout large tracts of the Arctic, there are now growing risks and dangers of which the whole international community should be aware. With the increasing demands upon the world's food supply, it seems reasonable to attach growing importance to the proper management and maintenance of Arctic resources.

I would like to make a general observation on the management of biological resources. I believe that the basic policy principle should be that *every living organism is protected unless specific exceptions are established*. I realize, of course, that this is an ambitious principle. To make such a policy effective we need a much better knowledge and information base than we have today – and again international cooperation is indispensable. But if anyone should be in doubt about the need for a clear principle and a firm policy, then I would only point to the sad story of what has happened to the whale stocks of the world.

One of the most encouraging aspects of this conference is the fact that so many developing countries are participating. They might have taken the view that highly industrialized countries had better clear up their own backyards before developing countries bother with environmental problems. We are glad that they have not chosen such a narrow approach. While it is true that the specific sources of pollution are still overwhelmingly to be found in industrialized countries, the effects are gradually becoming global.

It is also true, I believe, that if their development strategy succeeds and modernization of the economies of developing countries take place at a satisfactory rate, then developing countries will gradually be faced with problems similar to those of developed countries. A third truth which appears evident is that if there is any field where we should beware of imitating industrially advanced countries, it is that of the environment. In the industrialized countries we are now facing the consequences of numerous mistakes, ecological errors, of growth at any price. We are now forced to start a gigantic task of reparation. One of the few advantages developing countries have is the fact that many of them have the chance of avoiding the pitfalls that many of the rest of us have fallen into. The developing countries have the chance to draw the right conclusions of new knowledge and understanding.

We hope this conference will prove to be a great incentive to our individual, national efforts to create a better environment for our peoples and that it will be a turning point in bringing nations together in a common approach to the environment on this one earth of ours. We hope that what we set in motion will be, above all, practical and action-oriented.

Norway

This Special Session provides us with the opportunity to achieve two very important tasks. First, to evaluate the successes and failures of global environmental cooperation in the past ten years. Second, and more important, to identify and focus the attention of the world community and of national governments on the most urgent environmental and natural resource management problems of the 1980s and to reaffirm the political will of our governments to increase our efforts to resolve them.

Despite limited successes in certain areas in the last ten years we have no reason to be complacent, but good reason to be seriously concerned about the increasing magnitude and urgency of many of the environmental problems with which we are faced at the beginning of the 1980s. If we do not act collectively and individually now and over the next few years, the situation will deteriorate further and in some areas irreversible damage on a large scale may be the result.

An added impetus for our efforts should be the increasing awareness of our ecological interdependence, and the recognition that all major resource and environment problems affect not only the interests of the countries or regions in which they emerge or predominate, but also, and increasingly, the whole family of nations.

It is against this background that I believe that our conclusions should focus not only on what I hope may be a consensus on what the major environmental problems are, not only on the need for strengthened international cooperation and greater national efforts, but also on the recognition of the ecological interdependence of nations. The conclusions should reflect our growing understanding of the responsibility – and indeed the self interest – of each nation, according to its capacity to contribute to the solution of international and global problems as well as to its own. It can only be by joining efforts in this way that we can hope to resolve the urgent problems with which we are now faced.

The Norwegian government believes that the environmental priorities facing the world community and individual governments, at the outset of the 1980s, are:

- the need for long-term development policies based on a clearer understanding of the interrelationship between environment, population, natural resources and economic development;
- the need to strengthen the ability to manage key natural resources in the poorest areas of the world;
- the need to maintain biological diversity by combating the loss of genetic material through the rapidly increasing extinction of plant and animal species; and
- the need to control widespread dispersion of hazardous and persistent substances and transboundary pollution.

A fundamental objective underlying all four priorities is the maintenance and improvement of the health and productivity of the planet's biological resource base.

There are many areas for national action, but I would like to suggest some issues which deserve high priority:

- The ratification and full implementation of the international environmental agreements concluded during the 1970s.
- A renewed and stronger commitment to the principle that confirms the right to exploit national resources while ensuring that damage to the environment of other states or the global commons must be avoided. This latter responsibility has unfortunately not been adhered to by all governments. The serious damage which acid rain has already caused in Norway and other countries is a disturbing aspect of the present situation. Action to reduce transboundary pollution, and in particular acid rain, should therefore be taken forthwith.
- A concentration on the formulation of *preventive* environmental policies and programmes in our national development policies.
- A determination not to let the present economic situation slow down the implementation of environmental measures, but rather to transform concern about the economic situation into strengthened efforts to make environment policies an integrated part of policies for economic and social development.
- A strengthening of national legislation and of international cooperation to promote the effective development of international law.
- A strengthening of national scientific competence, each within our capacities, to deal with global problems.
- A strengthening of environmental curricula in our schools and universities, and in adult education; and a wider dissemination of environmental information.

I have outlined an ambitious programme. Yet I do not believe we have any choice. Only by renewing our commitment both to the implementation of national programmes, and to a greater and more effective degree of international cooperation, will we be able to make progress.

Pakistan

The earth we live on is a very small planet; but it is a unique planet, in the sense that it is the only one which has an environment and an atmosphere, whose constituents are so balanced as to make plant and animal life possible. Of all forms of life that the earth has sustained, man is the ultimate end-product of an evolutionary process which started millions of years ago with the biosynthesis of tiny atoms of the very elements which constitute his environment. For centuries man remained a helpless creature before the awesome impact of the elemental forces of nature; but when he began to mastermind these forces, the interaction between him and the environment became important. Today man has discovered most of the secrets and laws of nature, which have helped him to conquer space and time and whose application in the form of technology has helped him to live a life of quality rather than of mere existence. But, as well as this positive side of man's achievements through technology, there is a negative side. This could destroy not only man and his civilization but also the very planet on which he lives in a flash of a second. In his pursuit of higher standards of living through massive exploitation of the natural resources of the earth, man has inadvertently caused the pollution of his environment, which may suffocate life on this planet. The question is whether the positive side of man's technological achievements will ultimately triumph over the negative side and allow him to live in peace with his environment. Upon the answer to this question his future will depend.

There are three major problems which call for concerted study and action: pollution caused by nature, pollution caused by man, and pollution caused by poverty. To sustain life on this earth, nature, in its wisdom, has fixed certain climatic belts: the frigid, the temperate and the tropical zones, with features which are unchangeable. We in the tropics are faced with typhoons, hurricanes and cyclones, which bring untold misery to millions and destroy whatever edifice of decent life is built by us. In other cases, we face the challenges of deforestation, barrenness, aridity and lack of water. One day technology would conquer these handicaps by harnessing the limitless energy of the atom and the limitless availability of water in the oceans, by installing dual purpose reactors and powerful pumps. Would such an attempt change the coastal desert lands and cause an imbalance in nature? Should we in the desert lands continue to suffer the hazards of our climate? Should cyclones and typhoons be allowed to take a heavy toll of human lives? What have the environmentalists to say about the massive pollution of our lives by nature in the tropics? The point I am trying to make here is that in many ways nature is itself a great polluter of human environment and the answer to arresting such pollution lies in the research and development of technology, rather than in the arrest of the growth of technology. What nature pollutes, man can clean; just as nature cleans what man pollutes.

It is tragic that certain sections of society have developed by harnessing natural resources so recklessly and by producing no less than a million products of consumption through the instrument of technology, so that they have created problems of disposal of wastes on an unprecedented scale. The discharge of industrial wastes into the atmosphere, rivers and oceans, the indiscriminate use of toxic chemicals, pesticides and insecticides ultimately tend to disturb the ecological

balances that regulate all forms of life. For the control of pests and insects, greater emphasis could be laid on biological methods and the researches undertaken on the use of integrated pest control in all countries, with the lead coming from those which have advanced in this area.

We have already dumped into our environment nearly one billion pounds of DDT. Annual production of pesticides alone has reached a staggering figure of 1 300 million lb. Such uncontrolled pollution of the environment obviously poses danger, not only to the industrialized nations, but also to all others, because unlike the territorial division of the earth's surface, the oceans of the world and the atmosphere above us remain a common heritage of mankind. The polluted currents of the ocean can cause the sudden disappearance of fish in Karachi for no fault of Pakistan's, and black snow can fall in Norway because of pollution in the atmosphere of industrialized Europe. Thus, whereas man made pollution of the earth can be arrested locally by national action, the pollution of the oceans and the biosphere can be stopped only by regional and global action through international cooperation. Consequently, it is not by stopping technological growth, but by developing new technologies, that problems of global pollution can be solved.

There is no single factor which destroys the quality of life and human environment so completely and so thoroughly as the poverty of a people. Unfortunately, two-thirds of humanity suffer the pangs of acute poverty which denies even the basic essentials of life like food, clean water and shelter to millions of the human race. How can people with an average per capita income of less than \$180 have the same quality of life as those having an income of \$2 400? According to projections, the gap between the per capita income of the poor and the rich nations will widen fifty times by the end of this century. Whereas the richer societies are afflicted with the problems of pollution caused by economic development and technological progress of their own making, the poorer societies suffer from the pollution of population explosion and poverty caused by the lack of technological growth and economic development. If the suffering of an overwhelming majority of the people of the world is to be alleviated the population explosion must be arrested through education and a literacy campaign and GNP raised through a massive application of modern science and technology. There is no turning away from this stark reality; but the poorer countries, in applying modern technology to raise their agricultural and industrial production, must guard against two great pitfalls. They should learn from the mistakes of advanced countries and adapt newer and pollution free technologies; and they should not ignore the importance of social development. Development of health services and educational facilities is as important as economic development or raising of GNP. In this effort the poorer nations would need financial and technical assistance beyond the limit of 1% of the GNP of the developed countries fixed for the Development Decade.

The need for 'new international means of managing the world's common property resources – the oceans and atmosphere beyond national jurisdiction – for the benefit of all mankind', has been stressed here. We are convinced that this is an important principle which should be translated into practical action. The oceans and space, which constitute the common property resources of mankind, are, and will continue to be, exploited by developed countries possessing the necessary capital and technology to do so. We must, therefore, reach an agreement that these common property resources should not be allowed to be exploited for making the rich richer, but for the benefit of the whole of mankind.

Pakistan

We still have to go a long way in realizing our ultimate objective of creating and preserving a healthy living environment through rational management and optimal use of resources in an ecologically sound manner. Our effort has to be a continuous one. The task is formidable in view of the complexity of the problems arising as a result of ever increasing human activity, much of which is to the detriment of the environment.

Unlike the developed nations, where the problems have arisen out of too rapid and massive a technological change and development, the worst and the most intractable problems in the Third World are due mainly to underdevelopment, poverty and exploding population. The problems that arise out of the development process itself are markedly aggravated by pervasive poverty, ignorance and the general inability to cope with its incidental, unintended and deleterious consequences. The human degradation caused by poverty, inequality and unemployment and associated material resource degradation is the basic challenge to development policies in the 1980s. Potentially worsening inequalities, together with growing populations, are likely to drive hundred of millions of people to the extreme margin of existence. Such a situation calls for a new international economic order without which it may be extremely difficult to conserve and manage the renewable and non-renewable resources to the benefit of mankind in a way consistent with sustainable ecology. It is, therefore, necessary that genuine and sincere efforts are made by all states, both rich and poor, towards the early establishment of the new international economic order lest the gains thus far made in the field of environment are eroded by the poverty that afflicts the major part of the world population.

A related issue in this regard concerns technology. The developed nations have the advantage of technological advancement and financial resources. They are, therefore, better equipped to deal with the environment. The developing countries are striving towards environmental preservation under severe technological and financial constraints. At times they are recipients of pollution from the developed countries in the form of industrial processes. We urge that the developed nations design plant and machinery with pollution control devices at a cost which will not disturb the economies of the industrial projects and which could be approved by the developing countries.

The phenomenal increase in the number of potentially toxic chemicals which are produced every year, and the corresponding rate at which their trade at the international level is expanding, is another area of concern. Indiscriminate handling and use of these chemicals can lead to serious environmental hazards affecting human health. It is imperative that effective steps are taken to control and regulate the production and use of such chemicals. These should also include wide publicity to create public awareness about their harmful consequences.

We are of the view that very little attention has been paid to the protection of seas in the South Asian region against pollution. As a result the marine environment is fast deteriorating and it is feared that if adequate steps, including the formulation of a regional seas programme for this area, are not taken and implemented, the consequences for aquatic life and ecological balance would be extremely serious.

Peru

The problem of the relations between man and his environment was present in the most remote traditions of mankind and in all primitive mythologies. The environment has sometimes been regarded as a protective mother, sometimes as an adversary and always as an indispensable complement to existence. The relations between man and the environment used to be of a sacred or ritual nature, entailing obligations the violation of which brought with it terrible sanctions. This respectful and careful dialogue with nature was replaced, first in the mercantilist era and later in the industrial revolution, by an attitude of total disdain for the value of the environment, which was reduced exclusively to the status of a source of riches that were believed to be inexhaustible and consumed as fast as profits could be wrung from them. There was no possible remedy to this situation while the egoism of individuals and of nations continued unchecked.

The progress of science and technology has taken the exploitation of the environment to very harmful extremes; but it also contains the hope of salvation if we are able to reconcile these advances with an intelligent appreciation of our true interests. The world has been affected where it has been most intensely exploited by the voracity of the exploiters and the force of the means used. In the industrialized countries this mainly means urban pollution, water pollution and the dissemination of industrial waste. In the former colonial countries the deterioration of the environment is the result of the plundering of natural resources and the massive introduction of industrial procedures against the harmful action of which the states affected have no adequate protection.

Sand deserts cover what was formerly fertile land; the vicuña and other species are practically extinct; the peasant, uprooted from his traditional environment, is crowded into urban agglomerations in insalubrious conditions; erosion and the felling of trees are a direct cause of periodic floods and of landslides which have given rise to catastrophes of apocalyptic proportions.

The protection and full use of the resources of land and sea for the purposes of promoting development and raising the levels of living of the nations of the world is a substantial right inherent in the attributes and responsibilities of states, inseparable from their sovereignty and inalienable in response to the public or private claims of any other state, however powerful it may be.

We call on international cooperation to ensure that environmental policy does not constitute an obstacle to our incipient industrialization or aggravate the already unfavourable conditions under which international trade is conducted, but on the contrary facilitates the harmonious progress of human work under the best possible economic and environmental conditions.

Peru

Ten years have passed, but the spectre of environmental pollution casts a more threatening shadow than ever to the furthest reaches of the planet, causing still more profound, immediate and legitimate foreboding. We have already taken firm measures to reverse a traditional inherited tendency averse to the conservation of the environment, and our intention of maintaining a firm stand in this regard is unshakable. It is an arduous task, however, which is part of the greater challenge of the fight for development.

International cooperation is not a gift, but rather an expression of international justice and a recognition of shared historical responsibility for the present situation of mankind. Since this is how we regard the responsibility of the industrial nations and international cooperation, we must express our alarm at the efforts to redefine the role of this cooperation in the fight against underdevelopment, at the emphasis on private bilateral cooperation to the detriment of public multilateral cooperation and our deep disappointment at the evidence that the majority of developed countries are in fact diminishing the role of the international organizations by drastically cutting back their contributions to cooperation programmes with the weak countries; the latter are the most acutely affected by the international crisis, in which the developed countries paradoxically endeavour to defend their lack of action *vis-à-vis* the problems of the developing world which they helped to create and to the perpetuation and aggravation of which they are now contributing with their present policies.

International public opinion must play a role of crucial importance, since states are not the only parties interested in conserving the human environment, although they are the main ones. We attribute great value to the role of the non-governmental organizations, whose activity complements that of the government bodies and whose independence and disinterest may at times bridge gaps which could not otherwise be crossed.

The Philippines

The magnitude of the challenge we face here is staggering and there is an understandable temptation, in dealing with it, to remain, rhetorically speaking, at stratospheric level. Speaking for the Philippines, I shall resist this temptation and come down to earth – to this one earth of ours – and speak briefly of a few of our particular concerns in relation to human environment.

First of all, I would call attention to the special ecological position and environmental problems of oceanic island countries like the Philippines. Islands have limited resources of land and water. They are particularly vulnerable to environmental deterioration resulting from population pressures, marine pollution and the depletion of non-renewable natural resources. In the Pacific Ocean, where my own country is situated, these islands are also exposed to the hazards of radioactivity and other injurious effects of nuclear weapons testing.

Already handicapped by limited waste disposal capacity in their restricted land areas, island countries like the Philippines are also threatened with the dumping of wastes in what they rightly claim as their inland waters by ships of countries which do not recognize the territorial integrity of archipelagos and insist on regarding and using the waters between the islands as international waterways subject to no restraints of an ecological or environmental nature.

The hitherto abundant marine resources in coastal waters are being relentlessly depleted by the fishing fleets of maritime powers using sophisticated technological instruments to track down and harvest in excessive quantities schools of fish and other marine creatures regardless of the disruption of the ecological cycles and balance that used to bring them periodically to the waters surrounding island countries.

The second specific item I would underline is the basic problem of human settlements which now presents a serious danger to the social and political stability of many developing countries. The uncontrolled population exodus from rural to urban areas has spawned slums, squatter settlements and shanty towns in already congested cities, aggravating environmental deterioration and causing what has been aptly described as the pollution of poverty. The housing problem in developing countries is close to being beyond hope of immediate solution. An estimated three and a half billion people would be living in developing countries by the year 2000. It is also estimated that US\$12 billion would be needed annually for housing construction alone in developing countries to enable their teeming millions to live in tolerable housing conditions. It is ironic that not much attention has so far been paid to this grave problem by the international community. Even technical assistance in this area has been niggardly. Considering the magnitude of the problem, it is imperative that prompt action be taken by both developed and developing countries to bring about a new orientation in this field.

One major goal should be rural renewal and regeneration, the establishment of new growth poles around adequate human settlements sustained by carefully planned, environmentally acceptable industries and enriched by systematically fostered educational, health and cultural facilities.

A past age of domination has left in many countries of the Third World – in Asia, Africa and Latin America – stunted and malformed economies perpetuating to this

day the poverty of blighted, stagnant and benighted rural communities. What could be more just and appropriate than to begin a vital part of our environmental regeneration in these same rural areas where the economic and social cancers of past exploitation have left some of their deepest marks? This happens to be sound environmental strategy also, in as much as it would tend to diminish urban migration, thereby easing the heavy ecological pressures on the older, overcrowded cities.

In the wider context, of course, rural and urban renewal and other salutary changes will only be possible if the legitimate demands of development are not unjustifiably subordinated to new environmental requirements.

We hope that the new concern for environmental improvement will not lead to a further deterioration in the quality and level of aid to, and in terms of trade of, the developing countries; that adequate safeguards will be taken against the exhaustion of their non-renewable natural resources by the industrialized countries' voracious demand for raw materials; that the cost of various forms of pollution, which were not of their own making, will not be simply passed on to the developing countries. And that they will not be unjustly penalized by the ecological and environmental transgressions of others.

The interdependence of environmental planning and socioeconomic development has been recognized by the Philippines government whose development policies now take environmental considerations into account. We have come to view environmental planning as an integral part of national development. Our national plans have policies on transport and pollution control, land capability, housing, industrial, commercial and agricultural development, natural resources development, man power mobilization and employment.

Measures are envisaged in the field of national environmental planning, among them an inventory of Philippine natural resources for the purposes of environmental management and a system of land classification to serve as a basis for land planning. Consideration is also being given to incentives to encourage industry to undertake appropriate antipollution and other environmental measures, including a five-year depreciation period of capital investment on pollution control equipment and environmental welfare projects, tax free imports for antipollution equipment and government assistance to the development of indigenous equipment and technology on pollution control.

It is recognized that the primary responsibility for conserving and improving the national environment rests with governments themselves. There is, however, a clear and urgent need for global measures which would complement national and regional environmental efforts.

The conference theme only one earth is a beguiling one, conducive to romantic or apocalyptic musings. The vision conjured up is that of a beleaguered planet, threatened with ecological and environmental deterioration, perhaps even with extinction. But when we ponder on the stark realities of this one earth another earlier theme comes to mind, namely, our plundered planet. The inhabitants of our one and only earth are one-third affluent and two-thirds impoverished. That is the kind of earth we see when we look at it not from the vantage point of the distant moon but from closer at hand. We see a world in which, man's rapacity towards nature has been exceeded only by man's inhumanity to man.

In a mood of depression and discouragement, the impoverished two-thirds of humanity might well feel that such a world is hardly worth saving. This is indeed a crucial testing time not only for the countries represented here but for the entire

world family. The crux of the matter is not what kind of environment, but what kind of world would be, we are being called upon to preserve and cherish. Only one earth ... yes, but let it be one earth, in whose life giving environment peace, justice, respect for human rights and equitable sharing of the world's resources and opportunities will prevail and flourish, one earth, in which, at long last, self-serving national ambitions will yield to the primacy of human interest and the well being of all mankind.

The Philippines

The imperatives of development for the least developed and developing countries have taken new dimensions since Stockholm. The oil crisis and inflation have brought developing countries back to indigenous cultural strategies of development and a firmer appreciation of what proper training and relevant education can do to transform human resource into employable man power. The economic difficulties now present in most developed countries have reduced aid to developing countries. Except for the least developed countries caught in the bind of abject poverty of human and natural resources and those caught in the maelstrom of war and insurrection, developing countries enjoying relative peace have turned back to indigenous traditions of improving life, helped by advances in technology, training and education.

Today a sentiment is being aired that the next environment decade, or the Nairobi decade, should reflect the major environmental concerns from the developing countries' point of view.

The role of international non-governmental organizations (NGOs) in the environment is well appreciated in developing countries. It would appear that NGOs, through their local affiliates, have been somewhat more successful than other groups in translating the scientific and technical information into more culturally sensitive and relevant action.

Ten years now separate us from the Stockholm Conference. We recall that historic conference as the source of our inspiration. In the intervening years we have increased our store of environmental data. But I wonder, have we also increased in our humanity, in our reverence for life, in our faith in man? Perhaps this is the central issue and it is our hope that this Nairobi meeting will see the birth of ecological humanism.

Poland

We fully share the view that different environmental problems are closely interrelated and that the environment does not recognize the state's frontier. Every state should care that the activities carried on within its own territory do not affect the environment in the areas outside the limits of its national jurisdiction.

Coordinated cooperation in solving common problems of the protection of the natural environment in all the regions of the world may contribute to establishing a favourable political climate in international relations and increasing mutual trust between nations.

Protection of our natural surroundings and proper exploitation of the earth's resources is the fundamental and historical responsibility of the international community. At the same time, however, the most important role in applying these principles has to be taken by separate nations. This is why my government, in spite of the present adverse circumstances, continues to attach the greatest importance to all aspects of environmental protection. Legal and economic instruments have been established in my country and proper enforcement measures are guaranteed by the law. The conservation of nature and the protection of natural and working environment have been placed among the basic principles of the Polish constitution.

In practical terms environmental concern in my country is closely integrated with the socialist system of economic and regional planning. All efforts are undertaken to strengthen the people's awareness of their collective and individual responsibility to prevent the deterioration of air, water and land and, whenever possible, to improve their standards of living. In our efforts in combating pollution people are playing a very crucial role. This is why environmental problems have been introduced in the curricula of education institutions at all levels.

The role of the scientific community in solving environmental problems is also well recognized in my country. This has been reflected in the setting up a number of extensive national research programmes in the field of environmental protection and management.

Poland has been taking active part in many environmentally oriented activities aimed at developing programmes of international cooperation. We have close and fruitful cooperation with neighbouring socialist countries, concluding with them several agreements and conventions dealing first of all with the joint protection of air and water resources.

The following issues should be considered as having highest priority connected with the protection and rational use of the environment globally and regionally:

- formation of consumption models in developed societies which rationalize the utilization of material goods;
- developing actions aimed at setting up such forms of economic activity which would best protect natural resources and develop low and non-waste technology;
- maintaining and expanding global monitoring and warning systems; and
- strengthening international solidarity and expanding assistance in the development of techniques and tools for environmental management.

Portugal

Portugal has an area of some 89 000 km². The mainland presents varied physical characteristics, with a coast line 832 km in length and an estimated population of nearly 10 million, predominantly concentrated north of the Tagus and along the coast. The urban population accounts for about 27% of the total and two cities, Lisbon and Oporto, have three-quarters of the active population, which in 1979 represented some 45.5% of the total, working mainly in the secondary and tertiary sectors of the economy.

The rising importance of environmental problems as well as the generalized acceptance that environmental protection is more a matter of rational use of natural resources for sustainable development that simply pollution abatement has necessitated new organizational and institutional arrangements at different levels. After 1974 and the inclusion of the environment as one of the public administration responsibilities falling to the government, organization of the required services was undertaken apace. Basic vectors for action were defined by law in 1980 and covered the areas of natural resources, air, water, soil and ecosystems.

A set of initiatives has been developed, particularly as regards regulation, which will enable the objectives of environment policy to be integrated in the decision making process. Legislation has been published laying down for the first time in Portugal the broad framework for a national policy to preserve the quality of the air. The purposes and objectives of air management policy are to safeguard the health and welfare of the population and to protect ecosystems exposed to the harmful effects of air pollution. The air quality management strategy consists in applying the concept of the best available and economically feasible technology for the control of emissions from polluting sources, combined with the settlement of air quality standards so as to protect human health and the environment.

Mainland Portugal is traversed by an important system of rivers, the most important of which, the Tagus, forms a natural boundary between the north and the south of the country. The Portuguese portion of the Iberian hydrographic basins extends over some 64% of the Portuguese territory and represents about 22% of the total basin area. Owing to this geographical distribution, approximately 40% of our water supply originates in Spain and this important factor conditions the definition and implementation of any water quality management policy. Several agreements have been entered into with Spain covering the use and harnessing of segments of cross-boundary rivers, but such agreements do not extend beyond only one of those many uses – electric power production.

The greatest water use is for agriculture. Official figures show the irrigated area to have been of the order of 780 000 hectares in 1977, approximately 15% of the total area of cropland which is roughly five million hectares. The next greatest water user is the industrial sector.

Problems related to water quality, for which adequate solutions are being sought, have become more serious. Only 58% of the population is served by full systems, 18% under unsatisfactory conditions.

Existing sewerage systems serve about 41% of the population, 8% under deficient conditions. Systems capable of residual water treatment benefit only 10% of the population and, even so, their operation leaves much to be desired. It is

estimated that garbage collection service is provided to about 50% of the population and processing systems are available to 20%. There are more than 20 000 localities where the inhabitants lack home running water and in upwards of 30 000 there is no sewerage.

With the legal introduction of the exclusive economic zone sea water pollution as well as pollution of coastal waters by the great refineries of Lisbon and Matosinhos (Oporto) and by shipping and coastal infrastructures assumed particular importance; these are considered fields for active international cooperation.

Pollution of coastal waters resulting from industrial growth and demographic expansion is one of the main problems in this area (aside from excessive sand removal). Most river basins are increasingly affected by poor coordination in the simultaneous use of water for different purposes and it was not possible until now to set up a coherent environmental quality management plan at the national, regional and local level and, consequently, to define quality objectives for the resource under consideration.

In the last decade significant progress has been made as regards protection of fauna and flora, as well as delimitation of protected areas. The first protected areas have been demarcated in Portugal and policy implementation turned to the conservation of entire ecosystems rather than the protection of isolated species. Centring on one or several areas of fundamental interest, protection is given to wide surrounding extensions by means of diversified constraints aimed at the management of existing resources based on elementary principles for the conservation of nature. The total area at present subject to intensive protective measures constitutes about 5% of the mainland territory, in addition to important areas in the adjacent islands and marine extensions along both the coast zone and surrounding the islands.

The government has under preparation for early approval a series of legal measures defining the policies to be implemented in such important areas as noise prevention, management of residual solids and the systematic assessment of the potential effects of chemical compounds upon man and the environment such as the chlorofluorocarbons 11 and 12.

In the area of supporting measures, strenuous efforts have been made to include environmental issues in education and training programmes. Non-governmental organizations, citizen groups and the media participate actively in implementing a wide information programme among large segments of the public.

Romania

Looking back over the years since the last global conflict we see a world where weapons of all sorts – nuclear, chemical, bacteriological and conventional – have been accumulated in giant stockpiles. Their capacity for harming the environment and for destroying life itself exceeds several times the force needed to destroy mankind in its entirety. And yet the arms race continues, with deeply harmful economic and social impacts and seriously affecting efforts towards progress and the improved well being of all nations.

The liquidation of economic underdevelopment and coordinated efforts to industrialize each country's own economy are entirely compatible with defending the quality of environmental protection.

Romania supports the proposal for the creation of a body responsible for coordinating the activities of the United Nations and its specialized agencies in the sphere of environment protection. This body must ensure the widest possible representation of all countries so as to achieve the most complete expression possible of the different points of view and the most efficient general participation in activities designed to safeguard the environment, not only for the present generation, but also and above all for the generations to come. Particular attention should be paid in these activities to the important role devolving on young people in protecting the environment.

Saudi Arabia

We have gone a long way since 1972 in improving our understanding of the nature of ecosystems, the life support system and the impact of human activities on these systems. The principle of interlinkage between the requirements of sustainable development and those of environment protection and conservation is becoming more understood and acceptable to an increasing number of individuals, institutions and governments.

We can only feel gratified by a number of positive developments that have taken place during the last decade on the national, regional and international scale, such as the establishment of central environmental agencies; environmental legislation and regulations in many countries; increasing regional cooperation in environmental protection especially in the area of the marine environment; and the launching of the world conservation strategy and the adoption of its principles by a number of countries.

Although we have had many achievements and positive developments during the last decade, we have to recognize that many aspects of the world environment continue to deteriorate. In the industrialized countries, in spite of localized improvements in urban air quality and in some natural ecosystems, the general level of pollution in the atmosphere and in the marine environment continues to rise. In developing countries the problems of desertification, deforestation, soil degradation, overpopulation and sanitation continue to mount.

In the developed countries, the financial and trained manpower resources and the technologies required to contain and tackle environmental problems at least exist. In many cases only the political will to commit enough of these resources is needed to produce tangible results. In the developing countries, especially those with the lowest incomes, it is the means that are lacking. We have a vicious circle where poverty, which is the main agent for environmental degradation in these countries, is itself the reason why these countries are incapable of stemming and reversing the mounting tide of environmental problems. We believe in the necessity of intensifying international help in all forms to developing countries to enable them to overcome the problems of poverty and environmental deterioration.

Although Saudi Arabia, like other developing countries, suffers from a shortage of trained manpower, it has made large strides during the last decade in improving the urban environment, providing medical care to all citizens and controlling environmental diseases. Sewage works are being completed or expanded in many of the kingdom's cities. New sewage treatment plants are being built and existing ones expanded with the objective of recycling water for use by agriculture and industry.

During the last decade a number of laws have been passed protecting wildlife and trees. National parks in the forest regions on the Surat escarpment have been established. A national oil spill contingency plan is being prepared and will be launched soon; a programme for ecological monitoring of arid lands will soon be started. Other programmes, such as the reintroduction of wildlife and a survey and inventory of fauna and flora of Saudi Arabia, are at different stages of preparation.

In the area of environmental education, the Ministry of Education has already introduced some basic environmental principles into primary and secondary

education. At the university level a college of meteorology and environmental studies and a college of marine sciences have been established in Jeddah. Research activities on environmentally related topics have started in many universities.

In addition to these positive developments on the national scene, Saudi Arabia is participating in regional environmental programmes such as the Kuwait Action Plan and the Red Sea programme. We are hoping that cooperation between the countries of the region will extend soon to such areas as arid land ecology, mountain ecosystems, coordination of water policy and cooperation in the reintroduction and protection of wildlife.

Senegal

Mankind as a whole is today convinced of the importance of the environment and seems decided to act to conserve its quality. Neither the major powers by themselves nor the small nations on their own can hope to settle the issue. Our destiny is united and only international cooperation on a basis of solidarity can yield efficient and lasting action to combat the deterioration of the human environment.

The basis of the situation is not the same in the industrialized countries as in the developing countries. In the former the deterioration of the environment is a consequence of growth and in the latter of underdevelopment.

Forests precede nations; deserts follow them.

Man has become the main element in the biosphere. He no longer merely accepts things as they are but transforms them and destroys them at the same time. The responsibility for the pollution of the human environment devolves mainly on the developed nations. It is their factories, ships, planes and rockets which are the main agents of the pollution of nature.

Population growth is even higher in our countries and the slow progress of agriculture is such that the mirage of the city often leads to large-scale flight from the land, with the phenomena of seasonal, temporary and definitive migrations. The immediate consequence is to make it more difficult to solve the problems of town planning, health protection, provision of water supplies and sanitation, disposal of effluent and waste, supply of domestic energy etc.

The pollution of our environment is linked to the paucity of our means of action – the consequence of our underdevelopment – and to the action of vessels which dump waste and other toxic and polluting products into the sea not far from our coasts. Vigorous joint international action is required to curb this deterioration and cleanse the earth's environment. A new civilization must be built.

The success of such action will depend on the redefinition of human values. Special efforts must be made in terms of education and information to make man more aware of the effects of his actions on the environment. In every country the biological sciences should have a leading place in primary, secondary and higher education.

Development and the environment is the topic which perhaps most interests Third World countries. For us, it is a question of solving our development problems ie of suppressing the consequences of our underdevelopment while preserving our environment. The protection of the environment should not be a pretext for applying a discriminatory trade policy.

The improvement of the quality of life is dependent on solidarity action by all nations. We want to achieve greater freedom, greater justice, greater well being, greater beauty. Solidarity is only possible if we also fight against the pollution of minds and souls. The task before us is to create a new worldwide civilization, for all men from all nations. We want to build one environment and one human race for our one earth. We want to make every individual a citizen of the world. We want to prevent man from being henceforth a mere unthinking robot. We want to restore to man his dignity, we want him to be happy to be alive, so that he can be the creator of a more humane, warmer and more fraternal civilization.

Senegal

In our age, no nation concerned with its future and aware of its responsibilities towards present and future generations can remain indifferent to an appeal by the international community to protect the environment. The effects of desertification are today worldwide.

Faced with nature's new challenge to man, educational systems have been caught unprepared and it is becoming a matter of urgency that children should, from their earliest years, be brought up and trained for more sensitive behaviour and increased awareness of their responsibilities *vis-à-vis* the environment.

We should like to stress the need to continue research on the forecasting of droughts and on the precise definition of the aims, priorities and allocation of the resources required to combat desertification.

Where the oceans are concerned, more stress should be laid on the need for states to respect the agreements and conventions on marine pollution to which they have acceded.

Particular stress should be laid on the drafting and application of guidelines for better assessment of the impact on the environment of industrialization projects. The latter exercise should embrace the application of guidelines on recommended standards for the industrial environment and measures to be taken against industrial pollution.

Seychelles

In the history of the world a span of ten years is scarcely conceivable. In the history of mankind its brevity is almost as difficult to comprehend. Yet in the twentieth century, which has seen such rapid and traumatic change on our small planet, each decade has assumed the proportions of an epoch.

For all of us gathered here this week no decade so far has had such significance as the one that has just passed. For it is really only in these past twenty years or so that the idea has gained international acceptance that mankind's very survival depends upon the extent to which he conserves the living resources that sustain his life and controls the negative impact of his activities upon his environment.

I began by referring to the time frame of world history. The position in this of the Republic of Seychelles is something of a paradox. Our islands date back 600 million years; our population only 200 years! From our perspective, a decade is therefore 5% of our total existence as a people and the last ten years have been a period of unprecedented change during which there has been more economic, social and political development than during the past two centuries.

By any standards we are a small nation of tiny islands in the middle of a huge ocean. The catalytic event which began the decade in which we sprang from the obscurity of a colonial backwater to international prominence, initially as one of the last unspoilt long haul tourist destinations of the world and more recently as one of the states honoured to be added to the list of those that South Africa must at all costs destabilize, was the construction of the Seychelles International Airport. By the middle of the 1970s a thriving tourist industry had been established which rapidly became the mainstay of the economy. The *raison d'être* of this industry was, of course, the Seychelles environment.

The natural endowments of Seychelles are well known. We are fortunate to inhabit over a hundred granitic and coralline islands of spectacular beauty among what are possibly the least polluted waters on earth. This environment provides habitats for many species of flora and fauna which are found nowhere else in the world.

Appropriately, the beginning of the last decade marked another turning point in Seychelles – for conservation. Although a battery of legislation protecting various forms of wildlife had been enacted since the early 1900s, it was not until the end of the 1960s that an act enabling the appointment of a National Parks and Nature Conservancy Commission was passed. Subsequently, under its auspices a number of terrestrial and marine national parks and reserves have been created; further legislation has been introduced to protect endangered species; and the Indian Ocean Whale Sanctuary has been declared.

For nature conservation in the Seychelles, the agenda of the past decade has thus been a busy one. However, I believe it is only now that we are entering the most challenging and exciting phase of our conservation endeavour, as we attempt to reconcile and integrate conservation and development policies.

Singapore

The Singapore government views this conference on the human environment as most timely in view of the worldwide concern over the general deterioration of the human environment. We feel that the need for a healthy human environment is just as important in the developing countries as in the developed countries. We are of the view that many environmental problems, especially those in developing nations, are the results of poor housing and sanitation and excessive population growth.

In Singapore some years ago we had a serious housing problem of slums, congestion and squatter settlements. However, since 1960 the Singapore government has embarked on a massive housing programme as a matter of priority. By the end of 1971 nearly 140 000 units of high rise low cost flats had been built. These flats now house about one-third of Singapore's two million population, most of whom were hitherto living in slums and squatter settlements.

In the last five years the government has also embarked on an urban renewal programme. We have pushed ahead with the landscaping of roadsides, with trees and shrubs and the planning and completion of more parks. This was to counterbalance the adverse effects on the environment of rapid industrial development and urbanization. Concerted efforts have thus been made to raise the standard and quality of the living environment.

While housing and urban renewal programmes have taken care of some of the problems of human settlement, we realized from the beginning that unless excessive population growth was controlled any programme of development, however successful, would be outpaced. The Singapore government therefore initiated a massive national family planning programme in 1965 to reduce the birth rate. As a result the crude birth rate fell from 28.6 per thousand in 1966 to 22.1 per thousand in 1970. We were also concerned with rapid population growth because Singapore is only 226 square miles in size. There is therefore a limit to the size of population which we can sustain. We are at the moment the second most densely populated country in the world, with a population density of 9 357 persons per square mile. Even with the present rate of 1.7% natural increase in population our population density will increase to 11 600 persons per square mile in 1980. Our target is to further lower our population growth to about 1% and after that, if possible, to achieve a 0% rate of population growth.

Although Singapore has virtually no natural resources, we share the concern that unthinking exploitation of natural resources would cause further deterioration and degradation of the human environment. We therefore support national and international actions to prevent indiscriminate exploitation of natural resources, especially of the seas and ocean beds. Extensive oil explorations are going on in many parts of the world, including the seas around Singapore. We are concerned that unless measures are taken to prevent oil spillage there will be heavy pollution of seas and beaches, endangering marine life.

We are also concerned with the pollution of air, water and land that are now being aggravated by rapid industrialization, urbanization and population growth. We believe that environmental pollution not only adversely affects human life through the diseases and ill health it generates but also that it has a degrading effect

on man's mental and spiritual well being. Living in filth and squalor and in a polluted environment cannot possibly generate high morale and mental alertness among people and this must adversely affect standards of performance. This is even more important in developing countries striving for greater economic progress, which cannot possibly be attained unless their people also achieve higher standards of performance.

However, in many countries, because of short-term economic considerations, the physical environment has been almost totally ignored in the pursuit of fast material progress. As a result the cost of clearing up the mess is now prohibitive, even if it were technologically feasible. Developing countries have the advantage of being able to learn from the mistakes of the developed countries. Prevention is certainly cheaper than cure. It has also now become clear that in any long-term economic development strategy there need not be a conflict between economic development and environmental control. What is needed is proper location of industries, proper choice of technology and early preventive measures.

From our experience we have found that there must be comprehensive plans of action to control pollution. We therefore support the recommendations catering for the establishment of comprehensive programmes and priorities to solve the pollution problem, especially in developing countries whose resources are limited.

In 1968 we launched a phased programme of action on environmental control. We started off with a month long mass educational campaign with the simple theme of 'Keep Singapore clean'. This was essentially an anti litter campaign which was repeated in 1969 and 1970 with other themes added in. In the 1970 campaign the theme of pollution was introduced. Last year we had a fully fledged antipollution campaign entitled 'Keep Singapore pollution free'.

In these mass campaigns we involved the whole population, not only through government agencies, but also through voluntary and civic organizations, trade unions and employers and business organizations. We firmly believe that before governmental measures can succeed the population must be informed of the gravity of environmental problems and be motivated to curb them. Many environmental problems are the results of undesirable social and cultural habits. In these campaigns we also persuaded industries to commit themselves to sharing responsibility for environmental control.

While we believe that control of pollution of inland waters, lakes and rivers is essentially a national affair, we feel that control of air pollution and marine pollution require national and regional as well as international efforts. We know that neither air pollutants nor marine pollutants respect political boundaries. We thus feel that while national action can to a certain extent limit the magnitude of these problems, regional and international actions are required to control these problems effectively.

If I have dealt at length with what we in Singapore are doing to conserve our human environment, it is only to stress that if environmental problems are to be eradicated, then comprehensive programmes and priorities must first be established. These must then be followed by vigorous and concerted efforts. Further, these programmes and priorities must form part of the overall framework of the economic development strategy of the nation. We believe that the ultimate criterion of success of any development programme is not so much whether GNP has increased markedly but whether people are living better and the quality of life has improved.

We further feel that whatever comes out of this conference must reflect an

equitable balance between the problems, interests, priorities and perspectives of the developed countries on one hand and the developing countries on the other. The developed countries should not invoke environmental concerns as a pretext for discriminatory trade policies or to reduce access to markets that will affect the already low export potential of industries of developing countries.

It must be realized that the integration of environmental control programmes in the economic development programme of developing countries will call for additional resources which are already limited in these countries. We believe that if developed countries are genuinely interested in the improvement of the overall human environment, for after all, we all live in one world, this extra burden should be partly shared by the developed countries. But, of course, the initiative to improve the environment of the developing countries must be taken by the respective governments of the developing countries themselves.

Spain

It is indispensable for us to synchronize economic development and environmental policies. Economic expansion and pollution control are not absolute values. We should not forget that, above any other target, the main aim of pollution control is to safeguard man's health and to improve his well being.

Since the most important effects of environmental deterioration appear in countries which have already attained a high level of material welfare, international dialogue becomes difficult when the problem of other countries is to reach that very level of welfare. Spain believes that it is the overriding task of every government to meet the genuine needs of its citizens, and so the first need that must be to resolve the problems of hunger and disease and free mankind from the shackles of misery. We understand and support the fundamental objectives of developing countries.

Nevertheless, it is advisable that from this day all countries should face up to the problem of environmental deterioration and that each one of them, in accordance with its own level of development, should try and combine the requirements of economic growth with the needs of environment preservation. This is where countries in an intermediate stage between underdevelopment and development, such as Spain, must establish a strategy of action which takes into account the environmental problems which are particularly acute in highly industrialized countries and avoids or diminishes the results of pollution. But it is necessary that the struggle for a better environment should not interfere with the process of industrial expansion, the main promoter of economic and social development.

Our Third Plan (1972-75) tried to harmonize economic and social phenomena with ecological balance, in the belief that future planning of a society cannot be based on the narrow limits of economics alone. We pursue an approach which takes into account both quantitative targets and quality of life. So our development plan calls for a new focusing of social and economic policies, in order not to limit ourselves to the attainment of a higher national income.

Spain allocates, in its development plan, an appreciable amount of its income to the environment. Except in certain critical areas pollution is not alarmingly evident in our country. However, we are conscious that intense growth of our economy may produce pollution in the near future. Our Third Plan has adopted preventive measures so as to avoid or reduce the unwanted byproducts of growth. Measures have been taken to improve our sanitary infrastructure and our equipment for water quality control. New urban policies have been adopted for the remodelling of old city centres not only as archaeological monuments but as places where cultural, sociological and environmental values can be integrated. Artistic heritage, once destroyed, is not replaceable. I wish to stress also the tasks of nature preservation and control of erosion which we are undertaking to prevent further deterioration in the landscape in our country.

The preservation of tourism and landscape is another of our objectives. In some instances action at regional level will be needed, as in the case of safeguarding the natural resources of the Mediterranean Sea, the coastline of which is more and more spoilt by industrial abuse and disorderly urban growth occasioned by mass tourism.

The Mediterranean is a semiclosed sea possessing defined biological characteris-

tics, particularly of a climatic nature: long spells of dry weather and a high index of evaporation and salinity, both of which call for a special treatment of its pollution problems, since its absorption capacity is limited. Its beauty and history merit the transformation of this sea into a lake which may allow a peaceful cooperation between its coastal states and the attraction of other peoples in search of quiet, sun and transparent waters.

I would now like to mention the proposed establishment of international standards for protection against pollutants and limits on their discharge. Spain believes that firm support should be given to the committees elaborating international rules on air and water. But we consider it difficult to establish standards of universal acceptance and enforcement on the question of discharge of pollutants since environment conditions and absorption capacity depend on many factors such as climate, geographical location and level of industrial development. Although the categorizing of pollutants and their capacity to be assimilated are matters that should be examined and solved by technicians we consider that the main duty of this conference is to establish a legal framework of the rights and obligations of states.

The international politics of the human environment are under way. The apocalyptic visions evoked by some prophets may now be contemplated with less pessimism. The deterioration of the human environment can, within certain limits be controlled. All is possible with international cooperation, with the indispensable backing of public opinion and individual conscience.

Spain

In Spain, the environmental situation is a consequence of the excessively rapid economic growth which took place before the energy crisis in 1973 and of lack of attention to physical planning. Economic development was not accompanied by the necessary corrective measures to avoid the degradation of the quality of life. Industrial, tourist and urban growth all developed very fast and there were no social, economic or administrative institutions to control its impact on the environment.

When we reflect on issues such as the present economic crisis, it is sometimes difficult to justify, in strictly economic terms, the short-term implementation of corrective measures directed towards the improvement of the environment. Nevertheless, my government and our society have a clear awareness of the need to protect our environment and its resources.

We are aware that the key parameter in coping with the rapid changes which are taking place in this decade of the 1980s is the need to adopt different attitudes: these will basically arise from increasing public awareness and environmental education. The Spanish government was conscious some time back of the special importance of environmental education as a means of altering patterns of public behaviour. The environment is now a subject in basic education for children between 6 and 14 years of age. We have six million students at the primary education level and we have included environmental subjects in their programmes of study. In the future, environmental subjects will be included in secondary schools and later on in the universities.

There are a number of programmes in my country to reduce air and water pollution, to control disposal of solid wastes and the degradation of land. We have problems with air pollution in our major cities. In some cases the pollution is of a purely urban origin created by the emission of vehicle gases and central heating and in other cases its origin is industrial. Atmospheric sanitation programmes have been drawn up for all these cities. By the end of this decade we hope to obtain positive results since these plans include the restructuring of basic industrial sectors. We have very important sanitation programmes in coastal areas, especially along the Mediterranean coastline.

Spain is aware of the need to improve the sanitation infrastructure in the urban and tourist centres of the Mediterranean, to purify industrial waste and control the dumping of potentially toxic and dangerous substances which reach the Mediterranean Sea and other seas of our coast. We have given special attention to continental waters, surface as well as underground, and in certain river basins excellent results have been obtained.

Regarding urban solid wastes, our department has a programme to collaborate with the Spanish municipalities in the improvement of services for the collection and disposal of urban waste. The control of toxic and dangerous wastes is one of the priorities of the environmental policy programme of my country.

The degradation of the soil, especially by erosion, desertification and changes in the forest cover, is an area in which there have been few results. Forest fires are a real ecological disaster. Spain is aware of the importance of this problem and we have undertaken an extensive and detailed programme for the restoration of

degraded areas which has started with studies of ecological cartography to determine the solutions required for the restoration and protection of the Spanish soil, one of our major natural resources.

The broad issue of the protection of nature, with the conservation, defence and improvement of the protected natural areas, endangered species and wildlife, the establishment of national parks, humid zones and other areas of the natural habitat, has received a great deal of attention. In the conservation of natural resources priority has been given to water, soil and forest areas and to the implementation of techniques for the reutilization of byproducts and waste material, as well as energy conservation.

I must now refer briefly to one step we have taken: territorial reconnaissance studies which will be the basis for a realistic and sound planning. From the results of these studies infrastructure programmes can be drawn up. This is pioneering and essential work for the physical planning of a territory.

Sri Lanka

The stark fact that faces us today is that this one earth is really two worlds. The one, a world of privilege and accumulating plenty, is for the few, the very few. The other, a world of deprivation and poverty, is for the many, the overwhelming many. In both worlds of this one earth there is exponential growth. In the world of privilege and plenty a rapid and voracious economic expansion has culminated in a monstrous assault on the quality of life and a rape of the environment, threatening life itself. In the other world the growth of poverty and misery has in vast areas degraded man into an amorphous mass of apathy and resignation.

To injure and degrade one part is to injure and degrade the whole. No country is an island unto itself. This oneness and interdependence must evoke from us a commitment: from each according to his means, to each according to his needs. Only thus will the pall of poverty and ignorance be lifted from two-thirds of mankind on this one earth.

There is no need to repeat here the well known statistics which chart in stark terms the yawning disparities between the two worlds of our one earth. The grim prospect is of greater disparities in the future. This need not be if we can summon the political will to move from promises to programmes of action, from rhetoric to resolutions, from expressions of concern to commitments. The world has the resources and the capacity to meet and overcome the fundamental problems of development. It only needs the will of those who have. Will the harsh realization of the threat to our one environment help to evoke this will?

The documentation for this conference gives expression to the fears of developing countries that environmental concerns might injure their trade, reduce access and initiate a protectionism in the developed world. We are heartened by the views we have heard and assurances given that this will not be so. There has been almost unanimous acceptance of the concept of compensation for injury that might arise in unavoidable circumstances. This is fair and equitable and its acceptance is a welcome step in allaying the fears of developing countries. We are also encouraged by the unanimous agreement by developed countries to examine anew, in the light of environmental considerations, the problems arising from the production of synthetics and substitutes and their relationship to the corresponding natural products from developing countries.

Various forecasts have been made of the exhaustion of the non-renewable resources of this world. There is no getting away from the fact that these must be exhausted at some time. The bulk of these resources are in the developing countries and are the support and sustenance of their peoples. We would support a tax on the use of these non-renewable resources to be funded internationally and used for the development of the developing countries.

The common property of mankind, the sea bed and ocean floor beyond national jurisdiction, is the subject of international discussion. But this common property has considerable relevance to the concerns of this conference. We support proposals to internationalize this area. We also support the establishment of international machinery with jurisdiction over the international area of the sea bed and its resources. The machinery should have comprehensive powers to explore

and exploit the sea bed and ocean floor and ensure the equitable sharing of all benefits among countries on the basis of need.

There can be no dissent from the view that the explosive growth of population in developing countries is adding a considerable share on the meagre resources of poor economies and weakening their efforts to lift their people from the pit of poverty. The government of Ceylon has recognized this; thus we give very high priority to the diffusion of family planning facilities amongst the mass of the population.

But we also recognize that the experience of the past, particularly in European countries, was that the decrease in birth rates began long before contraceptive techniques were widely available. This demographic transition from increasing birth rates to a rapid decrease in birth rates in Europe was a function of increasing living standards, including rising standards of health and nutrition. Urgent action is necessary to reduce birth rates in developing countries. The deceleration in birth rates would be greatly assisted and hastened by rapid economic development which would take our countries through the period of demographic transition.

Social surveys indicate that the most powerful influence in the reduction of the birth rate is the reduction of infant mortality. Large families are only a form of survival insurance in areas where infant mortality is high. The tragic facts of infant mortality is best illustrated by the statistics given by the President of the World Bank that the developing world is a world in which children under five account for only 20% of the population but for more than 60% of the deaths.

The concerns for the integrity and preservation of our environment must reinforce the commitment to accelerate the development of the developing countries. It must also mean a change in our style of living and – equally important – a change in the techniques and objectives of planning. Concern for the environment adds a new dimension to the concept of development itself. The equation of development with the narrow objective of growth as measured by GNP does not in itself ensure the easing of urgent social and human problems. The new emphasis should be on distributive justice and improvement in the quality of life. Planning must therefore be more responsive to social needs. The government of Ceylon has accepted these objectives; basic and far reaching measures of compulsory savings, land reform and income limitation will reinforce our progress towards an egalitarian and socialist society.

It is heartening that so many young people from all parts of the world are demonstrating, in no uncertain manner, their concerns for the future of this one earth, one environment. This is right and proper, for the future belongs to them and they will inherit the one environment. The human and humanitarian concerns of young people for developing countries is a bright augury for the future. While the young people of the developed world call attention to the problems of development, their comrades in the developing countries are in the front line of battle. They face the daily grind of poverty and malnutrition. They face the frustrations of unemployment. Their environment, of mind and matter, is the degrading environment of hopelessness. They clamour for urgent attention to the problems of their environment of poverty and stagnation. This conference cannot turn a deaf ear. It cannot fiddle with less urgent issues while the more urgent issues are ignored or neglected. Man is precious and possessed with boundless creative power to develop social production, create social wealth and improve the human environment.

Sri Lanka

With a rapidly growing population and its consequent income and resource requirements, Sri Lanka's development efforts have significantly affected the ecosystems and the resource base of the country. The processes of population growth, accelerated agricultural development, industrialization and rapid urbanization have disturbed the harmony between nature and human beings. Deforestation, soil and coastal erosion, drying up of streams and springs, salinization, waterlogging and the appearance of semiarid conditions are common phenomena today. The pollution of the atmosphere, waterways and soil by the uncontrolled discharge of untreated industrial effluents and vehicle fumes, as well as the indiscriminate use of agrochemicals, have all had an adverse impact on environmental quality.

Sri Lanka, in common with most of the countries of the Third World, is faced with the absence of environmental standards as well as the monitoring and assessment methodologies we hope to develop and make available to guide the development planning process. These will undoubtedly help to create a basic understanding of the structure and dynamics of our ecosystems and to sweep away some of the exaggerations of popular ecology.

One of our primary activities during the coming years will be education and training on environmental issues. Environmental education and training will not be an isolated activity but an essential component of the effort undertaken to give greater social effectiveness to education and training as a factor in national development. Associated with the task of environmental education and training is an urgent requirement for the creation of increased environmental awareness at all levels. The mass media will have a fundamental role to play here.

Another keenly felt need is the choice of environmentally sound technologies which are crucial for the successful harmonizing of developmental and environmental goals. Our task here is to identify and spell out the soundness of technology in our ecological, social and economic context and within the range of the available technological options. It is important to look for low waste technologies and pollution abatement and to study the technologies characterized by durable or recyclable products with low energy consumption and low environmental impact.

In Sri Lanka there has been increasing involvement and commitment of non-governmental organizations to the protection and management of the environment. These organizations have been articulating the growing concern that continued worsening of the environment will eventually undermine the nation's capacity to support desirable standards of life.

The Sudan

The Sudan, as the largest country in Africa, with a great variety of ecological conditions ranging from the hot dry desert to the wet tropical forests and with diverse cultural and socioeconomic systems, is genuinely aware of the interaction between man and his environment. The Sudan is also aware of the global impact of human activities on this planet; they have produced undesirable disturbances to the ecological balance of the biosphere, destruction and depletion of non-renewable resources and gross deficiencies in human settlement. These effects, which are largely the results of advances in the use of technology and industrial development are, however, not strongly felt in the underdeveloped world. The environmental problems of the developing countries are, paradoxically enough, the result of lack of development, including lack of industrialization. In this connection we endorse the spirit and content of the Founex Report, which has attempted to place special stress on the reconciliation of the perspectives of development and the environment.

Apart from our global and regional environmental concern, each country and each region has its own particular and pressing problems in the various areas which are the subject matter of this conference. In the Sudan, as in most developing countries, urbanization stands out as major challenge to our resources both in the planning and maintenance of the quality of human settlements. Poor environmental sanitation and overloading of public services have become features of both urban and rural settlements. Endemic diseases like bilharzia, sleeping sickness, jir blindness, malaria and diarrhoeal diseases affecting hundreds of thousands of the population present one area where national and international efforts need to be exerted not only to alleviate human suffering but also to promote the health of the community so that it can make an effective contribution to economic development. Such conditions may well be taken care of in the course of social and economic development. Nevertheless, we feel strongly that urgent action is required on the part of the international community to give due priority to the correction of ill health, which is hampering the rate of growth of our economy.

In the Sudan 85% of the population live in rural, agricultural and pastoral communities. The problems raised by this population distribution are varied in nature and no single solution can be envisaged. The nomadic tribes of the Sudan contribute effectively to the country's economy but they are still living under harsh environmental conditions and lack basic services. The need for comprehensive plans, which aim at supplying the necessary community services as well as preserving their nomadic socioeconomic structure, cannot be overemphasized.

In the field of education, the burden of illiteracy, the wastage at various levels of education, the need to make education relevant to the process of development and the urgency of bringing environmental education to the masses should receive more attention at both the national and international levels. Realizing that man is the principal tool of development, and that his welfare is its central objective, the success of development projects inevitably rests heavily on the provision of professional and technical training. In developing countries shortage in technical and scientific skills is presenting itself as one of the major limiting factors to the enhancement of development.

The Sudan has great agricultural potential which is as yet untapped. There are some 200 million acres of cultivable land of which only 10% is now under cultivation. The country has some 37 million heads of livestock which could play a bigger role in the national economy. The relevance of this state of affairs to a world of growing population and impending food shortage cannot be overemphasized.

However, promising as these resources may seem to be, they have been vulnerable to misuse and depletion. In semidesert and desert regions desert creep is the most serious problem. Increased settlement and overgrazing around water points are creating problems of soil erosion and depletion of soil fertility in the semidesert and savannah belt of the Sudan. The water resources of this area, though adequate, are not sufficiently developed to meet the requirements of the population and their animal resources.

Pollution and nuisances are usually thought of as problems of the highly developed industrial countries; but they are really a measure of the differences between the generation of these problems and the measures taken for their control. Control costs money which the less developed countries do not have; hence even small degrees of pollution have a maximum effect. Nevertheless, we realize that certain problems of environmental pollution in the Sudan, like shortage of sewage, waste disposal systems and clean water supply in urban and rural areas are primarily due to lack of development. Other problems of pollution associated with processes of development, like pollution in rural areas, are due to excessive utilization of agricultural chemicals. Agricultural expansion and intensification lead to ecological imbalances that result in the incidence of new pests and other aspects of environment degradation.

Swaziland

Because Swaziland is a landlocked developing country, the types and degrees of pollutants are different from those of highly industrialized countries. My approach to environmental problems will therefore be rather different. Basically, Swaziland needs technical and financial assistance in solving its environmental problems. Technical assistance by ecologists whose terms of reference would be:

- to study our local ecosystems and advise the Swaziland government on problems of the environment;
- to guide Swaziland's rapidly expanding programme of industrialization and urbanization, which demand careful physical planning and environmental controls;
- to advise on the provision of social and cultural amenities to counteract problems of family disintegration due to rapid exposure to the urban environment;
- to assist in launching an ambitious programme of low cost urban houses to prevent health hazards of communicable diseases;
- to produce a programme which would ultimately bring fragmented arable holdings to an end in favour of a rational land use programme;
- to produce a plan for new industries with particular attention to the research in toxicology of industrial wastes and their ecological implications;
- in close cooperation with other government departments concerned, to establish in every district demographic and research centres for analysing and disseminating information on population aspects of development;
- with the cooperation of the Ministry of Education, to reform the curriculum and content of environmental education at all levels;
- to assist in setting up a special Department of the Environment and review existing legislation to control industrial pollution and application of all pesticides, fungicides and herbicides.

In order to avoid the environmental mistakes of the industrialized countries, we urgently need to tackle some of our immediate problems. The soils in the grazing veld are widely infested by the tapeworm egg, with resultant measles in cattle and beef tapeworm in human beings. Because Swaziland applies strict meat tests of international standard, it has been discovered that, on average, 14% of beef carcasses are condemned at the meat works because of these measles.

Swaziland plans to embark upon ambitious irrigation schemes in the low veld where the conditions for the propagation of the bilharzia snail are ideal and the rivers are consequently heavily infested. Irrigation development will spread the snail throughout the irrigated area and increase the opportunities of reinfestation. Existing malaria control measures will also have to be intensified.

We need to know the best methods of eliminating river and air pollution. The paper pulp factory is a classic example. In addition to the storage of the effluent in the sediment tanks to prevent it from discharging into the river, there might be a need for the adoption of what Finland calls reorientation, whereby the current highly polluting wet production systems could be replaced by the so called dry systems which do not produce any pollution at all.

Swaziland is contemplating building a huge thermal power station; we will need technological guidance to prevent excessive air contamination and vegetation deterioration by gaseous pollutants.

Asbestos is one of Swaziland's mineral exports. I wish to reply to certain press statements which have proposed banning of this mineral product because it is alleged to be an environmental health hazard. I can assure all the distinguished guests gathered here today that chrysotile asbestos concentrations in the air can be satisfactorily controlled. Society would suffer if deprived of the wide range of asbestos products designed to protect health, life and property. With expanding medical knowledge and today's improved dust control measures, asbestos-related diseases will no longer affect employees in the way they did two decades ago.

Sweden

In my view, we should concentrate on the concerted and expanded efforts required for the protection of our common environment. International efforts in the field of the environment during the last ten years have led to both successes and failures. Our shared responsibility for the global environment has become a feature in global cooperation. But many of the expectations at Stockholm regarding action on the international level can hardly be considered fulfilled. A renewed commitment by the world community to expanded and strengthened international action must therefore be one of the most important results of this conference.

Some of the threats to the environment identified in 1972 are now considered less serious. Cases in point are pollution of the open seas and certain pollution problems in the industrialized world. However, most of the threats recognized ten years ago still exist, sometimes magnified – in particular those with international dimensions. These include long-range transport of air pollutants, causing acidification of water and soil; the threat to the ozone layer and other changes in the atmosphere; pollution of coastal zones; risks in handling of hazardous substances; loss of genetic diversity; and the environmental effects of military activities.

In the long term even more serious threats to the environment are deforestation, particularly of tropical forests; desertification; and soil and water degradation. A large part of the earth's population lack adequate supplies of clean water. Every year water-borne diseases cause the death of millions of people. Two hundred and fifty million human beings live in urban slums without access to potable water and adequate health care. In large parts of the world, this development threatens the survival of man. This situation is caused by widespread poverty and unequal distribution of resources within and between countries.

Today, our knowledge is more advanced than it was in 1972. We are better informed about biological cycles and their vulnerability. The development of the concept of the environment is among our most important achievements since 1972. The issue today is how to achieve a sustainable economic and social development within the limits given by nature; how to satisfy basic human needs in an increasingly interdependent world. The major global environmental threats, such as deforestation, desertification and soil and water degradation are directly linked to a widespread and deep poverty.

Today we are fully aware of the need for preventive action and for rational and careful management of natural resources. Increasing energy costs and the awareness that fossil fuels are in limited supply have contributed to more effective energy use and a gradual transition to new and renewable sources of energy.

But we also have to recall that military activity in the world has reached immense proportions. Armaments entail an enormous misuse of resources and knowledge. Armaments, conventional wars and above all the risks of a nuclear war pose a severe threat to the environment, ecological systems and the survival of mankind.

Today we are increasingly aware of the interrelationships between most of the major international social, economic and ecological problems. A global strategy for sustainable development must be based on these new perceptions. It is the opinion of my government that the most important and challenging result of this conference should be a recommendation to start work on the development of such a strategy.

Switzerland

We wish to see the establishment of minimum standards for the protection of man and of his natural environment. We also recognize the need for international consultations each time the environment of a country, or the development plans applied by that country, impinges on one or more neighbouring states.

Switzerland would warmly welcome any research effort which was aimed at analysing the machinery of economic and population growth so as to determine their effects on the environment, and which took into account the possibilities of recycling products so as to achieve fuller use of resources and considerable reductions in emissions of numerous pollutants.

The need for a multidisciplinary approach to environmental problems, for general teaching aimed at stimulating ecological awareness at all levels and for university training of environment protection specialists seems to us beyond dispute.

The protection of the environment has numerous aspects and it is the duty of states to assess the situation on a regular basis so that they can together take the measures required, taking into account the evolution of scientific, technological and economic development. Despite the fact that some countries are less favoured than others by their geographical position, collaboration seems desirable in developing international law concerning responsibility for the damage caused by one state to the environment of another.

Problems do not arise everywhere in the same form. Those confronting the developing countries certainly originate both in economic backwardness and in the growth process. The remedies for specific problems lie in development itself. The first measure to be taken to give developing countries a means of improving and protecting the environment would be to include the financial requirements of this new task in the international resources available for development aid.

Difficulties could arise in international economic and trade relations in view of possible disparities between countries' requirements concerning protection of the environment. This is the meeting point of two legitimate concerns, those of safeguarding the natural environment and keeping trade as free as possible. International advisory and information machinery could be set up to ensure that the environment does not become a pretext for protectionist measures; to place at the disposal of all countries the results of ongoing research on pollutants and their use and elimination; and possibly to establish a calendar for measures and standards whose repercussions on international trade might be too brutal.

Switzerland

The decisions taken at Stockholm ten years ago have been shown to be particularly appropriate. We think it necessary to consider means of determining in as rational a form as possible a framework for the development of environmental protection efforts from now until the end of the century, a framework which should include the main lines of action and efforts required by a realistic medium- and long-term environmental protection policy. Despite uncertainties measures must be taken because without specific action there is a real risk of arriving too late.

It is not only global questions but also local problems which cannot be resolved by isolated action or by simply adding together the national policies of several countries. The principle of international cooperation requires a willingness to establish legal bases for subregional, regional or world activities. The global costs of environment protection should be assumed, in all spheres, by those who cause pollution.

In the developing countries, the deterioration of the environment often comes from the fact that man is forced by poverty to increase the pressure on resources which are already too scarce. These countries are gradually becoming convinced that the protection of the environment, far from being a luxury, is an imperative. They should be given support to allow them to identify, in the spheres of energy and agriculture in particular, solutions which respect the ecological balance. There is also a need to attack directly, at its source, the abject poverty which leaves the peoples of the Third World no choice but to damage the environment. Development aid is thus an important component of the effort which must be made by the community of nations to conserve the environment.

Syria

Close and total collaboration by the whole family of man is an urgent and essential requirement if we want our world to continue to exist. It is absolutely inevitable that the international community should share equally the natural resources of the earth and that the responsibility of each individual or nation should be determined in proportion to the losses and damages he causes.

In order to use his creative faculties and efficiently help his neighbour, man needs a human environment where peace and security reigns. It cannot be denied that wars of aggression, or any use of force against the human person, are an attack on the environment in its empirical sense and have inevitable repercussions on countries other than those directly concerned.

The two fundamental principles and *sine qua non* of any international policy of cooperation in relation to the human environment are and will continue to be:

- absolute priority for the problems of developing countries in the distribution of funds; and
- unquestionable and total responsibility of the nations which have caused the pollution for making adequate and full reparation for the damage.

Tanzania

Ten years have passed since Stockholm. As we look back I believe all of us are deeply concerned about the continuation of environmental degradation and deterioration characterized by continuing deforestation, a continuing decrease in energy supply, soil erosion and pollution. Since 1972 we have witnessed a greater awareness of the interrelationship between people, resources, environment and development. We entirely agree that of all the things in the world, people are the most precious. Everyone on earth has a fundamental right to an adequate standard of living and a healthy environment and a corresponding responsibility to protect and improve the environment for his neighbours and descendants.

In order to improve the quality of life of any people economic and social development is essential, as is the maintenance of the capacity of this earth's natural resources to sustain development for future generations. It is clear in our view that the conflict between development and environmental protection in the developing countries is a crucial factor which deserves critical analysis with a view to optimizing both to the highest level possible, the ultimate objective being to enable people in the developing countries to live a life of dignity and well being within the context of continuing social and economic development.

The root cause of the environmental problems in most developing countries, including Tanzania, is poverty. The United Republic of Tanzania is among the 25 least developed countries in the world. Because we are poor environmental problems continue to exist. We drew up socioeconomic development plans based on our natural resource exploitation. This was and still is a necessity for our continued survival. At the same time the maintenance and protection of the environment is also vitally important for our continued survival. To reconcile the two we adopted an integrated development planning approach.

We are convinced that when economic planning and physical planning are considered together, the crucial relationships, the combined effects of which retard or thwart our development efforts, are determined. We have completed regional physical plans for eight regions and have now embarked on another four.

Economic factors have had and will continue to have a powerful influence on environmental activities both internationally and nationally. It is clear that in periods of economic stability governments give greater attention to environmental management. The economic dislocation brought about by the steep fall in prices of agriculture export crops and the steep rise in oil prices that began in 1973 has caused a severe reduction of activities aimed at environmental management. For the developing countries to play a more effective role in the field of environment management it is imperative that a new international economic order be established.

Permit me now to highlight just a few of the many activities which my government has undertaken in the field of environmental management since the 1972 Stockholm UN Conference on Human Environment. My country has embarked on a nation-wide desertification prevention programme. We are implementing a national afforestation programme and to date about 60 000 hectares have been planted. We have also launched village afforestation schemes in which approximately 8 000 hectares are being planted annually. My government has also

set aside protected areas which together amount to 233 339 km² or 25% of mainland Tanzania. We have maintained our national parks and biosphere reserves where human activities are strictly forbidden and these amount to 47 000 km or 5.3% of the total area of mainland Tanzania.

The problem of soil erosion has been slowly creeping up in many parts of Tanzania, particularly in the central regions of the country. It is estimated that 126 000 hectares of an area in Kondo have been seriously affected by soil erosion after natural forests were wholly cleared by the colonial government as a means of eradicating tsetse fly in the 1920s. The government of the United Republic of Tanzania embarked on a soil rehabilitation programme from the late 1960s and the entire soil eroded area is now steadily regaining its fertility.

In order to deal effectively with environmental problems which are interdisciplinary we have established an interministerial environment committee which coordinates all activities of environment management throughout the country.

Thailand

In order to deal effectively and concretely with environmental problems of the developing countries, several subregional environment programmes have been developed. These programmes are at various stages of implementation. We, the ASEAN member states, are now going to update priority actions to be implemented, as well as developing new project proposals taking into consideration the major environmental trends to be addressed during the period 1982–92.

If current rates of deforestation continue, very little of the lowland tropical forests in the ASEAN member states will be left by 1990. I would therefore like to propose that, for the next decade, our strategy for environmental programmes should be to mobilize both financial and technological resources to get to the sources of the problems.

Togo

Environmental issues are above all questions of human morality. It is a matter of saving man from the collective suicide into which our anarchical, poorly planned and uncontrolled development will lead us if we do not urgently take measures to avert that calamity. Today development must be designed for man; considerations of quality can no longer be ignored.

The dangers hanging over our environment are different from the problems of pollution with which the industrialized countries are familiar, although our seas too are increasingly threatened. Our towns are still to be built, our countryside is still in its natural state, our forests are virgin, our rivers as if just created. Since it is now recognized that we all live on the same earth, there can be no frontiers to environmental problems. Rivers, seas and oceans unite us and bring us to confront the same problems.

Now that we have chosen the path of development, the problems of the environment are ours. For our countries, it will be a question of profiting from the lessons of the past in order to avoid the errors of the future. It will be a question of preparing for tomorrow areas habitable by human beings. We also have our environmental problems, those of underdevelopment. Our concern is to intensify the development of our countries as a remedy to the main evils which afflict us. In the majority of our villages the total absence of drainage and of basic sanitary facilities, the lack of drinking water for daily household needs, for the development of agriculture and industry, for livestock and for leisure, together with pollution of the soil and of streams by human and animal waste, mean a prevalence of gastrointestinal infections, hairworm, bilharzia etc.

The poor housing of periurban and rural areas, the lack of public hygiene, dirt, malnutrition, unemployment, illiteracy, poverty, the flight from the country to the towns in search of work of the young who abandon land ravaged and rendered infertile by erosion and brush fires and so deprive the villages of their most dynamic and productive elements, are further additions to our already serious concerns.

In a world governed by self interest, where the rich become richer and the poor poorer, the tasks before us are immense: an urgent need to supply our fellow men with a minimum of amenities, drinking water supply, the adequate disposal of waste and sewage, decent housing, a minimum of medical care, the development of land and natural resources, the education of young people and adults, basic training for skilled workers and scientific personnel etc.

There are two courses which could be pursued to solve environmental problems: that of scientific and technological activity aimed at improving technology so as to reduce pollutants or improve the material situation of those who are poorly provided for; and that of political action. At the national level, the latter requires states to correct the errors of the past by taking account of environmental issues and to plan the future in this new spirit; at the international level it requires the establishment of rules of conduct. Until it is understood that the survival of mankind is dependent on respect for the elementary rules of the non-saturation of our environment by pollution, until we understand all the various effects of weapons of whatever size, it will be useless to draw up rules.

Togo

Any situation harmful to any one region of the earth is extremely harmful in the short or medium term to the biosphere and imbalances in the development *ipso facto* cause injustice which has weighty consequences for the management of the common heritage of the resources of mankind as a whole. The protection and safeguarding of our environmental potential, a many faceted task, requires of us a global, dynamic and sustained view of our decisions, our actions and all of our activities.

Despite our efforts the future is still studded with problems, for it is unfortunately the case that, although a decade has passed, man often continues to behave not as nature's ally but as its bitter enemy and his development carries the sad marks of disordered and egoistical proliferation.

In analysing the situation, we should apply greater dynamism in safeguarding our natural capital and take into consideration all dimensions of man's needs. We must break the instinct to destroy ecosystems so as to avoid continuing to impose ourselves in various ways on mother nature.

Trinidad and Tobago

Trinidad and Tobago is a very small country in the Caribbean area which has only recently (1962) shaken off the shackles of colonial rule. We are a developing country with a high population density, plagued with unemployment and striving to raise the standard of living of our people – both economically and culturally.

We in Trinidad and Tobago, like all other peoples, have become acutely aware of the need to take immediate action to curb and reverse the environment deterioration in our country. While we are convinced that something must be done urgently, we face the problem of deciding how much should be done and when it should be done.

Whatever we do it is clear that such actions cannot be permitted to retard the pace of our development which is essential to ensure our people adequate standards of civilized living. The more developed a country becomes, the higher is the standard of living of its people, and the greater is the risk of environmental pollution. Nevertheless, no one will dispute the fact that a country like Trinidad and Tobago must place the highest priority on its development. To accomplish this, we see the necessity to industrialize in order, among other things, to provide greater employment opportunities, although we are aware that we will have to face the problems of industrial pollution. We are determined to reduce and eliminate as far as possible the risks and dangers of industrial pollution, but we do not have at our disposal the resources and expertise available to developed countries in fighting this menace.

The growth of our cities, complicated by the problem of squatting, increasing the demand for water and power, requiring greater sewage and solid waste disposal as well as other community amenities, gives rise to pollution and other environmental problems which we are ill equipped economically and technically to solve, although we are making every effort to do so within the limits of our resources.

It is essential that Trinidad and Tobago should improve its agricultural sector both by diversifying and by increasing crop yields. The best known methods of achieving this involve the use of pesticides and fertilizers, which in many instances lead to soil and water pollution. It is extremely difficult for us to eschew the use of these agrochemicals to the detriment of employment in the agricultural sector and the feeding of our people.

From the regional and international points of view, Trinidad and Tobago supports urgent actions to reduce as far as possible the dangers of pollution. As Caribbean islands we are anxious to avoid the fouling of our beaches as a result of ocean dumping. We are equally concerned to protect our fishing grounds from any form of pollution. At the regional and international levels, Trinidad and Tobago stands ready to cooperate and collaborate in arrangements designed to protect the environment, bearing in mind always its most pressing need for development.

It cannot be disputed that the matter of the human environment is the concern not only of industrialized countries but of the whole world. No better motto could have been chosen for this conference than only one earth. This being accepted, we must help each other to make the whole earth a better place to live in for us and for future generations.

Tunisia

While the problem of the environment as it appears today particularly concerns the developed countries, it is equally the case that a high and noble task awaits the developing countries in this sphere. Just as the adage *mens sana in corpore sano* is true of individuals, it is certain that a healthy society only achieves its full potential in a healthy environment.

Urgent action is required: man must be protected against the torments of poverty, war and oppression.

The development process must necessarily take into account the problems of the urban and rural environment.

A proportion of the chemical and organic products which man uses enters the environment and sooner or later harms man's health and his biological equilibrium.

Tunisia

Our present meeting is a good opportunity to assess the efforts of the international community over the last decade and Tunisia looks forward to such meetings with a great deal of interest and optimism. My country, which hopes and sincerely desires to increase the constructive and fruitful cooperation among our countries in the interest of all mankind, has, since its independence, intensified its participation in all meetings dealing with the main current issues, especially those concerned with environmental problems, because of their contribution to the improvement of the quality of human life today and to the creation of conditions for a decent life for the coming generations. We must hand over to them a clean, prosperous and balanced environment with enough natural resources and sound environmental components to enable them to enjoy their living conditions.

Tunisia is presently finalizing the main lines of the sixth quinquennial development plan, in the preparation of which all the vital forces in the country have contributed. This plan, although aiming at the economic, social and cultural development of the country and at achieving its economic take off, has taken into consideration during the phase of preparation the environmental data relating to the development of economic, social and tourist projects. It has also integrated into its objectives adequate and necessary means for the protection and preservation of the environment. That is because we believe that the protection of the environment, and the preservation of its balance, far from running counter to the economic development of a country, supplement it and are even one of the conditions for its success.

The development plans aim at securing peace and prosperity for the present generation and if they did not take into consideration the environmental effects of their projects, might cause a long-term environmental degradation which would be costly for future generations.

The present plan, as well as the previous ones, has therefore considered the protection of the environment as one of the fundamental objectives especially as far as soil preservation, desertification control, water purification and protection, non-wasteful use of water, afforestation, urban waste disposal etc are concerned.

Allow me to review here, briefly, the efforts made by Tunisia during the last decade in protecting the environment and the future perspectives of that work. Tunisia, even before the Stockholm Conference, had initiated a programme of work on environment protection and the Tunisian administration has undertaken an exemplary programme, adopting measures aimed at preventing sea water pollution, preserving fish stocks, protecting many endangered plant and animal species as well as ensuring protection from pests etc. Subsequently, the Stockholm Conference took place and Tunisia's participation in it was intensive and effective. As a result, the objectives and the ways to reach them became even more clear. Within many ministries in my country units have been established to deal with environmental matters in their respective fields. A national committee on the environment was also established in order to coordinate the work of those bodies.

Desert and semiarid areas cover three-quarters of the Tunisian territory, nearly 120 000 km and are inhabited by 2 800 000 people, which represents almost half of the total population. This serious situation compelled us to give absolute priority to

the desertification problem and to make great efforts to protect the soil and stop the encroachment of desert through land rehabilitation, digging of wells and tree planting as well as through the construction of wind breaks, dams and canal networks, and the establishment of specialized laboratories for scientific research and training purposes. During the last decade, the forest surface of Tunisia has been extended by more than 60 000 ha while we have protected the soil of areas exceeding 200 000 ha.

Urban development and population growth on one hand and high levels of urban population concentration as well as the establishment of industrial and touristic institutions on the other, together with the expansion of the agricultural sector, especially irrigated agriculture, have led the Tunisian administration to give high priority to the development of an innovative policy for the sound and economic use of water and the prevention of urban, agricultural and marine environment pollution. Furthermore, many measures were taken to limit the possible negative effects of social and economic development.

This plan consisted mainly of the construction of canal systems in the urban and coastal areas, the establishment of purification stations for waste water for reuse in agriculture and enacting of the laws and regulations necessary for the control of industrial and other human institutions.

While recognizing the importance of environmental problems and the need to solve them at the national level, Tunisia is making a positive contribution to the efforts being made in order to find solutions at the regional and international levels for the main existing problems. That is because my country is convinced that environmental problems are the concern of all mankind and that the phenomenon of environmental degradation, wherever it may be, is in fact a threat to mankind as a whole and to its future. We actually share one single earth and have the same fate, irrespective of the disparities between our fortunes, the distances separating us and the differences between our respective concerns and priorities.

My country has therefore been actively involved in the development and implementation of work programmes for the protection of the Mediterranean Sea and is also participating in bilateral programmes with friendly and sister countries from both the northern and southern shores of that sea. Tunisia has participated in the environmental programmes of the Arab and African regions as well as other regional and world programmes.

The 1972 Stockholm Conference has opened wide horizons, resolved a great deal of confusion and generated hopes. No conflictual perceptions remain concerning development and environment protection. Contradictions between industrialization and the establishment of institutions and agricultural activities on one hand and the preservation of ecological balance on the other hand have been eliminated. There is no longer any doubt about the fact that all mankind share one single earth and that any limits put on the capacity of earth to support mankind constitute a threat for all, poor and rich alike. It became evident in Stockholm that the short sighted conception of development and the quest for quick profits without consideration for the long-term preservation of natural resources are a political and economic mistake, the consequences of which will be borne by future generations.

Furthermore, the last decade has witnessed an important improvement in ways of sensitizing the public opinion and training researchers and experts in various fields of integrating environmental concerns into educational programmes at all levels. Nevertheless, we should keep in mind that by comparison with 1972, poverty is expanding, hunger is threatening an increasing number of human beings,

deserts are encroaching on fertile lands and more people are living in extremely poor conditions in totally unsanitary shacks and shanties.

All the efforts we make and plans we develop at the regional or international level aim first of all and specifically at securing the welfare of mankind and providing for decent human living conditions in a sound environment. This will only be achieved if, in addition to food and shelter, man can enjoy life with dignity in a safe homeland where his potentialities can be developed and his personality can grow. Environmental issues can in no way be separated from development matters nor from the need for more just economic and political systems which show more compassion for man, wherever he is.

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Turkey

Giant industries, nuclear tests and other similar factors have played a major role in the emergence of environmental problems. The impact of environmental deterioration is not the same in the industrialized as in the non-industrial countries or in states in the process of industrialization. The pollution created by the developing countries is negligible compared with that created by the giant industries of the developed countries. That is why it would not be fair to oblige new industries to bear extra costs. The developing countries can only resolve their environmental problems in parallel with the rate of their economic development.

The developing countries are, for numerous reasons, already behind hand in obtaining for their nationals a level of life compatible with human dignity. We cannot therefore take paths which would delay our industrialization.

Misgivings relating to environmental issues should not give rise in international economic relations to new protectionist measures of benefit to the industrialized countries; all individuals have the right to a decent standard of living.

The development plans of developing countries must consider all aspects of environmental issues. The extra costs which a solution to these issues would require must be borne fairly, taking into account the time needed to complete industrialization.

The undeniable principles of the United Nations' ideal are to carry out research for the purpose of handing down to future generations a world which can be lived in, to apply that research and to place at the disposal of all the totality of the knowledge acquired in this connection.

Turkey

Population growth, industrial development and environment pollution and degradation which threatens natural resources in every country on earth, have made the environmental problem one of the most important priorities of man in the last quarter of this century and Turkey is among the countries where environmental problems have recently received increased attention. My country has tried to shape herself for the development of environmental programmes and intensify her efforts for environmental protection.

I would like to refer, very briefly, to some events in Turkey in the course of the last decade which indicate that environmental considerations are acquiring increasing importance in Turkish government actions.

In August 1978 a new organization was set up within the government to be responsible for environmental matters and to coordinate the activities of the various ministries and government departments in the area of the environment.

The fourth Turkish five-year plan covering the period from 1979 to 1983 has incorporated in its strategy an important environmental dimension. The basic aim of the plan is to pursue the economic and social transformation process while solving environmental problems arising from the transformation.

Turkey, being the meeting place of the east and the west, a natural geographic bridge between Europe and Asia and one of the cradles of civilization, has a great heritage of ancient sites, remains and natural beauties. Turkey has intensified her efforts to implement the concept of national parks in the country. So far 17 national parks have been created and 12 are under way. Turkish environment authorities and the Turkish government have recently taken extensive and intensive action to clean up the environmental damage done by industrialization and the urbanization of various waterways, bays, gulfs and inland seas of the country. Soil conservation and afforestation have also been important priorities in government action.

Turkey being a country with a long Mediterranean coastline, I would like to take this opportunity to register our satisfaction at the manner in which actions aimed at protecting this great internal sea are proceeding within the framework of the Mediterranean Action Plan. In this context we note with satisfaction the establishment of the trust fund for the protection of the Mediterranean Sea against pollution.

The first decade after Stockholm has showed a great public awareness of the environment in the world. In the next decade we hope that environmental legislation in the developed and developing world will take environmental concerns fully into account as an integral part of the economic and social development process. At the same time, we must not lose sight of the fact that we are entering a new decade during which most countries, especially developing countries, expect to be confronted with economic difficulties. Governments will be obliged to make painful choices during this new decade.

Uganda

Uganda is deeply interested in avoiding all future forms of environmental damage and urges that measures designed to improve or protect the human environment at international, regional and national levels actively receive international cooperation. We are fully convinced that for many environmental problems, satisfactory solutions can only be formulated and implemented through effective international cooperation. In view of this, it is imperative that all nations meeting here irrespective of their level of development or their social and political ideology, resolve to emerge from this conference with a meaningful plan of action for the betterment of the quality of life for the present and future generations. We do not for one minute flinch from our very grave responsibility in this regard.

Developing countries face environmental problems different in degree from those encountered in developed countries of the world. Our fundamental environmental problem is how to raise the material standard of life of our people to levels that are humanly decent. In other words, we are not confronted with an environment that has degenerated into pollution as a result of development. On the contrary, we are faced with an environment many of whose inherent aspects are prohibitive to development and injurious to human comfort. Science and technology must therefore be applied to bring about development and to uplift our people from the shackles of poverty, ignorance and disease. In doing this, however, we call for proper planning, for environmental respect and for preventive action before rather than curative action after the environment has been degraded.

There are erroneous assumptions, which must be dispelled, that only people from developed countries fully understand the ecological issues of environmental degradation. While it is true to say that general populations in developed countries are fully conscious of their ecology, it is equally important to concede that we from developing countries are equally sensible to our environmental problems. I am glad to be able to say that over the few years that Uganda has been an independent nation, we have given a respectable amount of our effort and resources, at great cost to our economy, to environmental protection. We contend that in the area of wildlife conservation, for instance, Uganda has given a lead to the world. The success of our national parks, game reserves, wildlife sanctuaries and various other reserves, many of which have earned an international reputation, are ample testimony to our commitment to nature conservation in particular and environmental protection in general. Only recently we halted the plans for the construction of a power project which would have endangered one of our beautiful national parks.

Within our very limited means, we have managed to set in train wide ranging research programmes, directed at resource exploration and conservation in relation to fisheries, forestry, livestock and wildlife. In these and other research activities into diseases and pests, we cooperate on a regional basis with our sister states in the East African Community.

We in Uganda, in common with the other developing countries, are faced with enormous problems caused by an extensive range of diseases, pests and weeds whose effective control at present requires the use of persistent biocides. We would like to associate ourselves with those who have said that it is for the moment unrealistic for us to consider the total ban of these chemicals. What we call for

therefore, is greater international cooperation to enable us to find less harmful alternatives. We request that aid to developing countries should include heavy subsidies for the purchase of less toxic and less persistent biocides which are presently very expensive. We would like to appeal to the developed countries to give increased aid for more vigorous programmes of research into biological means of pest control. This would constitute a real act of sacrifice on their part and may even lead to reduced profits on the part of commercial organizations in the developed countries. Nevertheless, if the slogan only one earth is to have a real meaning, we regard such actions as absolutely essential to the interest of humanity as a whole. It is important that commercial organizations in developed countries do not resort to the dumping of undesirable chemicals or discarded technology on developing countries because they have ceased to be used in their own countries. It is our view in this respect that there must be no double standards in the process of environmental protection; but while we accept this, and while we also wish to see no disruption in the developmental process or trade from developing countries because of environmental positions elsewhere, we are convinced that an answer can be found through international cooperation.

We realize that a major part of our environmental problems arises from the fact that our population is growing very fast. The consequences of this for economic growth, employment and the quality of social services are all very well known and not unique to our situation. I would like to report, however, that Uganda has now committed herself to a programme aimed, in the long run, at bringing about a deliberate decline in the rate at which the country's population is growing. Our population policy will also attempt to improve the spatial distribution of the population by resettlement schemes which correspond with the distribution of natural resources. We realize that successful implementation of these aspects of our population policy will not be easy; but we can see no other alternatives that will bring about a lasting solution.

In a situation of rapidly increasing population, pressure on resources expresses itself in two diverging directions. On the one hand, there is increased urbanization, with the requirement for resources to supply adequate housing, water and social amenities to those flocking to the towns. On the other hand, there is increased agricultural activity, necessitating the commissioning of more land and the use of insecticides and fertilizers. This, unless properly planned, is a danger to the conservation of such natural resources as the fauna, the flora and the fertile soils. We have been conscious of both these pressures. We have initiated plans for our larger towns and we are evolving an overall land use plan to cater for competing and multiple land uses. Nevertheless, we are acutely aware of the fact that environmental problems cannot be adequately tackled, let alone be solved, where there is prevailing mass ignorance and a critical shortage of trained man power.

Uganda

Uganda is one of those developing countries which is endowed with some of the most favourable attributes of nature and natural resources. However, in the last decade of the establishment and existence of the environmental movement and awareness, we have witnessed only the decline of these attributes.

We are concerned that while industrialized countries have legislation which forbids the use of certain technologies and products in their own countries, those laws do not restrict or stop the exportation of those forbidden technologies and products to other and, in particular, developing countries where there are no countermeasures. We believe that efforts towards international cooperation to control environmental matters of a transnational character must include trade in technology and products which have harmful effects on the environment, health and ecosystems. We are, therefore, looking forward in the next decade to the improvement in national legislations to protect not only manufacturing countries but to ban the export of nationally condemned items.

Poverty is still a social, economic and environmental problem which we believe must be resolved. The major environmental syndromes of poverty are poor sanitary living and health conditions as well as the climatological effects of drought and famine. Thus poverty is as much a social and economic problem as it is an environmental problem. Any population pressure which is unrelated to rapid economic growth and adequate natural resources such as land must lead to a condition of poverty. Thus the subject of population and the environment should be given attention in the next decade.

United Kingdom

We need worldwide research and monitoring and immediate action to stop the most obvious forms of pollution. Dumping of noxious wastes by the industrialized countries has already been brought partly under control by the Oslo Convention. We hope there will be more regional conventions of this kind. If the industrialized countries agree to control their dumping it must surely be of benefit to all.

Dirty rivers foul oceans on a much greater scale than dumping. This problem must be tackled nationally and regionally. We need a world clean rivers programme. To tackle dumping at sea and to ignore the massive pollution from the river systems of the world is to tackle but a small fraction of the problem.

We support the proposals for a world monitoring system, using the resources of countries and of specialized agencies.

We endorse proposals for an international referral system. We will make a substantial input. All will, I am sure, benefit from the output.

The developed countries of the world are spending an ever increasing amount on research programmes designed to improve the quality of the environment. It would be a tragedy if the benefit of these programmes was not made available to developing countries who can ill afford to do such research. Added to this, the developed nations have in many spheres obtained technical skills enabling them to diminish the polluting effects of industrial activity. We would welcome a worldwide increase in aid and technical assistance in the environmental field. My government is willing to provide this, where it is asked for, on an ever increasing scale.

The world contains many differing environments and some problems are regional and require a regional approach. The UK, as part of the enlarged EEC, will look for regional solutions to problems of the area; where these may have global implications you may be sure we shall make our decisions within a global context.

Less than two years ago the UK was the first industrial nation to create a Department of the Environment, a department with powers over land use planning, transport, housing and construction and the major antipollution agencies, a department with a staff of 78 000 and a budget of £3 000 million a year. The objective was to bring a new total approach to environmental problems.

Looking back on the initial objectives of this new department, I find that those objectives we set ourselves for national reasons are the same objectives that we would wish to see pursued internationally. Nationally we are increasing expenditure on the environment at a rate faster than the rise in gross domestic product. We should seek a similar increase throughout the world.

Nationally, we decided to devote more resources to the cleaning of our rivers and our seas. This surely should be a worldwide objective. Nationally, by the reform of local government and the creation of the new department, we are setting up a machinery appropriate for tackling our national problems. It is the task of this conference to see that the administrative machinery for tackling the world's problems is put on an appropriate footing.

Nationally, we have sought to create a system of monitoring where the pollution of our rivers, the pollution of our air and the pollution from noise is measured nationwide and the facts made known to all. The objective of this conference is to

see that we create a worldwide system of monitoring with all of the advantages for decision taking that this will bring.

Nationally, we decided to spend far more of our resources on the research necessary for the creation of sound environmental policies. Internationally, research must be coordinated and developed. We are pursuing a policy of seeing that he that causes the pollution pays the costs of meeting the standards the community demands. Worldwide, we need to pursue policies that the polluter pays.

But perhaps most fundamental of all, the first priority must be given to those whose environment is the worst. It would be easy to obtain popularity by conserving the many good environments that exist. But the proper social objective must be to improve the environment of those who have long endured the legacy of the industrial revolution. It is for this reason that I hope we will pursue a similar principle internationally.

This conference has established a dialogue between nations at many stages of development, with very different environments and very different priorities. I do not regret the revelation of those differences, for from this dialogue should come understanding and understanding is a good step towards solutions. It is good for the developed countries to be constantly reminded of the very much worse problems that other nations are facing. It is essential that this dialogue goes on.

We do not believe there is any conflict between economic growth and environmental quality; but the growth must take a new direction. Many developed countries have made mistakes. They have turned rivers of beauty into open sewers, the air we breathe into poisonous gases and created squalid slums instead of contented homes. This does not mean that pollution is an inescapable consequence of industrial expansion. It would be a tragic reflection on international politics and the human race if the developed countries did not help their colleagues to avoid similar mistakes. It would be a condemnation of us all if we administered the world in such a way that the only opportunity for the developing world were the opportunity to be more polluted than the developed nations.

We need to change the time scale of our thinking. To date, too much political decision making has been concerned with temporary expedients to meet immediate problems. This is all too often like using a drug that masks a symptom and gives relief without curing a disease: it may indeed contribute to the general decline of the sick body. We cannot afford to make the same mistake in environmental planning. Long-term problems demand long-term solutions.

We stand today where men stood at the Renaissance. We, like them, cannot depend on traditional ways of doing things. We need to face the logic of scientific understanding. If research teaches us that a trend we now see could lead to devastation in thirty years, the fact that it can only be averted by an unprecedented response is irrelevant. We need the adventurousness, the daring of a New Renaissance in our political thinking.

There is, in my belief, a new generation, young, perhaps more gentle than many generations past, intolerant of poverty and misery, and insisting at looking afresh at the world's problems. This generation is worried about the apparent incapacity of world society to respond to the challenges that confront us – or at least to respond fast enough. They are calling for action. I believe the message today is to make common cause with that generation: to demand that throughout the world, policies are pursued which will bring not only economic development and prosperity, but a quality of life and a new elegance.

United Kingdom

So what about Stockholm? How do we remember it? First, for its impact. It captured people's growing concern for the environment and massively increased interest in it throughout the world. That impetus, thank goodness, is not dying away. It is steadily increasing as more and more people realize its importance. And in their active interest and concern lies the real best hope for the future. And with that impact comes a confidence. 'Young men see visions'; and so do young organizations. The vision at Stockholm was that once problems were identified, they would be solved, that the power of the world's institutions would meet the challenges of the environment. Ten years later, much buffeted by economic and energy crises, we need to restore that vision.

Ten years later what do we see? That dialogue leading to that better understanding? I think so. I think there is a better understanding. Understanding that utilization of natural resources and development of industry are inescapable necessities for poorer countries. Understanding that not only need it not be at the expense of conservation; that it can in fact contribute towards it; understanding that pollution need not inevitably destroy all life on earth. And I hope understanding of this too, that the developing countries are fortunate in one sense: that the developed world can provide countless examples of irresponsible development causing needless damage to their environments. Those examples are there for all to see and to learn from.

In making our plans for the next decade what do we need to consider? Of course we must recognize the massive and fundamental issues that threaten to destroy all our sensitive and moderate plans. The world now faces a population explosion in many parts of the developing world; increasing populations generate environmental hazards, and make it impossible to provide the necessary services and infrastructure. We know that there is a crucial interaction between environment, development, population and resources and it is only through a comprehensive approach, especially on a regional basis, that this massive problem can be tackled.

We need action in three priority areas – information, development and organization. Environmental assessment should be developed to its intended potential as a process that helps us to evaluate the scale and priority of the world's environmental problems. Developed and developing countries must together ensure that plans for projects within their aid programmes are sensitive to the environment. This does not require the institution of complicated procedures or rules. Nor does it require large sums of money. It is a matter of sensible planning which should in our view automatically take account of environmental effects. Wise development must end the poverty trap which forces people to destroy tomorrow's environment in order to sustain life today.

It is in the growth of people's active interest and concern that the best real hope for the future lies. We spoke in Stockholm of a new generation, young, intolerant towards poverty and misery and insisting on looking afresh at the world's problems. These problems have not disappeared. Indeed, they are in many respects more grave, but that generation we identified has not gone away. Far from it, they have been succeeded by a new generation.

They look to us here in Nairobi to point the way and in this we must not fail.

Ukrainian SSR

This year the workers of the Ukrainian Soviet Socialist Republic, together with the peoples of other republics of the Soviet Union, will mark the 60th anniversary of our brotherly united and multinational family of the Union of Soviet Socialist Republics. In the 60 years of our Republic enormous achievements have been made in all fields of socioeconomic development and, in particular, in the crucial area of environment protection. Environment protection in the Ukrainian SSR is raised to the rank of the state policy and has come to be an important socioeconomic task and one of the priority functions of the state.

We are deeply convinced that the evolution of the civilization without worsening of the state of environment is possible only with the help of the system of state and public measures directed towards the rational use, conservation and reproduction of natural resources, protection of the natural environment against pollution and destruction, for the benefit of present and future generations.

Socialist relations of production in the Ukrainian SSR make it possible to successfully solve the emerging contradictions between the aims of production and the requirements of protecting the environment. They make it possible to use natural resources rationally and according to plan for the benefit of the whole society and to provide for further growth of productivity, comprehensive satisfaction of material and spiritual demands of people and protection of their health. Everything for people, everything for the benefit of the man – this is the main principle of our social, economic, ecological and demographic policies.

Rational planning is an essential tool for reconciling any conflict between the needs of development and the need to protect and improve the environment. Much has been done along these lines in the republic during the last decade. Special units and services responsible for planning, management and control of organization and implementation of all environmental protection measures were established in the Republic State Planning Committee, ministries, departments and enterprises. Environmental protection measures are included in the republic's annual and integrated long-term plans of economic and social development as a special section.

A great deal of research and development works is being conducted. Many comprehensive programmes on the most important aspects of environment protection are being implemented on the national level. More than 200 research institutions and higher education institutes take part in their realization.

All possible measures are being taken in the Ukraine for prevention of pollution of seas and fresh water basins with the substances which can endanger human health and be harmful to living resources. A set of measures aims at preventing pollution of the Black and Azov sea basins, with special attention being paid to the introduction of non-waste water and no water technologies.

Integrated plans for the protection and management of Dnieper, Dniester and other rivers have been developed and are being implemented under the guidance of the Ukrainian SSR Academy of Sciences. Water pollution zones are being established along the banks of smaller rivers and basins. A monitoring network and a system of environmental protection services have been organized in the republic to control air quality. Several control posts have been organized within the framework of international cooperation on transboundary pollutants transfer. The

measures taken have made it possible to greatly reduce atmospheric emissions in the last five years.

Significant emphasis is being placed on the use of the ecologically sound chemical compounds. During the last decade more than 40 national and foreign made chemicals have been prohibited for the production and use in the Ukrainian SSR and replaced by more environmentally sound products. The use of persistent pesticides in the proximity of rivers and basins is prohibited. Biological methods of plant protection are employed on a large scale and during the decade their application has increased three times.

One of the main concerns of the policy of our state in the social field is an appropriate and well organized recreation and medical treatment of the population. The ten-year urban plan of comprehensive development of green zones in the Republic has been successfully implemented and their area has reached three million hectares. In urban areas an average proportion of green zones per capita is more than 900 m². The creation of forest and green zones has become an integral part of city and industrial centres development.

Great attention is paid to the organization of reserves. During the last decade the number of objects under protection has nearly tripled and amounts to five thousand. National parks and biosphere reserves are being created.

Environmental education of population, especially of young people, is regarded in the Ukrainian SSR as very important. Creating environmental awareness among children forms part of the compulsory curriculum of schools and other children's institutions. Environmental management coordination centres have been organized on the basis of republican and regional posts of young naturalists. Press, radio, TV and cinema facilities are widely used to disseminate environmental knowledge.

We fully adhere to one of the basic principles of the Stockholm Conference, that the international problems relating to the environmental protection and improvement should be solved in the spirit of cooperation between all countries. The republic contributes to the international efforts to improve the human environment on the basis of bilateral and multilateral cooperation. The problem of human environment protection as well as other global problems cannot be resolved unless the most essential condition is ensured – that of preserving the peace and the life itself on our planet earth. Man and his environment should be saved from the consequences of the use of nuclear and other mass destruction weapons.

Uruguay

Mankind is faced with a choice of exceptional gravity: either it immediately adopts effective collective measures, or it does not do so and thus endangers its own survival. It is a choice between irreparable collective damage or salvation through action and sacrifice. The conduct which each of our countries adopts from now on will be determined by the extent to which public opinion and the authorities of each state have become aware of the problem.

What nature has placed at the disposal of man – only one of the *genera* – cannot be used or exploited against the others or to the detriment of the natural balance which shows that everything belongs to everyone. The excuses which men use to explain, although not to justify, their plunder of nature ie ignorance of present and future effects, ambition, need, are no longer valid, particularly when the plunder has worldwide consequences. The international community has a duty and an opportunity to demand regulative action by its organs so as to end the period of danger by reviewing standards of conduct.

The history of mankind is a chronicle of man's efforts to subjugate man, and to enjoy the greatest possible quantity of material goods. History is also the painful process which leads from an international system based on relations of force to a society inspired by the freely expressed consent of nations; from violence to peace; from exploitation to the fair distribution and general and equitable enjoyment of the riches of nature; from slavery to freedom; from man's habit of profiteering with the results of his plunder of nature to his harmonious integration with her.

The destructive capacity of technological and materialistic civilization has introduced a new factor which has interrupted this evolutionary process and makes it necessary to pose anew the entire problem of man's destiny. A transformation of ideas, behaviour, and particularly forms of international cooperation, is required in order to face up to the magnitude of the problems and their vast range. If fear of the atom has removed the danger of a world war, we should ensure that there is a similar reaction to the other present and real danger, which is perhaps more insidious and subtle and merits the same fear and the same prudence.

We are facing a common problem, which we are all committed to solving. In the face of the ecological threat which hangs over the world and is no respecter of frontiers or ideologies, the need for a joint reaction by all mankind becomes self-evident. This implies a conscious and careful reformulation of some traditional concepts and the acceptance of standards of cooperation which will both ensure the effectiveness of international action and guarantee the independence and equality of states.

Egoistical self absorption, negation of universal principles and exclusivist or hegemonic tendencies have been replaced by the assertion of the right of each nation to self determination, of respect for national identities within a harmonious community, of the right to a full and independent life and of the right to participate in the benefits of progress and civilization.

The time has come for international cooperation and solidarity. Mechanisms must be established with the authority and capability needed to introduce the environmental standards to which nations must give their free and rationally motivated consent.

Despite all the obstacles, common sense, good will and man's trust in man will prevail. The protection of the environment is a vital task which cannot be put off.

The evolution of developing countries and the protection of the environment are complementary aspects of the common ideal of improving the quality of life. An institutional legal system must be created on an international basis as the sole means of tackling the ecological threat globally.

Uruguay

In our opinion, social and economic consequences and implications should be a major part of our concerns. These concerns, which received little attention in the last decade, must be a priority in the next. Emphasis must be placed on, and attention given to, the link between environmental impact and the possibility of sustained development, however much the content of that expression might merit more profound and objective analysis.

The priorities to which attention should be given are the conservation of genetic diversity, the conservation and management of tropical forests, the control of chemicals, the saving of fertile land, the conservation of drinking water supplies, the assessment of atmospheric processes and the limits of the relevant physical and chemical balances, the solution of the energy problem, and the development of alternatives to oil and the conservation and adequate management – ecomanagement – of marine life and coastal and marine ecosystems.

The basic change in world economic structures that has resulted from the appearance and development of the transnational corporations involves a considerable impact on the environment. World challenges and problems must be faced and resolved with means suited to their extent and depth.

United States of America

An immense diversity of nations is gathered here from every region of the earth. We are brought together by a common concern for the quality of human life, the everyday life of people throughout the world. Our subject is much broader than pollution. It includes the kind of communities in which people live. It includes the way resources will be managed for billions of people today and still more billions in the future. Our concern is that all nations of the world should better understand and better control the interaction of man with his environment; and that all peoples, now and in future times, should thereby achieve a better life.

In addressing this universal subject of the human environment, every nation's view is conditioned by its own historical experience.

Some 65 years ago, when the American frontier was a thing of the past, President Theodore Roosevelt wrote that our natural resources were being rapidly depleted: he said, 'The time has come to inquire seriously what will happen when our forests are gone, when the coal, the iron, the oil, and the gas are exhausted, when the soils shall have been still further impoverished and washed into the streams, polluting the rivers, denuding the fields, and obstructing navigation.' But we ignored his advice and, through inadequate control of our increasingly powerful technology, imposed burdens on our environment, urban and rural alike, such as he never dreamed of.

Now the USA is altering its course. We have examined the costs of correcting the most obvious of these problems – pollution – and we have begun to pay the high price of corrective action too long delayed.

The environmental afflictions we are coping with are largely those of an affluent nation. My country enjoys economic blessings such as many another country earnestly desires to achieve. The US government remains convinced that other nations throughout the world can and must increasingly enjoy the same blessings of economic growth and overcome the curse of poverty. It remains the firm purpose of the US to assist in that global effort. My country has learned that economic development at the expense of the environment imposes heavy costs on health and on the quality of life generally – costs that can be minimized by forethought and planning. We are learning that it is far less costly and more effective to build the necessary environmental quality into new plants and new communities from the outset than it is to rebuild or modify old facilities.

Environmental quality cannot be allowed to become the slogan of the privileged. Our environmental vision must be broad enough and compassionate enough to embrace the full range of conditions that affect the quality of life for all people. How can a man be said to live in harmony with his environment when that man is desperately poor and his environment is a played out farm? Or when the man is a slum dweller and his environment is a garbage-strewn street? I reject any understanding of environmental improvement that does not take into account the circumstances of the hungry and the homeless, the jobless and the illiterate, the sick and the poor.

No longer should there be any qualitative difference between the goals of the economist and those of the ecologist. A vital humanism should inspire them both. Both words derive from the same Greek word meaning *house*. Perhaps it is time for

the economist and ecologist to move out of the separate, cramped intellectual quarters they still inhabit and take up residence together in a larger house of ideas – whose name might well be the House of Man. In that larger house, the economist will take full account of what used to be called external diseconomies such as pollution and resource depletion and he will assign meaningful values to the purity of air and water and the simple amenities we once foolishly took for granted. He will develop better measures of well being than gross national product. The ecologist, in turn, will extend his attention beyond the balance of nature to include all those activities of man's mind and hand that make civilized life better than that of the cave dwellers. Both will collaborate to advise planners and decision makers, so that cities and countryside of the future will promote the harmonious interaction of man with man and of man with nature so that resources will remain for future generations and so that development will lead not just to greater production of goods but also to a higher quality of life.

The fact of national sovereignty entails frank recognition that many or even most of the crucial environment actions have to be taken freely by governments and by citizens in their own interest as they see it. In my own country we have taken vigorous measures in recent years to clean up our air and our waters, to reorganize our government structure for more effective environmental management and to open up our courts and our processes of government to the invigorating energies of concerned private citizens. In the quest for environmental quality, no need is greater than the development and participation of a concerned, informed and responsible citizenry.

We in the USA are beginning to make progress in our war on pollution. The level of major air pollutants such as particulates, carbon monoxide and sulphur oxides has dropped significantly over the past three years in most of our cities. The level of automobile emissions is likewise going down. We still have a long way to go and there is no room for complacency. But we are demonstrating that the problems of environmental pollution are not insoluble and that they can be dealt with through determined action by government and by citizens.

The frustration of modern man is twofold. There are those who have not even the basic material equipment for a decent life and who rightfully desire ardently to acquire it. But there are also those who get much of what they ask for and who for awhile go on asking for more – more goods, more services, more electric power, more comfort – until some dark night, alone with themselves, they are moved to ask: Why? What is it all worth if the fields and the forests have been despoiled, the air befouled, animals made extinct and the broad oceans debased?

The fabric of human happiness is as complex and as delicately balanced as natural processes themselves. Our immense and still growing power over our surroundings must go together with a new responsibility and a new discipline – the discipline of conserving resources, of limiting our births, of living within the means of the natural support systems on which we depend.

In many respects, no doubt, the questions and the answers will vary widely from one nation or region to another. But in other respects the environmental and economic problems of this one earth are truly global and we need to begin systematic analyses of them on a global scale.

One truth is already undeniable: in our use of resources we must have regard for the needs of those who will come after us. Our most fundamental obligation to future generations is to enhance the estate we transmit to them. Where once man saw himself as custodian of a body of goods and values and traditions, we now

realize that he is also custodian of nature itself. Our children will not blame us for what we wisely use, but they will not forgive us for the things we waste that can never be replaced.

Now that the natural order is increasingly subject to human design, our concern, our sense of coresponsibility must grow commensurately with our new understanding. There is a great excitement in the new journey we are on, a journey of understanding and cooperation, not of mastery and conquest. The essence of twentieth-century achievement will lie in our success in the struggle – not with each other or with nature, but with ourselves, as we try to adapt creatively to the realization that we are all hostages to each other on a fruitful but fragile planet.

United States of America

We have made significant progress toward developing independent and integrated efforts to improve the world around us. We have learned a great deal about many of our old concerns, an experience that will enable us better to address those issues that might arise in the future. Our responses must rely upon individuals and industries as well as the new laws, policies, programmes and institutions adopted by their governments.

The spirit of Stockholm parallels a concern for the careful use, conservation and enrichment of our natural heritage that has been expressed by political leaders in the USA for many years.

Environmental issues are a continuing concern of the US people. Their political leadership will continue to enforce existing laws and to develop more effective approaches to address emerging environmental problems. President Reagan and his entire administration share a commitment to continue to improve the environment so that future generations will be able to enjoy our natural resources.

In bearing the substantial expense of these measures, the US people have demonstrated their commitment to ensuring a healthy and productive harmony between man and nature. Since the adoption of the 1970 Clean Air Act, for example, industries and government in the USA have spent an estimated \$150 billion on air pollution control.

We have made major progress. The automobiles produced today emit 95% less pollution than the cars produced 12 years ago. During the past decade, we have reduced both sulphur dioxide and carbon monoxide levels in our air by 40%. Particulate levels have been cut in half at industrial sources.

Our progress toward cleaner air has been complemented by progress toward cleaner water. During the past decade, the US government has spent 30 billion dollars to assist the cities of our nation to reduce the impact of their sewage on the nation's waterways. This expenditure has been supplemented by the expenditures of our state and local governments, as well as the costs borne by citizens and industries as they comply with our environmental laws. Many of our rivers, the Great Lakes and other waterways have shown marked improvement.

Additional federal agencies contribute to our environmental effort: the Departments of Interior and Agriculture administer our national lands and forests, protect wildlife habitat, create wilderness areas, promote soil conservation and operate our national parks and refuges. The President's Council on Environmental Quality ensures that the decision making process of each federal agency includes comprehensive environmental assessments.

We have also remained conscious of the international dimension of our environmental concerns. In our bilateral relations with other countries, the United States Agency for International Development (AID) has been the leader in carrying out environmental reviews of its proposed projects. AID has strongly supported activities to address environmental protection concerns of developing countries. During the past six years – from fiscal year 1978 to fiscal year 1983 – AID's financial support for environmental programmes has increased more than tenfold, from \$13 million to \$153 million.

Multilaterally, the USA has cooperated wholeheartedly in the establishment of

most of the international environmental organizations in existence today. The USA has also assisted in framing international conventions and treaties to control pollution and to protect natural resources.

Today we have broad international recognition that the global environment, its ecosystems and their relationships with human factors, are far more complex than we thought a decade ago. In the USA we have begun to perceive that, at both the national and international levels, there has been inadequate foresight and understanding among policy makers of the long-term costs and benefits of environmental protection measures. Many of our actions have failed to take advantage of the natural corrective measures that can work through market forces, if governments allow them to operate. Too frequently, we have responded with alarm to pessimistic projections, squandering scarce resources on inappropriate measures rather than devoting those resources to the careful study of practical and effective ways in which we might improve our world.

A healthy environment is fundamental to the well being of mankind. Economic growth and social progress are necessary conditions for effective implementation of policies which will protect the global environment and promote wise use of the earth's natural resource base. Environmental policy should be based on the interests of present and future generations. The most successful policies are those which promote liberty and individual rights, as well as protection of the physical environment.

Nations should pursue economic development in furtherance of the security and well being of their citizens in a manner which is sensitive to environmental concerns. Due respect should be given to different approaches which various nations may adopt to integrate environmental considerations into development strategies based on their particular national values and priorities. Careful stewardship of the earth's natural resources can contribute significantly to sound economic development. Individual ownership of property, free and well developed markets in products and capital are powerful incentives for resource conservation. These institutions best promote the use of renewable resources and the development of substitutes for non-renewable resources, ensuring continued resource availability and environment quality.

When environmental problems extend beyond the boundaries of any one nation, all affected nations should participate in investigating the nature of the problem, understanding its implications, and developing cost-effective responses. Governments, like individuals, should act so as to minimize environmental degradation. Decisions on environmental policies and programmes should take into account the concerns of those closest to the problems and most directly affected.

Increased scientific understanding of environmental problems, and improved methods of forecasting environmental conditions, are needed to address environmental issues in an effective and efficient manner. Ultimately, resolution of environmental problems which are global in nature will be determined by the quality and credibility of our scientific and technical knowledge as well as by the degree of cooperation among nations including the effective involvement of private sector institutions.

These principles will guide the environmental policies of the USA in the coming years. They are a reflection of our deepest beliefs, and derive from the substantial experience that we have accumulated in dealing with environmental matters during this century.

We will proceed in a spirit of confidence that the principles that we have

expressed can provide a sound basis for improving the environment and the lives of our peoples. In general, we remain confident that even the most difficult environmental problems will be resolved through the application of human initiative, ingenuity and the will to address these concerns in an open minded and technically sound manner. Above all, we seek cooperation rather than confrontation between governments, international organizations, private industries and other concerned groups. Our efforts to promote cleaner air and water, to protect our natural resources, and to provide a healthy and bountiful land for all our peoples deserve and require our most conscientious and cooperative efforts.

USSR

The studies made by the Soviet scientists make it possible to give a comprehensive description of the present state of the interaction of society and nature and map out practical steps for optimizing this process. Modern ecological tensions most frequently manifest themselves as a conflict between the growing impact of man upon nature, on the one hand, and the relatively limited resources and possibilities of nature, on the other. But if the growth of material production and consumption, urbanization, population increase and scientific and technological progress are viewed as the immediate causes behind the ecological contradictions that have arisen in the last ten to fifteen years, it would not be difficult to make a serious methodological mistake. We can, for example, infer either that an ecological catastrophe is fatally inexorable or that it may be necessary to forego the development of the productive forces, which would be tantamount to a decline of civilization. Ecological contradictions arise and grow deeper mainly because of the imperfections of the social organization of nature and resource utilization, which determine the pattern of reproduction, distribution and utilization of natural resources and the shaping of the natural environment on the national and world scale.

Though ecological disturbances vary in scale, intensity and consequences between countries and groups of countries by virtue of the social and other differences between them, and the disturbances exhibit their own peculiarities in each particular case, this process has affected major countries of the world. Compared to the quite recent past, the ecological problem has become incomparably broader and more intricate in content, acquired a new sociopolitical status and an absolutely different global scale. The range of environmental disturbances has increased. The relationship between environmental pollution and the state in which a number of natural resources find themselves has become much more obvious. The process of depletion of many renewable resources has become all too evident. Numerous complex problems are arising in relation to non-renewable fuel and mineral resources. The biological impoverishment and reduction of wildlife species on our planet cause a deep concern.

All this points to the fact that the intensity and scope that man's impact upon the nature has now reached a level where the global biogeophysical situation on our planet largely depends on his activities. This is witnessed by the emergence of a number of ecological problems of international significance related to the climate of the earth, changes in the ozone layer, desertification, degradation of the world ocean environment, reduction of the gene pool of our planet, the transboundary and long-range transport of pollutants in the atmosphere at a scale of vast regions.

A way of preserving nature on earth lies through combining national efforts with wide international cooperation, promoting the environmental protection policy pursued at the national level on the one hand and the solution of global and regional ecological problems on the other. The international community as a whole rather than a separate state should actively undertake the objectives related to the rational utilization of nature resources which are unparalleled in history.

This calls, however, for implementation of a number of conditions. The most important of them are:

- removal of international tension and strengthening of international security on the basis of the principles of peaceful coexistence and equality of the sides;
- limitation and ending of the arms race in the first place, of the means of mass destruction of people and vitally important natural resources; transition to a real disarmament, reduction of military budgets and liquidation of the material base for war;
- establishment of an effective sovereignty of the developing countries over their natural resources; placing under control the negative aspects of the activity of transnational corporations which are an instrument of the neocolonialist exploitation; restructuring of international economic relations on a just and democratic basis; and
- deepening of the fruitful cooperation between countries with different social systems, the development of diverse forms of economic and industrial, and scientific and technical, cooperation in the field of development, rational utilization and protection of nature and its resources.

A point should be made that the overriding condition for preserving nature on the earth lies in preventing the threat of war and in political and military *détente*. Apart from a heavy toll of human life, a large-scale war would inevitably lead to an ecological catastrophe, with the gravest and long consequences. The arms race and military activity inflict vast environmental damage even in peace time, result in a squandering away of natural resources, to no purpose at all, poison the political climate in the world and thus interfere with solving significant human problems.

The problem of disarmament has acquired primary importance in the second half of this century since it has become vital to the whole of mankind and earth's future depends on its solution. With every passing year this becomes evident as we witness the growth of the annihilative potential of nuclear weapons, their stockpiling and broader range of carriers.

Our conviction that, in principle, latent contradictions between mankind and nature are amenable to solution, rests on a valid foundation: the knowledge of regularities and main lines of social development; a realistic assessment of the alignment of the major sociopolitical forces in the modern world; and, lastly, the unswerving belief in the genius of man, the creative force of the masses and the invincibility of historical progress. Each national territory is part of our planet's ecosphere. By virtue of this, each state is historically responsible for preserving the terrestrial nature for the present and future generations. This proposition is now acquiring the status of a generally recognized norm. The USSR recognizes the full extent of this responsibility and its implications are constantly taken into account in its home and foreign policy.

Our country has accumulated a large experience in studying, harnessing, protecting and rationally utilizing natural resources, improving the sanitary-hygienic state of human environment, and transforming natural conditions in an integrated manner. Since the middle of the 1960s, nevertheless, signs have indicated that certain former environmental methods were inadequate to cope with increasing pressures on nature and its resources. This necessitated the development of more profound ideas regarding the very content of the nature protection problem at the modern stage of the productive forces development, as well as an adequate organizational basis for environmental protection and the reproduction of natural resources.

Environmental protection planning in the USSR is being constantly enriched and

qualitatively improved. In plans emphasis is laid not only on eliminating the consequences of environmental disturbances but above all, the very causes behind them ie on preventive measures. Sectoral and territorial interests are now to a greater degree intertwined in elaborating plans. It should be emphasized that in the USSR the planning in the field of protection, reproduction and rational utilization of natural resources has become an organically integrated part of the state planning of the country.

The establishment of quality norms for natural elements is supplemented by those for waste discharge. Thus, on the basis of the inventories of toxic discharges into the atmosphere that were carried out in the 1979–80 period at the country's enterprises, provision has been made for a phased stage by stage reduction of the level of discharges to conform to established standards.

One of the important links in management of the environmental quality in the USSR is *environmental impact assessment*. An integrated part of Soviet practice in the field of impact assessment is taking account of ecological requirements at the earliest stages of designing economic activities ie via forecasting possible ecological after effects in accordance with the long-term comprehensive programmes of scientific and technological progress.

At the present time the system:

- monitors the level of atmospheric pollution, surface water on land and sea water, soil, bed load, continental shelf, biological products and other features of the environment;
- controls the quality, condition and rational utilization of mineral deposits, land and water resources;
- monitors the condition of the ecological systems and the biosphere as a whole;
- controls the source of pollution and the anthropogenic factors that make themselves felt; and
- assesses the condition of the environment, forecasting its possible changes and the elaboration of recommendations in relations to optimal nature protection measures.

The universal nature and global scale of the ecological problem imply that environmental protection activities have come to cover the entire planet. This gives rise to a worldwide challenge of mounting a concerted action in the field. The USSR has consistently come up with constructive initiatives in promoting international nature conservation cooperation. International scientific and technological cooperation of the USSR with socialist, developing and capitalist countries in environmental protection now proceeds in a wide range of problem areas such as reduction of water and air pollution, environmental monitoring, elaboration of low waste and non-waste technologies, prudent utilization of land ecosystems, including desertification control, conservation of genetic resources, socioeconomic and legal issues and many others. The USSR shares with other countries its expertise and achievements in environmental protection and rational utilization of natural resources, in introducing ecological parameters into plans for developing the entire national economy and its separate branches.

The USSR extends assistance to a large number of developing countries in development, commercial utilization and protection of various natural resources. Aid is granted within the context of the overall policy pursued to promote socioeconomic development of the newly liberated states of Africa, Asia and Latin America.

Venezuela

The environment is deteriorating rapidly, because there has been no firm policy of protection in an overall context of integral development and the measures of protection have been emergency measures to solve specific sectoral problems. In the majority of countries neither the government nor the public is fully aware of the problems of the environment. It is the attitude of the common man and of the leaders which must be influenced and changed. In countries at some levels of development, education and training are the keystone to the long-term success of a better economic, physical and mental balance of the population. In countries at the highest levels of development, the people and their rulers must recognize the need to set aside their egoism and accept that, if the earth is one and mankind is one, the principles of social justice so invoked by each society must be transferred as widely as necessary to the international sphere.

The problems of the environment in developing countries differ substantially from those affecting developed countries. In the former, attention must be focused on the elements which endanger the very life of man and which stem from poverty, malnutrition, lack of hygiene, lack of employment and of income adequate even for a minimum subsistence level and from the destruction of soils and water sources by primitive cultivation systems. Overcoming such conditions is only possible through development itself, development meaning not only economic growth but the progressive acquisition of better social, health and educational conditions for the entire population. At the same time, economic development plans must be located in an appropriate spatial and physical framework, so as to ensure a more rational organization of the land and existing natural resources and forestall and remedy the environmental problems typical of an industrial society (such as the exhaustion of natural resources, particularly non-renewable resources, biological and chemical pollution, the disturbance of the physical environment, marginal urban agglomerations etc).

A policy for the defence of man and the conservation of the environment must be a basic aim of the economic and social policy of developing countries and consequently must constitute one of the objectives of planning where it exists.

Internationally, there must be very thorough scrutiny of all national or international policies aimed at conserving the environment which might lead to the creation of direct or indirect obstacles to the development of the least industrialized countries, whether by the creation of barriers to trade in some products or by unwarranted intervention in national plans for industrialization or town planning or by the application of new criteria in financing by official national or international credit and aid bodies.

International cooperation is fundamental to dealing with environmental problems; countries must formulate their national environment policies in accordance with their particular situations and in application of a sovereignty which, in cases of conflict, may and should be exercised through international, regional and bilateral agreements.

It is important to make, by mutual agreement, analyses of the environmental problems of frontier areas or common sea areas with a view to conserving the environment in keeping with the development policies of each country and the

territorial organization of the area under study by considering the interests of the countries involved to be common interests.

Health is the cleanliness of the environment as a basic contribution to the health of mankind and it is this which brings us together today. Without medical discoveries and epidemiological studies, we would be disoriented and ignorant of the influence of the environment on the numerous pathological effects which we were previously unable to link to their true cause.

Venezuela

Ten years after Stockholm, our societies are showing definite progress in the prevention and correction of environmental problems. At first sight, the achievements are noteworthy. We can see daily how any activity which preys on nature awakes the indignation of the community and how states have created standards and institutions and formed professional groups to tackle more surely and knowledgeably what was previously unknown. A society which does not use its resources is condemned to degeneration, decadence and disappearance, as is a society which wastes and destroys its resources through abuse, negligence or lack of adequate knowhow or a balanced appreciation of the double principle of use and protection.

Conservation is a dynamic process, established when nature is controlled in the service of society. It respects the ecological processes which govern the organization and functioning of the environment and uses criteria and technologies to avoid or alleviate risks of disturbing natural balances. The handling of resources and the conservation of the environment require collaborative agreements between neighbouring countries. The environmental sciences are relatively new and this fact determines the need to make the most of international experience in seeking solutions to the specific problems of each country. The type of environmental problems facing the developed countries and the solution to them are different from the problems and solutions of the developing countries. Efforts must be made to identify specific solutions to the problems of each country, without ever losing sight of its economic, social and cultural characteristics.

The developed world has acquired an awareness of the transcendent importance of natural resources and their conservation and care. It is aware of their importance but is not conscious of solidarity. This is why it acts aggressively against the natural resources of the underdeveloped or developing nations, to the point of exhausting or destroying them. It forgets the unity of nature, which reacts as any one of its parts reacts. It lacks solidarity, because what it knows it cannot do on its own sea or on its own land it does on the sea or on the land of others.

I am alarmed that the developed countries have shown a concern for the forests and soils damaged by our peasants in their search for subsistence, but never mention how their fishing fleets take their living away from our own small-scale fishermen and at the same time destroy our fish stocks or how the transnational corporations can sell equipment to destroy our tropical forests, or insecticides to pollute our waters, which in their own countries, are left over without commercial value, prohibited under the environmental standards which they themselves have issued.

After ten years, the need for the participation of the people and the urgent need to furnish the professionals and technicians with information on the environment and to create awareness in the man in the street have become more obvious. The change in man's attitude to the environment has still to be completed. Ten years after Stockholm, we stress the need for greater emphasis on environmental education and training programmes. The work of the next decade must, as a matter of priority, reinforce community training programmes.

Yugoslavia

Uncontrolled implementation of scientific and technological achievements has done enormous harm to the human environment. Progress has led to an undesirable imbalance in the ecological equilibrium of the biosphere. Nuclear tests, the arms race and war have considerably degraded the human environment.

The international community has realized the dangers threatening us. There are a great many indicators showing that the dynamic development of the developed countries has simultaneously created problems requiring considerable financial expenditure and urgent intervention in order to prevent a further aggravation of the prevailing situation.

Nevertheless the problems of the human environment in the developing countries are neither less serious nor more simple than in the developed countries: the problem is universal. It reflects the interdependence of all countries and calls for universal action in the undertaking of adequate measures. Regardless of the specific problems arising in certain regions, and even in certain countries, what is at stake here is the common destiny of all mankind. However, finding themselves in the initial stage of their economic and social development, when they should extricate themselves, primarily, from the state of age old backwardness, in which the developing countries have found themselves through no fault of their own, these countries have been exerting enormous efforts in order to make up for what they have failed to achieve in the past. It is the obligation of the international community and of the industrially developed countries, in particular, to assist them unselfishly in this process through economic and financial assistance, current scientific achievements, transfer of technology as well as to endeavour not to aggravate, by their measures for the protection of the human environment, the already unfavourable position of the developing countries. It is not necessary to emphasize that this assistance is not only in the interest of the developing countries, but that it constitutes the component of a unique process which can ensure prosperity and offer brighter prospects for the development of mankind as a whole.

Bearing in mind the present world situation, the responsibility for the settlement of these problems rests primarily with individual countries. Only on the basis of their consent and readiness can appropriate international legal obligations of a bilateral, regional, subregional and global character be adopted. This should be the basic characteristic of all the decisions and recommendations of this conference. In this way, full expression will be given to the various interests of individual countries, with a simultaneous readiness to tackle the solution of problems transcending the borders of one country or region.

My country belongs to a region where the problems of pollution of the human environment are most obvious, this being, for example, the case of the Danube basin. It is interested therefore in all forms of cooperation, on the bilateral, subregional and regional level.

Despite considerable successes on the economic plane, my country is still a developing country, within whose borders we are faced with the serious problems of underdeveloped regions. For this reason, the problems of the developing countries are close to us and we understand them very well. At the same time, we understand the problems of the developed countries. Owing to our geographical

position and the close interconnection of the problems of the human environment in our country, which are very often identical with those of the neighbouring countries, we are faced by the imperative need to cooperate with our neighbours as well as with other European countries. The cooperation of my country with Italy with regard to the protection of the Adriatic points to considerable possibilities for the achievement of results in which our two countries, as well as the other countries of the Mediterranean region, are interested.

Yugoslavia

Although Yugoslavia is relatively more developed than some developing countries, we are still facing many of the environmental problems characteristic of many of those countries. This goes for the causes of environmental degradation as well as for environmental assessments and measures to be adopted in the area of environmental development. We consider the solution of problems of internationally shared waters, and of the Danube in particular, exceptionally important. In future, we will continue to make efforts to find joint solutions for these vital natural resources which are of interest to several countries.

The present state of environment, at all geographical levels, is a challenge for all of us. Many results can be considered encouraging; but at the same time, the seriousness of some problems is disturbing. A number of key environmental problems still exist in the context of socioeconomic development. The international community has been confronted with serious difficulties in the economic, political, social and cultural spheres which are worsening due to the constant arms race, which utilizes resources required for socioeconomic development.

Serious dilemmas about patterns of development and lifestyles have emerged. It has become quite clear that the international community is at a turning point when it is to be decided whether we should pursue the so far dominant irrational patterns of development and lifestyles or search for such development concepts as well as methods and tools for their implementation, which would guarantee the promotion of well being throughout the whole world and human life free from fear.

The future will certainly bring numerous technological solutions. The utilization of nuclear energy for peaceful purposes, for example, could open up still undiscovered opportunities and accelerate economic development. However, we must make all possible efforts not to let complacency have a negative effect on our use of natural resources.

All the countries in the world share the same destiny. Ever growing interdependence directs us clearly towards more decisive joint action in seeking solutions ie to determining an appropriate global strategy of development, taking into account all geographical, socioeconomic, political and cultural characteristics of countries.

Developing countries desirous of accelerating their economic development are often not in a position to pay due attention to the protection of the environment. Despite political consciousness and will, which is present in these countries, their level of development and their position in overall international relations does not make this possible. This is why the environmental problems of these countries, as a consequence of poverty, are becoming more serious. It is very clear that they can be dealt with successfully only through development itself, on a new basis and in the context of significantly changed international economic relations which would ensure a more equitable distribution of world income. Certainly this supposes fundamental changes in international political relations. This is the only way in which we shall achieve the ideal of environmentally sound development for all on this only one earth.

Zaire

The crisis which is now awakening the international conscience has mainly been created by the well off countries. In their desperate pursuit of industrial growth and the arms race they have come to the point of endangering mankind by the pollution of resources essential to life and by the stockpiling of nuclear, chemical and bacteriological weapons.

If the environment today occupies the centre of international concern, it is not only because of the threat to ecosystems, but particularly because the protection of lives against industrial pollution has become a profitable issue in terms of electoral propaganda in the developed countries.

The concerns which underly this campaign on behalf of the environment are in some cases a confession of guilt *vis-à-vis* the danger that the planet will be destroyed and an act of will expressing the determination to place the survival of mankind and his framework of life at the centre of growth objectives. For Third World countries, environment policy is above all a reflex against the repetition in their development effort of the errors committed by the developed countries. Third World countries are agreeing to join cause with the group of the haves and to subscribe to a new philosophy with regard to nature.

Zaire does not see the environment problem only in terms of pollution. For us it is not a question of depolluting and still less of reviewing a certain attitude to nature. To concern ourselves with the environment is to aspire to social promotion, an ever higher level of living and the greater well being of our people and of all people. It means using our land in a coordinated and thoughtful manner, and mastering the growth and the spread of our cities. It means training specialists to carry out the land use activities included in our development programme with full awareness of the situation.

Decontamination requires costly investment in terms of research and technology. The cost of new industries must not handicap our incipient modernization effort. The help of the international community to developing countries must be characterized by less costly financial and human assistance if the already alarming projects of the handicaps I have mentioned are to be dispelled.

When a natural disaster occurs, there is a spontaneous surge of generosity; but, for the have not countries, far more serious catastrophes already loom on the long-term horizon and no one is paying any attention. It is easier to cure the sick during epidemics than to give bread to the living, by furnishing them the means of earning it through their work.

What we seek is the stabilization of commodity prices in order to allow us to draw up a coherent programme. True assistance is to seek that stabilization along with us, for not all the underdeveloped countries have means of pressure comparable to those of the oil producing countries.

In advocating the conservation of nature in our country, our hope is that, when the scientists have turned the world of the living into an artificial environment, Zaire will still exist as the last refuge of the authentically human, of the truly natural.

Zambia

In reporting upon the state of the environment in Zambia, I must stress that more than 70% of our population lives in rural areas. Their environmental problems are therefore rooted in underdevelopment. They need pure piped water supplies, elementary sanitation, adequate housing, roads, schools, hospitals and the opportunity to take full part in the life of the nation. My government recognizes these problems as of the greatest significance so that over the years, but in the shortest possible time and to the extent that our financial resources permit, the desperate situation of a nation divided between the haves and the have nots shall be resolved. This is of course an urgent problem for all developing countries.

In common with most developing countries Zambia faces a very considerable problem in rural-urban migration and the development of transitional settlements. Maximum efforts are being made to meet the situation through site and service schemes which include piped water supplies.

We have to conquer disease through the provision of health services, good sanitation and ensuring that our waters in the lakes and rivers are pure and in ample supply for the needs of the people and the production of their food. We recognize the need, which we are endeavouring to meet, of programmes of mass basic education, to teach our people the problems of hygiene, to conserve their natural resources and combat soil erosion through sound methods of agriculture and animal husbandry. We are painfully aware that so much more remains to be done in this area of essential activity. But as you will appreciate, the timetable is governed by overall priorities, with special regard to the needs of finance.

The mainstay of Zambia's economy is its great copper mining industry, of which we are proud. Zambia is the third largest copper producer in the world; the standards of our technology are equal to any and the quality of our copper is some of the finest available.

It is implicit that we have large smelters and we must admit that at present we discharge to the atmosphere about 75% of the sulphur dioxide produced in the smelting. We already have plans in progress to collect more sulphur dioxide which when converted to sulphuric acid will be used to increase copper production and this would mean that about 60% of present sulphur dioxide production would be discharged into the atmosphere. Any further increase in the amount of sulphur dioxide collected in Zambia is inevitably tied to development in copper production; and this requires finance.

Zambia accepts without reservation the moral obligation to mankind to minimize or avoid pollution. However, were there to be an arbitrary imposition of control of emissions, without regard to availability of finance or proven technology, to levels suggested by some developed countries, it would cost Zambia a significant part of its gross national product. As I have said, we have urgent need for finance for the whole country, especially for our rural development programme, so we must reserve for ourselves the privilege of allotting priorities. Furthermore, since the world cannot change its industry or habits overnight, I suggest that there is need for some organization to draw up international priorities, which of course should take account of the limited financial and technological resources of developing countries.

Nevertheless, Zambia accepts its obligation to minimize atmospheric pollution. We shall not attempt to avoid or sidestep the issue by saying that the extent of our contribution to worldwide sulphur dioxide emission is only one-quarter of 1%, or by saying that the geographical location of our copper industry and the atmospheric conditions ensure that most of the sulphur dioxide discharged falls on Zambian territory. Within the prerogative of national sovereignty we shall try to reduce the discharge of sulphur dioxide still further to a point where it will be beyond possible criticism. We shall use our own technological expertise to the maximum extent, but we would hope that the knowledge of processes developed in industrialized countries would also be made available to us. As a final comment on sulphur dioxide emission, I would like to point out that at present Zambia's industry is mainly tied to the production of hydroelectric power so sulphur dioxide emission from power generation is minimal.

Now I would like to mention water. The effluents from our mining, metallurgical and chemical industries are, after treatment, discharged into our rivers in which the resulting levels of pollution are less than the proposed limits.

Turning to the matter of our management and concern for the welfare of our wildlife resources, I wish to inform the conference that Zambia has 290 000 square miles and that no less than one-third of our territory is permanently reserved and regulated as national parks and game management areas, to which visitors, both local and from overseas, have access.

I now wish to turn to other aspects of the human environment beyond the boundaries of Zambia. I do so because we all agree that environmental problems transcend national boundaries. First, I address myself to the problem of the pollution of the seas, the international rivers and other sectors of the biosphere, including outer space, all of which lie beyond national jurisdiction. These areas have already been the subject of active consideration as to how they are to be preserved and used. Inasmuch as we agree that these shall be subject to a regime of law to ensure that they will be used only for peaceful purposes, we must also ensure that they are not used as free outlets for effluents dangerous to man and his environment.

I have already spoken of the high cost of implementing antipollution measures. It is Zambia's hope that the manufacturers of finished products will not pass on the additional costs arising out of these measures to the importing developing countries. We hope that these additional costs will be taken care of through subsidies wherever applicable.

Zimbabwe

Zimbabwe was not represented at the Stockholm conference because at that time our entire energies were being devoted to fighting a bitter and costly war for the liberation of our country. As a result we were unable to play any part in the international effort to deal with the environmental problems of the world. However, the position has changed since we achieved our independence two years ago and we are very glad to assume our responsibilities here.

In Zimbabwe, our communal land has become seriously degraded over the years, due to the increasing concentration of people. We currently have a massive resettlement programme in progress, in which it is planned to resettle 165 000 families or 825 000 people, over a period of three years. The pressures on our natural resources are therefore very considerable; especially worrying are the catchment areas for some of our major dams and proposed hydrological development schemes. There are indications that siltation is increasing, serious denudation of timber is occurring on a nation-wide basis and pollution problems are also emerging within the country, although fortunately these are still very limited. We are also concerned about pressures on wildlife as its habitat is reduced.

On the positive side, however, there is a very considerable conservation and environmental awareness, both within government and among our people and we are working very hard to ensure that our development is achieved with minimal destruction and that damage caused in the past is repaired. The changing political and economic climate in Zimbabwe has put the efficiency and effectiveness of environmental policies under serious scrutiny. Bearing in mind that we are working towards a socialist structure and that in practical terms environmental concern in Zimbabwe is now closely integrated with the socialist and egalitarian approach of economic and regional planning, development programmes are directed towards improving the quality of life for all our people.

Negotiations are currently taking place for practical assistance for national rural afforestation programmes aimed at halting the serious denudation of natural woodland in the country which I have already mentioned. The development of community and state afforestation schemes, which will ultimately relate to 20 million hectares of communal land, is planned to meet energy and construction requirements.

A valuable resource which Zimbabwe, like Kenya, has in abundance, is wildlife. District Councils are being encouraged to utilize this resource in their own areas, particularly in non-arable areas and those areas infested by tsetse fly to their own account, on a sustained yield basis, for the welfare of the people. Research on soil, forestry and wildlife management is reasonably well provided for in Zimbabwe. We are aware that economy and ecology need not conflict and that the development of our nation is dependent upon reconciling social and economic aspirations with environmental protection.

We reiterate that it is essential that every man, woman and child who shares the resources of this planet must be made aware that the wrongful use of natural resources leads to the deterioration of productive agricultural land, the pollution of air and water, the extinction of animal and plant species and the endangering of man's life support systems. Short sighted exploitation in the race for development

and power must be avoided. The global environment is the responsibility of us all and Zimbabwe looks forward to participating fully in international endeavours directed towards the protection of our planet's environment and thus ensuring the survival of mankind.

Allow me to conclude by saying that the global environment belongs not only to us today, but to future generations and we have a definite responsibility to assure the future inhabitants of this planet earth an environment that can sustain life. We have not inherited the earth, we have borrowed it from our children. *Salus populi est suprema lex* (the well being of the people is the supreme law).

**Statement by
National Liberation Movement**

Nairobi, 1982

Palestine Liberation Organization

We are living in one world with different parts. The living conditions of any of these parts strongly affect the other, in one way or another. Cooperation among nations is essential to improve the environmental conditions of mankind. As the Palestinian people are part of this world we are greatly concerned and ready to assume our share in the task of improving the environmental living conditions of peoples and nations, despite the difficulties in which the Palestinian people are living. It is hoped that soon the Palestinian people may be able to debate fully at future conferences.

Guns are the most dangerous enemy not only to mankind but also to the environment. The Palestine Liberation Organization is willing to cooperate with all international organizations to minimize as much as possible the impact of war on the environment.

The PLO has played and continues to play an efficient role to improve the environmental living conditions of the Palestinians. In this regard, the PLO will continue to perform its humanitarian obligations. We are part of the universe.

Statements of International Organizations

Secretary-General of the United Nations

While the environment provides a new source of great concern, we should not forget that development remains the highest priority. The problems of development and of the environment are a real challenge for mankind and we must learn to consider them in a suitable historical perspective and in a spirit of justice for all.

This is a problem that no country, continent, hemisphere, race or system can resolve on its own. It is a worldwide problem which concerns mankind as a whole. It is the action and behaviour of each individual, multiplied several million times, which can today have most influence on the situation, for good or for ill. Industrialists, workers, consumers, employees, rich and poor have suddenly understood that they are embarked on the same adventure and are all under a still latent threat from which, in the end, none can escape.

The deterioration of our common environment, of the atmosphere, the seas and the oceans, continues. The quality of the atmosphere and of our oceans depends entirely on the behaviour of countries. No historical crisis has brought home more clearly the interdependence of nations than that of the environment.

No political system preserves us from this threat; no level of economic development permits escape. We are all equal in the face of the danger – equally threatened and equally vulnerable. The environment crisis is a general one and therefore calls for group solutions. Above all we must set our political will to work with a view to the conservation and survival of the living and natural world on which all life depends.

The continued stockpiling of ever more sophisticated weapons of mass destruction directly threatens not only the environment but also the survival of mankind. Nuclear weapons have multiplied to the point where a few would suffice to annihilate all life on this planet. The practice of nuclear tests above ground poisons the atmosphere and underground tests are a potential menace to the atmosphere and the earth. Chemical weapons, particularly herbicides and defoliants, ravage precious productive land and risk rendering it infertile for ever.

The United Nations has a leading role to play where the environment is concerned; it reflects man's weaknesses but also his hope. Awareness of environmental problems brings people to look beyond the walls which until then they had considered to be unassailable national fortresses. The direction of growth has changed gradually towards less material objectives in the developed countries and towards more rational development in the less industrialized countries. The exploration of the problems of the environment opens up new prospects to developing countries. Much will be done and much will be undone. People will not remain inactive and that is where our hope lies.

Secretary-General of the United Nations

The theme of the Stockholm meeting was only one earth. Pictures of a tiny oasis of life suspended in an otherwise lifeless space reinforced the warning that the biosphere, the life giving system, was in danger. But there was little knowledge about the extent of the threat and the causes of environmental destruction. Some attributed it to overpopulation, others to new technologies. In some circles even the desirability of economic growth was being questioned.

Many Western nations prepared for the Stockholm Conference from the starting point that environmental impoverishment meant industrial pollution, loss of wildlife habitat and little else. On the other side, the developing countries tended to look on concern about pollution as the privilege of the rich and on pollution control as a brake on development.

Given these differences in perceptions of the environment, Stockholm could have turned into a non-event. Instead, what happened was a coming together of views. Poverty was seen as the biggest threat to the environment. The Third World nations would have no use for any form of environmental protection which impeded economic development. What was needed was a form of development which enhanced the environment, instead of degrading it. The other nations agreed and for the first time a major international conference, in eight separate recommendations, made a call for environmentally sound development.

After the lead given by Stockholm, a new view of the environment emerged which centred on the sustainable and equitable utilization of resources. What also emerged from Stockholm was the United Nations Environment Programme, which was the first organization in the system to have its headquarters in the Third World. Its mandate was to act as a catalyst for the efforts of governments towards implementing the Stockholm Action Plan and to provide an environment programme for the whole United Nations system.

Since the Stockholm conference, the world has witnessed an economic recession of grave magnitude. There has been an unprecedented wastage of this planet's natural resource base. The view still persists that the protection of the environment is a matter of secondary importance compared to apparently more pressing political and socioeconomic problems. But harsh experience in the years since Stockholm has shown that development which is not rooted in a rational use of resources, and is therefore damaging to the environment, lacks a sound basis.

UNEP, by working in close cooperation with governments, with other United Nations organizations, with its scientific partners and with non-governmental organizations, has advanced our knowledge of the environment considerably. We can now say with a large measure of confidence that we know what the major environmental problems are. Given the political will to solve these problems, the need now is to match the will with the means. Unless the developed nations are prepared to help the developing nations defeat poverty, the second major Stockholm goal, to protect and improve the quality of the environment, will remain elusive.

I am very hopeful that such a commitment to protect our shared environment will be made. In an age of resource depletion and pollution, there is a growing realization that the prosperity of the North cannot be separated from the fate of the

developing South. In 1982 it is abundantly clear that no nation can consider itself an economic and environmental fortress.

Environmental protection is no doubt an idealistic goal, but it is also a matter of collective self interest and practicality. Time after time, the decade since Stockholm has seen nations demonstrate that they are willing to put their concern for the environment above political divisions and, in certain cases, though less often, above short-term economic considerations. If the nations meeting here this week show that same willingness, I believe this session could present the world with a programme of action that would constitute a sufficient response to the Stockholm call to protect and enhance the human environment for this and coming generations.

Food and Agriculture Organization

Since its creation FAO has concerned itself with the development, on a sustainable basis, of agriculture, forestry and fisheries, in equilibrium with the productive capacity of the natural resources: land, water, grasslands, forests, wildlife, livestock, aquatic life and the great diversity of genetic resources. A methodology to assess desertification is being developed in cooperation with UNEP, UNESCO and WHO.

Work on genetic resources assessment and conservation is in progress within the framework of the International Board for plant genetic resources, covering food crops and trees. An International Panel for animal genetic resources, including also aquatic resources, is being established by FAO in cooperation with UNEP. A plan of action is being prepared for the conservation of marine mammals.

A programme on integrated pest control for cotton has been launched. This programme is now being extended for millet and sorghum in Africa and for rice in the Asia and the Pacific regions. A programme has been developed for the control of food and feed contamination, including a strong training component.

The last session of the FAO conference adopted the World Soil Charter, establishing a set of principles for the optimum use of the world's land resources, for the improvement of their productivity and for their conservation for future generations. The World Soil Charter calls for a commitment on the part of governments, international organizations and land users in general to manage land for long-term advantage rather than for short-term expediency.

Environmental issues are directly dealt with at the country level through a wide range of development projects such as soil and water conservation, forest and wildlife management, sand dune fixation, fuelwood plantations, integrated pest control, seed development, aquaculture and fisheries, livestock development, range management and training in various fields of environmental protection.

It is our experience over this last decade that environmental problems are directly related to the plight of poverty and hunger. We can hardly expect people to refrain from cultivating marginal lands if they have no access to better land or to respect the forest cover if this is their only source of fuel or to preserve the soil for future generations if the basic needs of their family are not assured. Solutions to environmental hazards cannot be dissociated from overall rural development. Sectoral approaches are not likely to be effective and neither will projects which do not involve the rural populations.

The tropical forest resources assessment, conducted with UNEP's support, has made it possible to obtain an accurate inventory of the forest resources and an estimate of their present trends in the developing countries in the tropics and subtropics. This assessment provides a baseline to be continuously updated and should lead to a permanent monitoring system of the world's forests.

For the grassland areas, a programme was developed, jointly with UNEP, to promote the ecological management of grasslands in arid and semiarid regions (EMASAR) involving a number of countries in Africa, Asia and the Near East. A methodology for the monitoring of grassland resources is being developed for the Sahelian region. An assessment of land degradation has been conducted in Africa, north of the Equator and in the near East, jointly with UNEP and UNESCO.

World Food Programme

Ten years after Stockholm there is a greater need than ever for all countries and organizations involved in environmental activities to combine their resources and efforts. The struggle against poverty, the greatest danger to the environment, has not been won.

WFP food aid has largely been directed to the rural poor, through projects executed by the governments of the developing countries themselves. While WFP's emphasis is on food production projects and on the improvement of nutrition it has supported many projects directly related to the preservation and improvement of the environment. These projects have, for example, been in soil and water conservation, flood control, reforestation, the improvement of sanitation and drinking water supplies and, of course, desertification control. WFP has supported over a thousand projects in more than a hundred developing countries with over \$4 000 million in food aid.

World Food Programme recognizes that no single organization, alone, has the resources human, financial or material, to tackle the complex tasks that need to be done. WFP earnestly seeks cooperation with other organs of the UN system as well as bilateral and non-governmental aid agencies.

Centre for Human Settlements (Habitat)

The United Nations Centre for Human Settlements (Habitat) was established three and a half years ago with a deliberately distinct mandate; a mandate different from that of UNEP and yet similar to it in many respects; global in character, central in its role of stimulating action at the national level, coordinating programmes within and outside the United Nations system and forward looking in its purposeful view of the future. In fact, the concept of UNCHS (Habitat) originated with a worldwide awareness and mobilization of ideas and commitments in Vancouver much in the same way as the gathering in Stockholm which sparked the idea of the global environmental programme.

The Commission on Human Settlements, the 58-member intergovernmental governing body of UNCHS, has just concluded its fifth session; but we are already looking forward to its tenth session in 1987 which will give us an opportunity akin to this one to measure the results of our efforts in the field of human settlements. The General Assembly has already decided in principle to designate 1987 as the International Year of Shelter for the Homeless. The activities prior to and during the year will be aimed at reviving the commitment to human settlements which was so manifest at the Habitat Conference in Vancouver in 1976.

The preservation of the natural environment and the achievement of a humane and efficient man made environment are, of course, complementary goals: certainly the problems of the natural environment can only be solved if the impacts of human settlement development are dealt with; likewise the condition of the natural environment has a decisive effect on the living conditions within human settlements. Yet we see disturbingly little recognition of the scale of these impacts and of the radical changes which will have to be made to cope with them. Let us take, for example, the question of urbanization and population distribution. There is an inexplicable tendency in many quarters to accept population projections as though they were mere sets of figures without any relationship to the real world, whereas they are probably the most significant statistics that could be studied by any decision maker in the social and economic fields. Perhaps there is some scepticism about the accuracy of the forecasts and an optimistic expectation that we might find in the future, say by the year 2000, that the United Nations had overestimated its projections of the urban population in developing countries. I hope none of us here is under such an illusion and I would go further to say that it is our duty to disabuse the minds of those who may be, particularly decision makers in governments. The plain unadorned fact is that no such errors in the projections will bring much comfort over the next 20 years, for even if the trends begin to shift today, there is still no conceivable way of escaping the prospect that, by the end of the century, the population living in cities in developing countries will have doubled, from a little over 1 000 million to about 2 000 million people and that 500 million people in the developing world will be living in cities of over four million inhabitants each. How these people will live and what kind of environment they will enjoy depends greatly on what action is undertaken today on the part of national governments and of the international community. The same applies to living and environmental conditions in rural settlements.

This urbanization scenario offers an immediate perception of the correlation

between human settlements and the environment. In this particular case, there is no doubt that the implementation of integrated socioeconomic, human settlements and environmental policies is the only tool we have at our disposal to ensure sound economic growth, manageable human settlements patterns and the best use of resources. The control and abatement of environmental degradation (air pollution, water pollution, soil erosion, destruction of terrestrial ecosystems) is a prerequisite to ensuring better living conditions in human settlements; but this is only a symptomatic and remedial approach. Advance comprehensive human settlements planning can avoid these effects by bringing the built environment into a sustainable balance with the natural environment. It is one of the main concerns of Habitat to increase governmental action in integrating human settlements planning with overall national development planning and in recognizing the environmental component of development planning. With this approach, we can identify strategies which will lead to a balanced distribution of population, economic activities and services; without it we can only see aggravation of the disruptions caused by existing development policies and approaches.

No development programme can be successful unless it focuses on the human being as the initiator and the beneficiary of such activity. It is well to remind ourselves that the purpose of all development action – be it economic, physical or environmental – is to benefit the human being and that the measure of our success is an improvement in the quality of life for mankind. Since all human beings live in human settlements, there is an obvious framework to which various actions, particularly those affecting the physical environment, can be linked and this is the framework of human settlements.

A comprehensive human settlements framework can accommodate all the social, economic, administrative, technological and physical elements of development and can link environmental concerns to those elements with which there should be interaction. This will enable common goals to be identified and trade offs between divergent goals to be measured. In my view, the lack of broadly identified interrelationships between environmental concerns and the sociophysical elements of development is a serious problem in moving environmental efforts forward into the next decade. To illustrate, environmentally sound technology is a specific area where the goals of UNEP and UNCHS coincide. Since human settlements are the places where people live, it is in human settlements that the appropriate economies of scale can be found to adopt environmentally sound technology. Energy is one of the most important and promising fields of application for environmentally sound technology. UNCHS is concerned both with the adoption of energy saving criteria in human settlements planning and management and with the adoption of low cost and easily adaptable techniques to help solve the energy problems of the urban and rural poor. The adoption of energy saving techniques in the building process, the utilization of renewable energy resources and the recycling of waste material for energy and production purposes can all contribute to these goals.

Habitat has been developing practical strategies and instruments to assist member states in implementing the recommendations for national action. Several of these recommendations included environmental issues. One states that an integrated human settlements policy should be consistent with the preservation, restoration and improvement of the natural and man made environment and cognizant of the positive role of the environment in national economic and social development. Settlement and environmental planning and development are explicitly combined in another recommendation, which states that 'Settlement and

environmental planning and developing must occur within the framework of the economic and social planning process at the national, regional and local levels'. A third recommendation stresses the need for infrastructure policies which minimize adverse environmental impact. And the general principle is affirmed that the quality of the environment must be preserved in the development of human settlements. Soil conservation, prevention of pollution, and use of land capability analysis and long-term programmes of land reclamation and preservation are mentioned as important factors to be considered when increasing the supply of usable land for human settlements.

Today Habitat is executing human settlements technical cooperation projects in over 80 developing countries. Each of these projects, regardless of its size, seeks not only to help solve immediate and pressing problems but also to identify ways to promote adequate and replicable solutions to human settlements development. An integral part of any strategy for human settlements development is the adoption of environmentally sound criteria in the areas of planning, housing, infrastructure and services. This need has been recognized as a priority. We specifically stress the need to take action in the following two major areas: application of environmentally sound guidelines for settlement planning, building technology and provision of services and infrastructures; and, second, increased attention to rural development as a means of reducing the flow of population to urban centres. UNCHS looks forward to further cooperation with the United Nations Environment Programme in these areas and, in particular, to strengthening the environmental aspects of its technical cooperation activities which are designed to provide direct and tangible benefits to developing countries. Likewise, in our research, training and information dissemination activities we are cognizant of the environmental dimensions of human settlements.

International Atomic Energy Agency

IAEA's reaction ten years ago to the setting up of a new international machinery to deal with environmental issues was one which was not free from reservations and doubts, although the creation of a separate environmental fund to foster international cooperation in this vital field was quite welcome. However, our assessment today, after a lapse of ten years, is positive. The United Nations Environment Programme has been of great value in inspiring and guiding the people of the world, governments, international organizations and professional bodies, in the 'preservation and enhancement of the human environment'.

Energy demand throughout the world is increasing. This increase is mainly due to the continuing growth in population and the need not only to preserve the present standard of living but also the legitimate aspirations of people in developing countries to improve their existing standards and the quality of life. Total world energy consumption in 1980 was around 7.6 billion tons of oil equivalent and is estimated to increase to approximately 13-15 billion tons of oil equivalent by the year 2000. By the year 2030 it may rise to three or four times present consumption. This demand will naturally exert a very considerable pressure on all available energy sources. The sources that we can look to to meet this demand are fossil fuels, nuclear energy, hydropower and, for the future, solar energy and other renewable sources.

The most important sources are coal, nuclear and hydropower. We in the IAEA believe that nuclear power is one important component in the energy mix today and in the future. Ten years ago nuclear energy provided only 2% of the world's electricity generation. In 1980 the contribution of nuclear power to total electricity generation was about 8%. The trend shows clearly that the share of electricity from nuclear energy will continue to rise and is likely to grow to 18% in 1990 and 20-24% in the year 2000.

Turning now to the activities of the IAEA in the field of environment, the high priority given to safety and environmental aspects of the peaceful uses of nuclear energy stems from the general objective of the agency, which is to ensure the safe utilization of nuclear energy and the protection of man and his environment from the harmful effects of nuclear radiation and radioactive and non-radioactive releases from nuclear facilities, including nuclear power plants. Since 1972, the IAEA programme related to environment has grown substantially. The financial outlay over this programme for the year 1982 is about \$12 million, which is about twelve times that in 1972, while over the same period the total consolidated budget of the agency has gone up by about five times. This gives an indication of the importance that the agency has attached to matters connected with the environment. During the past ten years, IAEA has published under approximately 130 different titles, 200 volumes of technical documents, reports, proceedings etc encompassing the wide field of environmental problems related to nuclear energy.

The most important activities of IAEA in this field can be classified under nuclear safety; radioactive waste management; marine environment protection; and transport of radioactive materials.

The fundamental radiological requirements on the basis of which all safety goals are being derived in the above areas are the Basic Safety Standards for Radiation

Protection. The agency has first issued these standards in 1962, revised them in 1967 in the light of the new recommendations on the concepts and principles of radiation protection made by the International Commission on Radiological Protection. This task was completed during the last year jointly with WHO, ILO and OECD. These standards are intended to serve as guidelines for member states and to act as a basis for drawing up their national regulations for radiation protection of the workers and members of the public. The agency believes that the basic safety philosophy and the sophisticated techniques employed in radiation protection under these standards could serve as an example to other industries whose activities involve hazards to man and his environment, in developing their own standards.

The main objective of nuclear safety is to keep the radiation exposures received by the workers and the public from the nuclear facilities to levels as low as reasonably achievable and in any case lower than the permissible limits, during normal operations. In addition it is also to provide sufficient safety features to reduce to very low levels the probability of occurrence of potential accidental situations giving rise to uncontrolled radiation exposures and to provide features to mitigate the consequences should such an accident occur. Thus, safety considerations are required to be applied for the site selection, design and construction, commissioning, operation and maintenance and for emergency planning and preparedness.

The Three Mile Island nuclear power plant accident in the USA, which occurred in March 1979, led to an extensive investigation by many nations into the safety aspects of nuclear power plants. Even though this was the worst accident in the history of the nuclear industry – caused by human error, with its severity enhanced by equipment failure and some design deficiency – there was an almost complete containment of radioactive materials within the plant. The radioactivity released was insignificant and produced negligible health consequences; but the economic losses were heavy. Whereas no fundamental change is necessary in the design of nuclear plants, safety could be improved by giving more attention to 'man machine interaction' and to operator qualifications and training. Work on establishing an international reporting system for abnormal occurrences and annual meetings for assessing the information obtained has been initiated recently.

The future growth of nuclear power and its acceptance by the public depend to a large extent on providing tangible evidence that radioactive waste can be handled and disposed of effectively and safely. The IAEA has continued its activity in this field throughout the past decade with greater vigour by reviewing and compiling information and data, encouraging research and providing guidelines and a forum for an international exchange of information.

In particular, the agency has been reviewing the various techniques and practices for the safe handling, treatment, conditioning, storage and disposal of various types of radioactive wastes. A comprehensive programme on the underground disposal of radioactive waste was launched in 1977 to prepare a set of reports and guidelines for disposal into deep geological formations, rock cavities and shallow ground repositories. The programme will provide guidelines on matters such as what criteria should be used, what investigations should be carried out and what regulatory procedures should be followed for siting, design, construction, operation and shut down of underground repositories and how safety assessments should be made. Much progress has been made over the last ten years in finding technically and environmentally suitable solutions to the radioactive waste

question. What remains to be done is to demonstrate the feasibility of these solutions in actual waste storage repositories. As the volume of wastes involved is not large, this is an area where regional or international cooperation should be fostered.

The London Convention on the Prevention of Marine Pollution by Dumping of Waste and Other Matter assigned to the IAEA the responsibility of defining those radioactive wastes which should not under any circumstances be dumped at sea and of recommending measures that should be taken into account fully for the ocean disposal of low level wastes that do not fall under the prohibited category. The recommendations made by the agency lay down the requirements for site selection, site-specific assessments, monitoring, packaging and operational control of dumping to be followed by national authorities.

The Agency's Regulations for the Safe Transport of Radioactive Materials have been adopted by most national authorities and have been incorporated in most international agreements covering the safe carriage of radioactive materials across national boundaries and by all modes of transport. A comprehensive review of these regulations is under way and a revised and updated version is planned to be issued in 1984.

Besides the environmental activities I have just outlined, the IAEA also has programmes on environmental pollutants which are non-nuclear in origin. I refer to the application of nuclear techniques for the measurement of non-radioactive pollutants, for example, the measurement of chemical fertilizer and pesticide residues which remain in the environment in concentrations difficult to determine by conventional methods. Such pollutants, and their effects, can be determined in some cases with much greater ease and accuracy by employing nuclear techniques rather than conventional methods. The IAEA is paying considerable attention to such activities which not only aid in determining the quality of the environment but also allow means to monitor and exercise control in protecting and improving the environment. Mention also should be made of the sterile insect technique as a method in integrated pest management to minimize the need of insecticides.

With regard to the assessment and development of ground water resources, particularly in arid and semiarid regions in the developing countries, there has been a marked increase in the use of isotope techniques. The agency has conducted ground water field studies in many countries and has rendered advisory services on isotope hydrology to many member states. Recently there has been a trend to develop regional programmes either to encourage the use of this technology or to tackle problems associated with the development of a regional ground water system.

The nuclear industry has had an excellent safety record. Perhaps there is no other industrial activity which has devoted so much attention to problems of safety and protection of man and his environment as the nuclear industry. The information generated has in many cases set examples and provided useful guidelines for others. Nuclear power has distinct advantages as it releases into the atmosphere neither chemical compounds – notably sulphur and particulate pollutants – nor the large amounts of carbon dioxide which are released by burning of fossil fuels.

The routine releases of radioactivity from nuclear reactors and facilities are so low that the global dose imparted by the currently installed nuclear capacity has been estimated by the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) to be considerably less than 1% of the dose received from natural sources. From the above considerations it follows that, from

the point of view of environmental protection, there are no reasons known which would restrict the further industrial development of nuclear power. Assuming that the projections for the total electricity generation for the future will be realized, the growing nuclear contribution could reduce the burden placed on the environment by burning fossil fuels.

International Labour Organization

The ILO has always considered the improvement of the working environment as one of its fundamental tasks. Many of the health hazards and noxious agents which are today recognized as general environment problems were initially identified and controlled within the working environment. The methods and means of action, which have been tested and applied for many years to improve the working environment, are highly relevant to sound environmental management today. Indeed, there are many interacting and overlapping aspects between the working and the general environment. That is why it is important that the extensive code of ILO standards on safety and health and working conditions should be effectively applied in the interests of both the working and the general environment.

The ILO has a very extensive vocational training and management development programme which is carried out through diversified institutional networks for training of enterprise managers, technicians and skilled craftsmen. All of these are critical agents in development. Managers, in particular, constitute a key group whose decisions can have a direct impact on the environment. It is therefore important to include environmental elements in managerial training programmes and this is precisely what the ILO has started doing in an ambitious programme designed to raise environmental awareness among managers and enhance their capability of decision making in this field. In parallel we have also convened a meeting of trade union representatives from 25 countries, in order to enable them to discuss in depth environmental policy issues which are of particular concern to workers and their organizations, such as environment and employment, the role of trade unions in national and local environmental matters, the costs and benefits of a better living environment for workers. We are now in the process of establishing, in cooperation with UNEP, a similar programme for employers in developing countries, beginning with the African region.

Other target audiences, for which the ILO has developed training networks, and where there is still scope to build in environmental components, are labour administrations, cooperatives, social security institutions, rural development agencies and so forth.

The third, and perhaps the most significant area of our cooperation in a long-term perspective, is environment and development. Both ILO and UNEP recognize that the fundamental objective of development policy is to achieve rapid growth, with adequate attention to the satisfaction of the basic needs of the people, especially the poor, on a sustainable basis. The eradication of poverty through the rational use of natural and human resources is one of the biggest challenges of our times.

In essence, both organizations share a common concept of development objectives which takes into account the complex interrelationships between environment, resources, people and development. We have cooperated in the promotion of labour-based and environmentally sound technology, in particular in the food processing industries, through the preparation of technical memoranda; work has been done on environmental considerations in employment promotion in the urban informal sector in developing countries and on the labour aspects of environmental policies in a number of industrial sectors.

Turning to the future, we must ask ourselves how we can carry the process started in Stockholm one step further during the coming decade. When we assembled ten years ago in the Swedish capital, enough was known of the deteriorating quality of the biosphere – oceans, atmosphere, water, land – and of the dwindling of exhaustible resources – fuels, minerals, genetic resources – to raise worldwide concern about the future of mankind on this small planet. During the past decade we have developed a better understanding of environmental processes through a global effort of monitoring and assessment. Yet our achievements in managing the environment have lagged behind.

Environmental management is not a matter of physical and biological resources alone. It is also an issue of social policy: how to change attitudes, to rearrange priorities in the allocation of resources, to modify consumption patterns, in short how to change lifestyles. It is not enough to monitor, to legislate, to accumulate data and knowledge. There must be a fully concerted effort to involve the main social actors in environmental decisions; there must be a commitment to environmental improvement at the national, local and enterprise levels, no less than at the global level. This commitment, this political will, is the role of government, employers' and workers' organizations and other non-governmental organizations at the national level.

The task ahead is not an easy one. In times of economic recession, persisting inflation and widespread unemployment, together with high levels of expenditure on armaments, there is a strong temptation to go slow on social progress as a luxury we can no longer afford. Environmental improvement is no exception; powerful voices are raised in various countries demanding that the environment be put aside for the time being, until health is restored to the economy. But should the question not be raised as to whether environmental improvement, far from being an obstacle to development, is not conducive to economic growth and social welfare? Let us remember that structural and technological change is taking place in the world in any case owing to a multitude of factors and adjustment assistance is being provided to ease the transition. In fashioning our policies and programmes it is surely easier and cheaper to prevent environmental damage than to correct it after it has occurred.

We in the ILO are ready to share with UNEP our experience on how to promote social progress in a world rent by many divisions. Our organization draws its strength from its unique tripartite structure, in which the main actors in the labour field – governments, employers and workers – participate on an equal footing in the shaping of its policies. This is only natural, since we have been engaged for more than two generations in a global effort to improve the working environment. Today, the working man expects more than mere protection against occupational accidents and disease. He aspires to a better quality of life, more meaningful jobs, more opportunities for participation, access to leisure and a better living environment for himself and his family. In collaborating with UNEP the ILO fulfils its own primary mission.

International Maritime Organization

The International Maritime Organization is solely concerned with the sea and is charged with the dual responsibility of promoting safety of ships, human life and property at sea and the protection of the marine environment from pollution arising from maritime transport activities. Since its inception in 1959 the protection of the human environment in general and of the marine environment in particular has been one of the main objectives of the organization. We have developed a comprehensive package of international standards dealing directly with deliberate or operational pollution from ships as well as with the interrelated problem of maritime safety that contributes very substantially to the prevention of pollution caused by maritime casualties of the magnitude, for example, of the Amoco Cadiz disaster off the French coast.

As is evident, we have produced a great deal of legislation and we believe that these rules and standards for the prevention and control of marine pollution, supported by more specific codes and guidelines as well as technical advice and assistance, provide an effective basis for eliminating intentional pollution and minimizing accidental spillages.

My last point is the promotion of national and regional capabilities in combating marine pollution in cases of emergency. This has been identified as one of the principal objectives in IMCO's marine environment protection activities and has been pursued primarily by active participation in the UNEP Regional Seas Programme. IMCO has prepared draft legal instruments on this subject, which have been subsequently adopted in many regions and has pursued various programmes within the framework of the UNEP Regional Seas Programme to enhance emergency response capabilities at national and regional levels.

United Nations Development Programme

The successes of UNEP have been many and its relationship with the United Nations Development Programme has grown closer over the years. At the risk of slighting by excluding, I would like to single out one achievement which has given me much personal satisfaction and encouragement and which has pointed a way to allay the fear that economic development and environmental concerns are necessarily incompatible. The signing in February 1980 at UNDP headquarters of the Declaration of Environmental Policies and Procedures relating to Economic Development has been a major step in establishing an institutional framework in which the problems relating both to the environment and to economic progress could be dealt with in a mutually fruitful way. Cosponsored by UNEP, the World Bank and my own organization, the Declaration was signed by nine international agencies and development financing institutions and has already served as an effective mechanism in helping to insure that advances in development are not made at the expense of the environment which, in the final analysis, supports us all. More, much more, needs to be done. But the Declaration provides a substantial part of the international development community with the policy structure within which more, much more, can be accomplished.

United Nations Educational, Scientific and Cultural Organization

The fight for the environment must not cease. Like the fight against famine, against poverty, against ignorance, it is now an integral part of world problems. While much success has been achieved during the last few years on some environmental fronts, the battle continues and new fronts and new challenges are already emerging in man's difficult relationship with his world. It would be fatal to imagine that the fight can ever cease.

Our knowledge of the environment and the consequences on it of our acts is very incomplete.

When our knowledge seems adequate, we see that it is not applied. We have to date done virtually nothing to ensure the applicability of the results of our research. In most cases we have accepted the formulae of the scientists, engineers and economists without taking into account considerations of a sociological, psychological or cultural nature.

When our knowledge at last seems adequate for concrete activities, we come up against the formidable obstacle of habits and attitudes and the gulf which separates the desirable from the possible. Owing to a lack of adequate education and information, there are few people anywhere who understand the operation of the systems of which they are part and on which their existence depends and who are not in a sense strangers in their own environment.

There are three main lines for future action: the strengthening of scientific studies on the environment and the use of its resources; the development of an interdisciplinary and intersectoral approach in the concrete solution of the problems; and the promotion of vigorous action for education, information and communication concerning the environment.

We must do better than we have begun to do and ensure the quality of our joint activities and clarify in detail the role of the partners. Our own environment programmes and our own resources must be brought to a level compatible with the implementation of the missions entrusted to us. Programming on the system scale and thematic programming should together constitute precious means of attaining this end.

Wars are born in the minds of men; it is in the minds of men that the defences of peace must be set up. It is men who have unleashed the problems of the environment and it is, then, again in the minds of men that the defences of the environment must be established.

United Nations Fund for Population Activities

Understanding and, more importantly, solutions to the list of environmental problems which form the core of the agenda in these days cannot be achieved without taking the issues of population change and distribution into account. There is no problem that is not in some way affected by population dynamics.

The importance of population factors in the process of development was only beginning to be understood and accepted by the nations of the world when the United Nations Conference of the Human Environment was held in 1972 in Stockholm. In that year fewer than a quarter of the countries of the developing world had official policies on population issues. Today virtually all developing countries have population policies which include aspects of migration and population distribution as well as fertility and growth.

The task before us all is to ensure the integration of population with development planning so that the necessary balance between people, resources, environment and development is assured. Our common goal, whether we start from a perspective of population, environment, resources, human settlements is the same: to ensure human dignity, a decent standard of living, a life quality for all people, wherever they live and whatever their beliefs. And it is to this end that UNFPA has devoted itself.

Since the Stockholm conference in 1972 UNFPA support for population activities has grown in line with the increased interest of governments in population issues. By 1981 the Fund's annual budget had increased to US\$ 131 million and UNFPA was assisting 1 303 projects in 126 countries of the developing world, bringing to 141 the total of countries assisted since 1969. Population, including family planning, is no longer an overly sensitive issue, but is increasingly perceived by governments of developing countries as an important element in planning for the future well being of their citizens.

Nairobi, 1982

United Nations Industrial Development Organization

Since the Stockholm Conference, UNIDO and UNEP have worked together in many areas. Joint training programmes, industrial information exchange and studies of environmental considerations in the leather producing industry, the iron and steel industry, rubber industry, sugar industry, petrochemicals industry, textiles industry and other industries have been carried out. UNIDO has cooperated with UNEP in implementing the Regional Seas Programme through conducting regional surveys on industrial pollution control and other studies in more than sixty countries. UNIDO and UNEP have also worked together in environmental planning through the activities of the Thematic Joint Programming Meetings including industry and environment, technology and environment and the working environment. At present, UNIDO is cooperating with UNEP in the areas of chemical industries, bauxite and aluminium industries, iron and steel industry, pulp and paper industry, industrial information exchange and in the Regional Seas Programme.

United Nations University

The Stockholm conference was an effort to focus the attention of the governments and the peoples of the world on the growing threat that human endeavour, collectively and individually, posed to our planetary life support systems and the finite supplies of air, earth and water on which they function.

The conference came at a time when perceptions about the importance of environmental issues was already changing: more and more people were coming to realize that the state of our forests, lands and waters was not a diversion for a few ecology enthusiasts, but of deadly serious urgency for the whole world. Stockholm undoubtedly helped to accelerate that change. So too did a series of jarring environmental shocks that marked the early 1970s: in the drought stricken Sahel, in the suddenly fished out Peruvian waters, and, above all, in the ending of the era of cheap oil, an event with immense and far reaching environmental consequences for the globe's forests and croplands.

As we look at the economic and political problems and difficulties we now face today, it is difficult to recall that it was Stockholm that made the concept of the environment a concrete and living reality at the local, national and international levels and set in train many developments and action programmes and institutions that have made environment a household word the world over. To this extent, then, much progress was made and continued to be made over the decade in man's relations to the environment.

Yet for all the environmental lessons which the past decade *should* have driven home, the realist is forced to conclude that few actually were. However much awareness and knowledge of environmental problems might have increased in the ten years since Stockholm, it has not resulted in much effective or concerted action to do something about these problems. One hard question that must be asked, then, in evaluating the impact (or lack of it) of Stockholm, is why have the action programmes adopted by these conferences have been so singularly unsuccessful when measured against the goals that were set and the limited resources that were made available.

The knowledge that has been generated about the environment in the last ten year has left major gaps – evidence of the degree to which we have become prisoners of our habitual academic inclination to approach something as immensely complicated as the environment primarily along single disciplinary lines. Such narrow approaches – however much they might deepen understanding of one particular area – will avail us little in trying to unravel the tightly knit web of social, political, economic, technological forces and ecological balance that are involved in most environmental issues.

The difficulties that hindered the effective implementation of plans of action at the national level have proved much greater than were expected. Among these we can mention the inadequate data base and lack of analytical tools with which to clarify the different trade offs, not only between the economic and environmental imperatives, but also to reconcile the differential impact of environmental intervention on different regions of the country and on different segments of the population or to work out the technological or other solutions which might turn such conflicting interests from zero sum games to plus sum games. The most crucial and

difficult problem has turned out to be how to deal with the profound and complex linkages between environmental deterioration at the national and global levels and the persistent deep poverty in the poor countries of the world, thereby resulting in the failure of environmental policies that do not take into account the food and energy needs of the poor and their economic and social interests generally. Where separate ministries or agencies for the environment were established, they have often proved to be incapable of dealing with indifference and hostility or of reconciling conflicting policies and bureaucratic interests, as well as powerful, commercial, vested interests.

All these problems testify to the failure to identify adequately the critical management issues in the policies adopted and the failure to develop suitable management tools for the task. They also highlight the failure of educational systems to develop the necessary manpower and the management expertise for the purpose. As a result, our collective capacity to monitor environmental change has proved incapable of keeping up with the rate of environmental deterioration in many areas. Many Third World countries can make only the crudest guesses about the extent of exploitation, depletion and deterioration of their natural resources. Without this capacity, their ability to develop sensible and appropriate resource and environmental management policies is sharply limited.

Neither have we been able to arrest environmental deterioration on a global scale. We all know the figures. Some 18 to 20 million hectares of the world's forests disappearing each year; 6 million hectares lost annually to desertification; another million or more paved over or otherwise lost every year to urban sprawl; thousands of species disappearing, whose resistance to crop disease and blight might have been priceless future weapons against hunger.

Another sort of deterioration is equally disturbing — of the recognition that sensible and sensitive management of the environment is an essential partner of development. Instead, we are witnessing once again the emergence of the view that environment and development are rivals.

Ironically and sadly the view is gaining adherents not so much in the Third World (where it was once widespread) as in the first, where it is in evidence among those policy makers who hold that environmental concern and control are well and good so long as they do not interfere with the progress of business and industry and efforts to overcome the economic recession.

This point of view completely misses the recognition that production patterns which pay little heed to the environmental degradation or resource depletion are ultimately doomed and in their dying may create enormous and irreversible ecological havoc. The desolate wastelands in various riverbasins in the world which once were the locations of great ancient civilizations are mute testimony to this.

Thus environmental crises are not new. What is unique about the current one, however, is its rate and scale. What might in the past have been a deterioration over some centuries is now compressed into a few decades and it is happening everywhere on the planet. This highlights the particular folly of seeing environmental problems only in national terms. We cure one country's smog by building taller smoke stacks only to find that the increased height helps to feed another's country's acid rains. Who in such cases, speaks for the biosphere?

I fear the answer must be fewer today than at the time of Stockholm. What improvement there has been in environmental awareness and support over the last ten years has pretty much been confined to the national level; interest in international cooperation has actually declined. Yet in the waning of this interest,

we could well be ignoring, and at our peril, some of the most serious environmental concerns of this or any age: the irreversible damage that we could be wreaking on those regions of the earth's crust and atmosphere in whose protection and preservation all living creatures have a stake. These global commons – our climate, our tropical rain forests, our seas, our soils and other essential components of planetary life support – can only be efficiently monitored and managed on an international and on a regional basis.

The commons of English country towns in the eighteenth and nineteenth centuries suffered destruction from decisions by individual farmers to enlarge their herds with no heed to the consequences for the grazing needs of neighbouring farmers. The ultimate result was exhaustion of a common resource by overuse to the detriment of all users.

So too it could be with the global commons. If individual nations continue to overload the atmosphere with carbon dioxide, overfish the seas or recklessly destroy tropical rain forests – with little heed to the larger international interests – it will only be a matter of time until these commons suffer irreversible damage.

This points up what I believe to be the most fundamental and important environmental challenge that must be met in the second decade after Stockholm: the development of improved ways of managing the global environment ie the global commons. In many ways, the most important breakthrough on the environmental front would be the creation of innovative and imaginative new management tools. In his 1980s tool kit, the national and international policy planner needs no more notice of new committees or new agencies formed. He needs rather to know about ways to respond more flexibly, to adapt to the unexpected, to cope with the uncertain and to break down bureaucratic rigidities.

The management strategies that are developed need particularly to recognize how interlinked are environment problems and the problems of the poor. Much of the environmental degradation we are witnessing today – in soil erosion, deforestation, desertification, loss of genetic strains – is a result of the widening and desperate search by the poor for food and fuel. They simply have nowhere else to go but deeper into forests, higher up slopes, farther into grazing lands, pushing cultivation on to ever more fragile soils.

The future shape of the global environment will be determined by countless millions of decisions by individual farmers and villagers. Our ability to manage this environment will hinge on our capacity to cope with such decisions and incorporate them into our scientific and technological planning.

There are three particularly important dimensions to the development of appropriate environmental management policies at the global and regional levels. The first should be the recognition that we need to prepare planners and decision makers for the management of complex interactive systems. Environmental issues cannot be taken up one at a time: such attempts in the past have too often triggered other, often more stubborn problems. There is essentially no one single entry point into complex environmental issues; the approach therefore must be able to take many different aspects and levels of the problem into account simultaneously.

One thing that can stand in the way of the management of complexities at the national and international levels is single issue politics, which can divert valuable human and material resources away from broader and more complicated issues. Whatever their other merits, we have to recognize that at times single issue politics can be essentially a cop out, an abdication of broader and more complex sets of interrelated responsibilities to humankind requiring responses at different levels

and different degrees of sophistication. In each of our countries we will have to develop the political constituencies capable of doing so, as an essential element towards the enhancement of our environmental management capacity. The development of new forms of public education, of global learning, will have to be an important element of global environmental planning.

A second important consideration is the demonstrated incapacity to date of both governments and intergovernmental systems to cope with conflicts of interests. The examples are legion. In the field of communications, for example, there have been extreme difficulties and much inconclusive debate over the establishment of criteria for assigning priorities among legitimate but conflicting interests for the use of limited resources. In regard to satellite use, for example, who decides and on what basis the relative weight and importance to be assigned to the needs of meteorology, of navigation, of broadcasting, of remote sensing? Obviously, we need new management systems to cope with these kinds of conflicting demands in ways that are equitable and most beneficial to society and to the end-users.

A third management consideration should be of the international legal instruments that might be available to help regulate and enforce sounder environmental practice on a global basis. Ways need to be found to extend international law to cover a variety of human uses of the biosphere. The effort to codify the Law of the Sea marks a valuable beginning, perhaps, but it is significant that it has really very little concern with some of the broader and more long-term environmental considerations of marine resource use.

Given the reluctance that so many governments have displayed to date in establishing legal measures to enforce environmental practices, it may be that we have no other choice but to start at the international level first in establishing standards and agreements – in anticipation that national governments would then eventually follow suit.

I say this in no derogation of the sovereign rights of nation states. It is rather in recognition of the fact that there are certain pressing environmental problems that are too global in their implications and potentially capable of too disastrous an impingement on the lives of all humanity to be left untended.

In particular, therefore, we need to begin to design global and regional management mechanisms that can come to grips with problems such as those whose consequences threaten irreversible change and damage. By their very nature, these are the toughest and the most complex problems. But to put them aside in favour of the more immediate or the more solvable would only mean that they would still be there, grown larger, more cancerous and less likely of solution, during the lives of our children. Surely this would be a shameful abdication of responsibility to future generations?

To be able to take up such responsibilities, however, and to cope with the complexities they imply, may mean that we need some sort of institutional response that goes far beyond the present international bodies that now exist. I think we need to ask ourselves, in all candour, whether our present intergovernmental bodies have proved sufficient to the task. But even if there is more focused cooperation among the United Nations and other international agencies than is now the case, perhaps we need in addition to think about kinds of institutions and mechanisms that would represent not just the interests of governments, but also those of concerned publics along with the perspectives and values of scientists and other experts. Institutions, in other words, capable of representing and helping to manage the affairs of the many constituencies of the global commons.

Such institutions will need to encourage the kind of thinking that seeks neither the ideal or the possible solution, but rather the most desirable one. Insisting on the ideal can be a futile exercise, settling for the possible a timed one. However, finding desirable solutions to our environmental and resource needs will be a challenging task. This could require serious re-examination and rethinking where a country's sovereign rights regarding its own natural resources end and responsibility and accountability for the transnational and global impact of the manner in which these resources are used begins. Certain pollution abating policies and massive interventions in river flows for irrigation purposes, with significant transnational and even global impact on climatological conditions, or legitimate access to shared resources will force us to face up to these problems from a heightened awareness of human solidarity on the one hand but also from the recognition of the importance of the sovereign nation state in the process of decolonization, development and of the establishment of a more viable and just international order. We have to do this also if we are to develop an overriding sense of responsibility to the needs of future generations and a notion of transgenerational unity. Let me finish by quoting you some words of Barbara Ward's:

No matter how much we try to think of ourselves as separate sovereign entities, nature itself reminds us of humanity's basic unity. The vision of unity shared by so many of the great philosophers and so central to all the great religions is recognized now as an inescapable scientific fact. Could it be the vocation of this generation to give the planet the institutions of unity and cooperation that can express this insight?

World Health Organization

The ten years since the Stockholm Conference have witnessed important developments in establishing a better understanding and relationship between health and environment. This has been seen in national programmes as well as in certain international initiatives. Developments at the national level are, of course, the most important ones because substantial and lasting impact can only be gained if they are the result of national decision and national action. International gatherings like this are essential for governments to share experiences and collectively articulate and express policies and principles. The implementation will mostly depend on action by the individual governments, though the health-environment relationship has global and regional implications as well which require collective discussion and collective action to be effective.

In health a major commitment has been made during this ten-year period. First, representatives of member states met in Alma Ata in September 1978 for the Conference on Primary health care. They met to map out an approach to deal with the persistent poor health of some one thousand million people. The health conditions that still exist today can be illustrated very well by the fact that, globally speaking, infant mortality during the first year of life ranges from nearly 100 to 200 per thousand in most developing countries whereas in developed countries it ranges from 10 to 20. Diarrhoeal diseases are the major cause of these deaths. Some 800 million people live in areas where malaria has only been partially controlled and another 300 million people in areas that still lack active control measures. Other examples such as schistosomiasis and onchocerciasis could be added.

Primary health care includes amongst its essential elements the provision of adequate supply of safe water and basic sanitation and the prevention and control of locally endemic diseases. The examples I have quoted are among the group of diseases that have their origins in the environment where these people live.

Following Alma Ata, governments have established national strategies for health for all by the year 2000 based on primary health care. Included in the strategies are environmental measures which are aimed at providing safe water, safe food and sanitation. Based on these national strategies a global strategy for health for all was adopted by the 34th World Health Assembly last year. The strategy aims at creating conditions which would allow all people to lead socially and economically productive lives. One example of its recognition of the environmental dimension of health is that the strategy takes account of the targets of the International Drinking Water Supply and Sanitation Decade and established global indicators for monitoring and evaluation.

Another step taken during the last ten years is the action governments have initiated through WHO to increase knowledge of the effects on human health of chemicals in air, water and food, at the home, place of work and in the general environment. Health agencies as well as others throughout the world are becoming acutely aware that without sufficient knowledge of the lasting effects that exposure to chemicals can have they will be hard put to take remedial action. For WHO, the case of toxic chemicals is an outstanding example of the interaction of health, environment and development. The International Programme on Chemical Safety which was initiated in 1980 together with UNEP and ILO aims at generating

information which can be used to deal with this highly explosive question in the socioeconomic and political environments of each member state. As more and more nations, and not only the industrial countries of today, will have coped with communicable diseases related to the environment other environmentally induced diseases and health conditions will come to the forefront in national health programmes. There is little doubt that this will happen, in view of the rapid proliferation of chemicals of all types and the mounting evidence of their acute and chronic effects on present and future generations. The time to prepare ourselves for this is now and not tomorrow.

During the next ten years, attention given to health as part of environmental policy must continue at all levels and action must arise from national determination. Otherwise hazards to human health arising from the environment will continue as they are or increase because of the many developments which may be allowed to occur without proper attention to the health risks involved.

Like the United Nations Conference on the Human Environment held in Stockholm ten years ago, this session is challenged to re-emphasize the interdependence of development, environment and human health. It is my hope that it will do so, taking into account the need of all peoples in all countries, and that it will give particular attention to the poor people who suffer most from poor environmental conditions. During the next ten years:

- provision of safe drinking water supply and sanitation must be pursued vigorously as a major means of combating disease, primarily in developing countries and specifically for the protection of children;
- efforts must be increased towards better understanding of the risks of chemicals to health and of the exposure of populations, in particular those at higher risk and governments must make a much firmer commitment to pool their resources and cooperate in programmes such as the International Programme on Chemical Safety and the health-related component of the Global Environmental Monitoring System;
- application of environmental technology must be utilized in the control of such diseases as malaria, schistosomiasis and onchocerciasis; and
- the contamination of food by both biological and chemical agents in the environment should be effectively controlled and both producers and consumers be better informed of the hazards involved and of their own responsibilities in preventing them.

As the next ten years unfold, another challenge will be to cope better with the complex health issues brought about by the rapid processes of industrialization and urbanization and the resulting conditions of human settlements. Attention to the physical and psychosocial consequences of these developments has barely been touched in the past. These matters are closely related to the overall objective set out in Stockholm for 'a common outlook and for common principles to inspire and guide the peoples of the world in the preservation and enhancement of the human environment'. Now would be the time to give more priority to research in this area and to the practical applications of new knowledge to this end.

As you know, for WHO, 'health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' and it is my hope that this session will make a major contribution to achieving this condition for all peoples in all countries.

Economic Commission for Africa

At the outset, allow me to share with you our general philosophy at ECA regarding the relationship between development and the protection of the environment in Africa. It is our view that it is possible to have development without the destruction of the environment. Our guiding principle, therefore, is development without destruction.

I will briefly summarize for you some of the highlights of the Commission's activities regarding environmental matters since 1972. In fact, the Commission was involved with environmental issues as they relate to Africa prior to the 1972 Stockholm Conference. In 1970, ECA established an Environment Unit within its Natural Resources Division. This was the beginning of the Commission's involvement in environmental matters as they relate to development. During this period under review, the main theme of the Commission's activities relating to environmental matters has been the identification of major environmental problems in Africa and research into their solutions. Then UNEP and ECA began establishing the foundation for tackling environmental problems in the ECA region through the project on establishment and assessment of national environmental machineries in African countries. The project also promoted an awareness of major environmental problems in Africa as well as providing advisory services to government on the establishment of national machineries responsible for safeguarding and improving the human environment. As a result of these efforts by ECA and UNEP, there is now a government bureau or ministry dealing with national environmental matters in about 75% of the African countries.

Other joint environmental activities which have greatly influenced the work of the Commission relate to Africa's pattern of development and lifestyles and to environmental legislation. Regarding environmental protection legislation within the ECA region, a joint ECA/UNEP project was executed in 1980. The project brought together for the first time in Africa legal experts from governments, African universities and the United Nations system to discuss problems regarding environmental protection legislation in the ECA region.

Regarding interagency coordination, UNEP, as the lead agency on environmental matters, has encouraged other organizations within the United Nations system to involve ECA in their environmental programmes. There has been an increased element of joint programming in respect to regional projects touching on the environmental impact of agricultural activities, forest resources development, deforestation, desertification and remote sensing. The Commission's contribution to environmental health with WHO has been greatly enhanced during the last three years by its participation in the special programme for research and training in tropical diseases funded jointly by UNDP/WHO and the World Bank. The Commission is working closely on training programmes and demonstration workshops to combat desertification. Collaboration with UNESCO has been mainly on the development of marine science and technological capabilities in support of UNEP's Regional Seas Programmes in Africa.

I will now briefly outline our hopes and aspirations as they relate to managing the African environment for the decades ahead. Our hopes and dreams are complex but realistic. They are to declare war on poverty and underdevelopment. ECA is

also committed to use its energy and resources to promote self sufficiency in food and to implement the United Nations Industrial Development Decade for Africa within an environmental context of ecologically sound development. That means the promotion of a rational utilization and management of natural resources and energy within the framework of the interrelationships between people, resources, environment and development.

Regarding activities with member states and intergovernmental organizations, the reaction from governments of member states of ECA in favour of environmental considerations in development has been most encouraging. At policy recommendation meetings, various ministers and their experts have become increasingly conscious of the environmental dimensions of development.

Economic Commission for Latin America

Commemorating Stockholm means recalling once again the main messages of that meeting. They included an ethical message, a political message and a message of cooperation. At the ethical level, it was the first meeting that brought to the forefront the collective concern about common assets and the ethical commitment of the present generation to the preservation and improvement of the environment for the good of future generations; this is a simple but historically important principle when man's presence on earth is put into its proper perspective. Stockholm was the first time that ethical commitment of this nature was endorsed by all the nations of the world. The political message gave the environment a political and social dimension, the only level where there was unanimity among governments and where countries, especially of the Third World, found their concerns reflected and alleviation of poverty was seen as an integral part of improving the quality of human life. And there was the message of cooperation, borne by UNEP, a message which inspired the entire United Nations family, which inspired governmental organizations which inspired government and which inspired the academic world. This is all of great significance and I believe it would be wrong to consider that nothing has happened since Stockholm. Much has happened, especially in that the environment has become a legitimate concern in national policies as well as a legitimate concern in each and every one of the cooperation programmes of the United Nations system.

There is perhaps no greater testimony to the progress made than the experience of our region. I am very satisfied and very proud of the way in which Latin America has dealt with the environment and with the responsibilities it undertook in Stockholm ten years ago, with the commitment of politicians and heads of state in Latin America, the establishment of many institutions of the region, the adoption of codes and special laws dealing with environment, the incorporation of the environmental dimension into development programmes, food systems programmes and natural resources programmes. An entire generation of scientists, administrators and government officials has appeared in our region who are politically and institutionally committed to the environment, giving it a legitimacy that is being developed in the region and which has led to a whole range of original ideas.

We at ECLA have to learn from everyday activities undertaken in association with our governments. With regard to our responsibility towards the future, I would like to mention very briefly three of four areas which will occupy us actively in the coming years, since these are the priorities of governments themselves. First, there is undoubtedly the urban challenge. Our region has the dubious privilege of having the most populated cities in the world and all the serious social, political and economic problems associated with such new megacities. This will be a basic matter of concern in the coming decade.

We are also concerned with the environmental issues connected with the extension of agriculture, the problems of highland ecosystems and problems related to the management of the delicate forest reserves of Latin America, about which much is being done, much is being learnt, but much remains to be done. Yesterday

our delegates mentioned the concern for the problems of the wider Caribbean region. We are fully aware how this sea is affected by problems that not only jeopardize its ecology but also the very basis of economic and social development of the emerging nations of the Caribbean and also affect the countries bordering the sea.

We are concerned with energy problems and their relationship with environmental issues, especially the large-scale introduction into Latin America of new and renewable sources of energy and what this means in terms of environmental preservation. We are, however, aware, that the basic problem which was identified in Stockholm remains with us. A region with one-third of its people living in conditions of critical poverty continues to face a major challenge in terms of quality of life. And if we have learnt anything from the many years of dealing with these issues it is to see the structural basis of the phenomenon, which cannot be attacked either with foreign cooperation alone or purely with aid or charity.

We are more quietly convinced than ever that we are facing phenomena that are truly structural in character and which must guide us to action aimed at transforming the very styles of growth and development. Herein lies the great challenge. Such growth that cannot be based on expensive consumption for a few or on unjust international economic relations.

The main task is to elaborate and design means of linking development and environment, supporting new ideas and new concepts that would give our styles of growth a truly socially and ecologically self-sustainable thrust. At this meeting we will seek to renew our commitment to these issues and ideas. We are aware that in this area, as in any other, action by itself in a vacuum, without ideas or thought, can lead to only very meagre results. There is a need to stimulate thinking, since this type of activity, like every other, requires the elaboration of systems of ideas which are suited to our values, our national realities, our own history and our geography. This does not, of course, mean that we should ignore contributions from other lands or other fora: quite the contrary. We are aware that environmental problems have a definite universal basis. But we firmly believe in this need, and experience has shown us that there is a creative capacity emerging in Latin America. It is for this reason that we believe that the great issue, as well as the great challenge of international cooperation in this area, should be to strengthen national capacities and that the role of the United Nations is to lend support to governments and national institutions to do what they have to do. It is therefore important to maintain this focus in our cooperation, and it is also important to strengthen to the full horizontal cooperation mechanisms within our region and among developing regions. Positive experience proves that these elements, when put in place, show how countries are capable of creating and supporting themselves. This is the direction in which the cooperation of our world and regional organizations should head. In all this, there is a need to know more about the nature of the phenomena. We know little about some of the major problems that were raised in Stockholm and have been discussed since then. We know little about the development of the main patterns of consumption and production in the countries in our region or the relationship between international trade and these issues. The achievement of a deeper understanding of this subject is one of our priority tasks.

In conclusion, there may have been a number of frustrations over the past ten years. Expectations have surpassed achievements. We would, however, be most unfair not to recognize that in ten years the environment has been given a sort of political, economic and social identity within countries and at the international

level and this only in the space of a decade. What is a decade in the solution of the major environmental problems facing mankind? It is a very short time.

In spite of everything we approach this new decade with an accumulation of experience, with mistakes made and targets achieved. We are now more able to distinguish between what does and does not matter. We are more capable of setting priorities and much more able to use the financial resources available. With these experiences we have to identify ideas for the intelligent management of environmental issues and their relationship with development. We have to transform costs into benefits. I believe that it is quite obvious that there is little point in seeing the future simply in terms of threats to the environment without taking a constructive approach to the positive management of environmental resources. I am aware that governments and institutions are reacting much more positively to the challenge than to the threat and if environmental management shows us anything it is that management not only represents a cost but is also a benefit for the present and for the future.

World Bank

The issues before us are serious, but they are not beyond solution. Intensified research, precise analysis and decisive day to day action are what they most require. What they least require are anxious speculation and alarmist accusation. In my view, what clearly needs to be done is to examine the relationship between two fundamental requirements: the necessity for economic development, and the preservation of the environment.

I would like to outline the steps we are taking in the World Bank to deal with the ramifications of that relationship, and illustrate practical measures which are proving to be both feasible and effective. Finally, I would hope to suggest the general direction all of us in the international development community might most usefully pursue in integrating our mandate to assist in the economic advance of the developing countries with our responsibility to preserve and enhance the environment.

The state of development

We must begin with a candid appraisal of the state of development throughout most of the developing world. It is unacceptable.

It is unacceptable because hundreds of millions of people are living at levels of deprivation that simply cannot be reconciled with any rational definition of human decency.

Throughout the developing nations:

- hunger and malnutrition are sapping energy, stunting bodies, and slowing minds;
- illiteracy is locking out learning, and paralysing opportunity;
- unemployment is not only robbing men of the minimal means to make their way, but leaving their pride broken and their ambition atrophied;
- wholly preventable diseases are injuring infants, killing children, and ageing adults long before their time; and
- in sum, hundreds of millions of individual human lives – with all their inherent potential – are being threatened, narrowed, eroded, shortened and finally terminated by a pervasive poverty that degrades and destroys all that it touches.

The picture is not exaggerated. Throughout the developing world the estimates are that well over a billion human beings are hungry or malnourished. There are a 100 million more adult illiterates than there were two decades ago. Underemployment and unemployment entrap roughly one out of every five in the labour force. Infant and child mortality is four times greater than it is in the affluent world and life expectancy is 40% shorter. To alleviate pain and arrest disease, there are in some developing countries fewer than one doctor for every 50 000 people – compared to one per 700 in the USA.

These facts are neither pleasant nor comfortable. But they are facts. They symbolize the lives of three-quarters of the human race.

The dilemma of development versus growth

Current development programmes are seriously inadequate because they are not significantly reducing the poverty which shapes and limits these lives. And though the matter is complex, basically we know why.

There are two overriding reasons: the developing countries are not moving decisively enough to reduce the severe social and economic inequities among their own peoples; and the developed countries are not moving decisively enough to reduce the gross imbalance between their own opulence and the penury of the less privileged nations. The broad statistical evidence makes it clear that there is dangerously skewed distribution of income both within developing nations, and between the collectively affluent and the collectively indigent nations.

I will not recount that evidence here, but I would re-emphasize the conclusion: development simply cannot succeed unless that massively distorted distribution of income – both at the national and international levels – is brought into a more just and reasonable balance.

If it is not, the penalties of prolonged injustice are likely to be unavoidable. Restlessness will edge toward rebellion, and reason will give way to violence. Not only would they fail to assure development, it would prove to be catastrophically costly to rich and poor alike. If development is to succeed, action is required by rich nations and poor nations alike; and that action can only proceed in a climate of growth.

It is here that the complexity of the problem becomes apparent. For a poor country to operate an economy which distributes income among the people more justly, there manifestly must be economic growth. Without economic growth a poor country can only remain poor. There is little point in trying to redistribute indigence. But economic growth means manipulating the traditional environment.

As we now know well enough, it is at this point that injury to the environment can take place. If nature is abused beyond limits, its revenge is inevitable. If poor nations are faced with the problem of growth within acceptable environmental limits, the rich nations are clearly caught up in it even more seriously. We are meeting in this worldwide conference largely because the evidence is now overwhelming that roughly a century of rapid economic expansion has gradually contributed to a cumulatively monstrous assault on the quality of life in the developed countries.

The dilemma is this: the achievement of a level of life in accord with fundamental human dignity for the world's two and three-quarter billion poor is simply not possible without the continued economic growth of the developing nations, and the developed nations as well.

But economic growth on the pattern of the past – and most particularly that in the already highly industrialized wealthy nations – poses an undeniable threat to the environment and to the health of man. There is nothing artificial or contrived about the dilemma. It is very real. Both elements of the dilemma demand the most deliberate attention.

The question is not whether there should be continued economic growth. There must be. Nor is the question whether the impact on the environment must be

respected. It has to be. Nor – least of all – is it a question of whether these two considerations are interlocked. They are. The solution of the dilemma revolves clearly not about whether, but about how.

What is needed in this issue, and what has not yet been achieved, is the close cooperation of economists and ecologists, of social and physical scientists, of experienced political leaders and development project specialists. The manifest danger in the solution of this dilemma at the macrolevel is to oversimplify .

When that oversimplification suggests the imminent risk of overloading the planet's life support systems, or exhausting its essential resources, the developing peoples of the world are suddenly faced with a fearsome prospect. On top of all their present disadvantages, are they now going to be asked to forego their efforts at development in the name of preserving the already disproportionate (and still rising) patterns of consumption of the rich?

The poor are right to be indignant over such a prospect. But in my view that issue need never arise. It need never arise because there is no evidence that economic growth – which the developing countries so desperately require – will necessarily involve an unacceptable burden either on their own or on anybody else's environment.

The World Bank and environmental concern

Our subsequent experience has been that the most careful review of environmental issues need not handicap our fundamental task to get on with the progress of development. On the contrary, it can enhance and accelerate that progress. In cooperation with other development agencies, we have designed a careful set of guidelines, and have built into our whole economic assistance strategy a feasible method for correlating ecological protection with effective and cost conscious development.

By careful analysis, we have found, in every instance to date, that we can reduce the danger of environmental hazards either at no cost to the project, or at a cost so moderate that the borrower has been fully agreeable to accepting the necessary safeguards. Central to the success of this approach is the principle that in the issue of environmental damage, prevention is infinitely to be preferred to cure. Not only is it more effective, but it is clearly less expensive.

Responsible officials in the developing countries are aware of this. We in the Bank have found no evidence that they are unresponsive to what can be demonstrated to be a serious ecological hazard or a threat to health and social well being. It is unfair to suggest that the poor countries are indifferent to the environmental issue and simply dismiss it out of hand as a rich nation's problem. They do not.

What they are concerned about, and justly so, is that some of the rich – under the influence of doomsday alarmism – may be tempted to impose unilateral and unreasonable roadblocks on the poor countries' desperate need to develop. The poor nations, after all, have no desire to see their own environment contaminated or wantonly abused. But they also have no desire to remain caught in the permanent contamination of poverty. Our experience is that environmental protection can be built into development projects as competently and successfully as any other requisite element. Our project officers are thoroughly briefed on our environmental criteria and in their early discussions with potential borrowers draw

these considerations to their attention. Far from being resented, the considerations are welcomed. Since initiating our environmental review, we have found that in every instance the recommended safeguards can and have been successfully negotiated and implemented.

We have been careful to include in our environmental guidelines not merely physical and health-related factors, but cultural considerations as well. We are concerned in the Bank that a development project does not adversely affect the indigenous culture that the country wishes to preserve. When a project may require the relocation of people, we assure that plans are adequate for their successful resettlement, and that injurious disruptions to their socioeconomic opportunities are avoided.

Health factors are, of course, often involved in environmental considerations. In those instances where a development project may threaten to create a new or intensify an existing disease problem, the Bank incorporates in the loan agreement appropriate arrangements for the requisite preventative health care measures.

Nor does the Bank limit its operations simply to the environmental side effects of development projects. It finances many projects that are directed specifically at environmental goals – urban water supply and sewage treatment, for example, as well as soil erosion control and water resources management.

The fact is that the environmental criteria we have established in the Bank encompass the entire spectrum of development. They consist of a comprehensive checklist of questions designed to insure that foreseeable and injurious environmental consequences are carefully considered from the initial concept of a project, through its design stage, its actual construction and into its ongoing operation.

The range of the checklist includes sectors as diverse as textiles and tourism, power stations and paper plants, steelmaking and irrigation systems, fertilizer factories and harbour facilities – and many, many more.

What must be done

How can the international community – rich and poor nations alike – best proceed?

It is clear that in environmental matters the developing countries enjoy one of the very few advantages of being latecomers in the development process: they are in a position to avoid some of the more costly and needless mistakes the developed countries made in the past.

Now what does that imply? To begin with, what it does not imply is that late comers to the development process must forego industrialization and technological advance.

That would simply mean stagnation. It is easy enough for the wealthy to romanticize about the supposed charm of pretechnological society. But the plain fact is that there was nothing pretty at all about the squalid poverty which the common man – in what are now the affluent nations – had to endure in the pretechnological period. For the vast majority it was a life of destitution and disease. No one wants to go back to that.

Anyone in doubt has only to examine poverty in the developing countries today. The deprivation is appalling by any acceptable standards of human decency. It is not surprising, then, that those who call for a slowing down or a complete halt to economic growth tend to be those who are already amply provided with the advantages which that very growth has made possible. What I mean by the

environmental advantage of the latecomers to the development process is that they can far more easily and inexpensively build into their industrial infrastructure the practical preventative measures necessary to avoid the ecological damage the developed world has already suffered. Our experience in the Bank confirms this. There is an increasingly broad variety of antipollution technologies available to the poorer countries – technologies the affluent countries have had to develop at a far later and more difficult stage of their industrial expansion.

As the affluent nations continue to take their environmental problems more seriously, they are going to discover a whole new range of technology to abate and avoid ecological dangers. The less privileged countries can adapt these technical advances to their own local conditions. The danger that we will fail to achieve our twin objectives of advancing the development of the less privileged nations while preserving the environment stems not from technological weaknesses but from potential failures of political will and social responsibility.

Ecological considerations have made us all more aware of the interdependencies of our world. We have come to see our planet as 'spaceship earth'. But what we must not forget is that one-quarter of the passengers on that ship have luxurious first-class accommodation and the remaining three-quarters are travelling in steerage. That does not make for a happy ship – in space or anywhere else. All the less so when the steerage passengers realize that there are at hand the means to make the accommodation more reasonable for everyone.

Have we the political and social awareness to give more attention to the present living conditions of the overwhelming majority of the travellers? It means, in practice, making available more development assistance and removing inequitable trade, tariff and other discriminatory barriers. Those barriers are blocking the mutual benefits that can flow from application of the principle of comparative advantage. Justice and intelligent self interest both suggest that it is wiser to open a vital bulkhead on increased opportunity than to keep it senselessly sealed in the name of some narrow and parochial protectionism.

There should be no question about whether the wealthy countries can afford to combine rising domestic environmental protection costs with increased development assistance for the developing countries. It is clear that they can. The continued growth of their gross national product will provide them by the end of the decade with an additional one thousand billion dollars per annum.

The suggestion that the rich countries cannot spare for the poor countries the miniscule percentage of that incremental income necessary to raise concessionary aid from its present level of 0.35% of GNP to the United Nations target of 0.7% is simply beyond credence.

The wealthy nations may not in fact meet that target. And they may delay dismantling the discriminatory barriers to a more just and mutually advantageous flow of trade. But if the rich do refuse greater trade and aid to the poor, it will have nothing to do with a disinterested and universal reverence for the environment. It will be because of a provincial response to the pressures of special interests.

What, then, must be done to reconcile our mandate to assist in the economic advance of the developing countries with our responsibility to preserve and enhance the environment?

In my view there are five essential requirements. We must:

- recognize that economic growth in the developing countries is essential if they are to deal with their human problems;

- act on the evidence that such growth, if properly planned, need not cause unacceptable ecological penalties;
- assist the developing countries in their choice of a pattern of growth which will yield a combination of high economic gain with low environmental risk;
- provide the external support required for that economic advance by moving more rapidly toward meeting the United Nations concessionary aid target of 0.7% of GNP, and by dismantling and discarding inequitable trade barriers which restrict exports from poorer countries; and
- above all, realize that human degradation is the most dangerous pollutant there is.

In the end, it is respect for man – and his home – that has brought us to this conference.

When we leave, let us go with the conviction that respect can and must be translated into practical action. The leading edge of that action must be to protect man from the one hazard which can injure not only his habitat and his health – but his spirit as well. Poverty. Cruel, senseless, curable poverty. Our task is not to create an idyllic environment peopled by the poor. Our task is to create a decent environment peopled by the proud.

World Bank

Developing countries have a vital stake in environmental problems which affect the biosphere, themselves and their economic relations with the developed countries. They would clearly wish to avoid, in so far as possible, the development patterns of industrialized countries which have triggered the heightened concern we all share over environmental matters. Environmental problems of developing countries are of two kinds. First are problems of rural and urban poverty characterized by poor housing, nutrition, water supply, sanitation and by disease. Under these conditions the biophysical environment exhibits the effects of long years of mismanagement. Not merely the quality of life, but life itself is endangered. Here the environment exhibits an inability to renew its life supporting capabilities. Second are environmental problems that accompany the very processes of development itself. Rural and urban poverty which affect the majority of mankind demands an urgent attention; it is seen as a problem that can be overcome only through development. However, as the development process moves ahead at an accelerated pace, hazards and threats to the environment and health associated with the development process become greater.

Both developed and developing countries are beginning to realize that they stand face to face with the finiteness of the biosphere. They are also realizing that there is no choice other than to husband and manage the resources that sustain them. This realization comes as states begin to comprehend better the interrelatedness of their life supporting ecological systems, the man made environment, human societies and individual welfare. The linkages and interdependencies of ecological systems comprising the global biosphere that are now coming to light suggest that *all* states must take an interest in protecting the integrity of these life supporting systems. Practices which give rise to regional and global environmental problems clearly call for corrective action in the best interests of *all* the states concerned.

A major challenge faces developing countries: to find ways to achieve their own social and economic goals at an accelerated rate and to avoid the social costs of environmental degradation. Concern for environment is to be viewed, therefore, as an integral part of the development process. This is especially so because, under the conditions prevailing in developing countries, any additional costs involved in improving the quality of the environment can be envisaged only in the context of accelerated growth. Only with difficulty can resources be diverted from the needs of development. The problems should not be viewed, however, exclusively in terms of a trade off between rate of growth and environment-oriented actions. The situation in most developing countries is such that preventive action may be taken now at only a part of the cost which would be incurred later on. This type of trade off – between short-term economic effects and long-term development – is one that is constantly faced by development planners.

It is important that environmental policies are integrated with planning and regarded as a part of overall economic and social planning. However, it should be stressed that concern about the environment is only another dimension of the problem of development. It is not viewed by developing countries as something separate and apart from their development efforts. The objective is to regard safeguarding and improvement of the environment as a part of the multiple goals in

a development plan. The overriding constraints are, of course, financial and technical resources. Environmental improvement is only one of the multiple objectives of planning. Its priority in relation to other objectives will be determined by each society in the light of its own urgent, economic and social problems and its own stage of development.

Parallel to the integration of environmental goals with development policies at the macrolevel, developing countries must also turn to the microlevel to devise appropriate techniques and guidelines for including environmental factors in appraisal of development projects. Application of adequate criteria and procedures to project design and appraisal presupposes a better knowledge of the environmental, health and sociocultural impacts of development projects. While environmental experts recognize and admit inadequacies in predicting accurately the full range of consequences attendant on development schemes, sufficient experience does exist to make reasonable predictions about the environment. Disease problems attributable to development are becoming both better known and understood and measures for their prevention are being developed. Sociocultural impacts are less well understood, but increasing participation of social scientists in planning, appraisal, conduct and auditing of development activities is an encouraging sign.

Whatever form they may take, environmental considerations should ensure that environmental quality, human health and social well being need not be sacrificed or unduly injured by economic development. Further, these considerations should point the way toward bringing about increased awareness of development associated environmental problems in developing countries, the marshalling of the necessary resources and expertise to study such problems, the stimulation of the need for appropriate research and training and the encouragement of exchanges of information and experience between countries.

The World Bank, in its own distinct way, has striven over the past decade to serve the basic goal of economic development *without* undue adverse consequences to the environment, public health and social well being.

In expanding its activities the Bank attaches particular importance not only to promotion of agriculture, energy and industry, but also education and family health. This ordering of priorities is dictated by the extent of hunger and malnutrition, illiteracy and by the population explosion which has become one of the greatest threats to economic and social progress. The experience of the Bank – not only in these sectors but also over the entire range of its activities – has underlined the need for an improved understanding of the social and environmental implications of economic change. That need will increase as the Bank grapples in the years ahead with the growing problems of urbanization, unemployment, industrialization, land reform, income distribution and environmental degradation.

In 1970 former Bank President Robert McNamara stated:

The problem facing development finance institutions, including the World Bank, is whether and how we can help the developing countries to avoid or mitigate some of the damage economic development can do to the environment, without at the same time slowing down the pace of economic progress. It is clear that the costs resulting from adverse environmental change can be tremendous . . . witness, for example, the harm to human life that some water storage projects in Africa and Asia already have done by encouraging water-borne diseases – to say nothing of the implications of the rising use of pesticides throughout the developing world . . . it is equally clear that, in many cases, a small investment in prevention could be worth many times over what would have to be expended to repair the damage.

To this end the World Bank has for over ten years taken steps to assure that projects financed by it do not have adverse environmental and health consequences or, if they may have such consequences, measures are taken to avoid or to mitigate them.

The Bank seeks to ensure that environmental, health and related social consequences are considered in every development project proposed to it for financing. World Bank policy regarding environmental consequences of activities for which it makes loans, simply stated, is to pursue its economic development objectives with careful and studied regard for consequences to the environment and to the health and well being of affected peoples. This policy statement leaves no doubt that the Bank fully intends to press forward with its primary job of assisting developing countries to achieve a higher standard of living and economic growth. At the same time the statement leaves no doubt that the Bank does not knowingly intend to contribute to short-term economic gains at the price of long-term human and ecological loss.

It is not my intention to recount in detail what the World Bank has undertaken and accomplished since the Stockholm Conference. Suffice to say its programmes embrace a spectrum of activities which include the financing of environmental projects whose major purpose and objectives are the management, protection, rehabilitation or enhancement of natural and urban environments. Technical assistance is provided on a wide array of environmental and health matters. Training for officials of member developing countries and other development assistance institutions is being undertaken. Liaison and cooperative undertakings with institutions and organizations within both the international, environmental and development communities is vigorously pursued. In short, the Bank's development and environmental policies are firmly anchored in the growing imperative to provide for sustained development in a world rapidly being more interdependent.

Our president has pointed out that 'environmental spoilation is an international cancer, it respects no boundaries. It erodes hard won economic gains and thus the hopes of the poor.' The issue of the environment has provided a new imperative, a new mandate to measure development in terms other than growth of output – for mankind itself is the ultimate measure.

European Economic Community

Speech by the President-in-office of the Council

Since the Stockholm Declaration, to which the Community made its contribution, considerable action has been taken by the Community for the protection of the environment. This action, which an observer in 1972 would undoubtedly have had some difficulty in visualizing, has been taken in the most widely differing areas, whether opinion forming, scientific research, institutional organization, training, the allocation of budgetary resources or the setting up of a legislative framework.

Since 1973 the Community has adopted more than 60 measures aimed at improved protection of the environment; these form an integral part of Community law. The originality of that law – and I should like to stress this – lies in the fact that it consists of a body of autonomous legal rules and creates rights and obligations not only for the member states but also for Community undertakings and nationals. These Community measures were taken in the framework of five-year action programmes, the first of which was adopted in 1973 and was largely based on the principles contained in the Stockholm Declaration.

As examples, I would cite measures as different as:

- the adoption of quality standards for drinking water and water used in the manufacture of food products;
- the fixing of a maximum limit value for the lead content of petrol;
- the ban on the marketing of whale products in the Community;
- the setting up in Dublin of a foundation responsible for the improvement of living and working conditions; and
- the adoption of provisions designed to prevent the risks of major accidents in certain particular dangerous industrial activities.

Internally, the Community has gradually provided itself with an advanced and diversified environmental policy since the Stockholm conference. However, it has not neglected the international dimension of environmental problems and has supported many international initiatives and conventions.

The second Lomé Convention, which has associated more than 60 developing countries with the Community since 1979, contains provisions intended to reconcile the imperatives of development and of the environment. The Convention expressly stipulates that financial and technical cooperation may apply to the protection of the environment. Measures to improve the productivity of rural activities must be carried out while protecting the environment and may, in particular, concern the exploitation and development of forestry resources for environmental protection purposes.

The cooperation agreements concluded since 1978 between the Community and several Mediterranean coastal states, such as the Maghreb and Mashreq countries and Yugoslavia, provide for cooperation in the field of environmental protection. I would mention as examples the cooperation between the Community and Yugoslavia in the field of protection of the Adriatic Sea against pollution, and the Community's considerable financial contribution to the Helwan waste waters project in the Arab Republic of Egypt.

The satisfactory balance sheet of the Community's action, in the light of the Stockholm objectives should lead, however, not to any slackening in efforts to protect the environment, but rather to a recognition of the need to shift the emphasis of environmental policy in order to adapt it to the environmental problems and challenges of the next ten years.

During the next ten years we shall have to approach environmental problems from an angle differing in some ways from the one we have adopted thus far. First generation environmental problems ie those which emerged at the end of the 1960s and the beginning of the 1970s – a period of great economic and industrial growth – related essentially to the reduction and restriction of pollution and nuisances through the implementation of specific measures which were often of an *ad hoc* nature.

Today we must consider the environmental problems of the next decade from an overall and preventive point of view which takes account of the interdependence of the various fields. We must realize in the first place that a solution to global problems can only be found against the background of increased international cooperation. Such cooperation must clearly be brought about within the appropriate bodies and take place at the most suitable level, that is to say at interregional, regional, subregional or bilateral level, depending on the problems involved.

A second requirement seems to me to be the need for a preventive approach to environmental questions. Thus, for reasons both of effectiveness and of cost, it is essential to introduce from the outset environmental imperatives into the socio-economic development process. Finally, a third requirement would seem to me to be the need to adopt an interdependent approach, by introducing essential environmental considerations into the various sectoral policies such as the policies on agriculture, industry, energy, transport and regional planning. This new approach should also take account of the fundamental importance of relationships between people, resources, the environment and development and also the importance of interactions between the various elements which make up our planet ie the atmosphere, the hydrosphere and the lithosphere.

With respect to the protection of earth's natural elements, on which the future of our common environmental heritage depends, it is essential to avoid any degradation of our geophysical environment. Furthermore, particular attention should be paid, within the context of sound management of natural resources, to the implications of energy requirements for all our countries whatever their level of development. Particular efforts must also be made to improve the integration of environmental considerations into the general development process, at the level both of the policies pursued by the developing countries themselves and of aid policies. We intend to take account of these needs in preparing and executing the substantial aid and cooperation programmes which we are implementing.

European Economic Community

Speech by the Member of the Commission in charge of Environment Matters

It is appropriate for us to recall the commitments entered into at the Stockholm Conference held ten years ago where the Plan of Action was adopted, a plan which provided the inspiration for action on an international level in the ensuing decade and set the basis for the creation of the United Nations Environment Programme. The Stockholm Conference was the culmination of a major effort on the part of many nations and committed individuals inspired by a rallying call for the care and maintenance of a small planet.

The years that followed saw an impressive number of achievements which it is fitting to recall briefly at this stage. Based on the pursuit of two guiding objectives, on the one hand, proper management of natural resources, economic assets of increasing importance, which are the common concern of humanity present and future and on the other hand, to introduce concern for quality into the conception and organization of economic and social development, the European Community achieved some significant results, not least in the adoption of some 60 legislative measures covering reduction of air pollution, water pollution, waste and the protection of the environment, land and natural resources.

In a wider context, one of the most significant achievements has certainly been the elaboration and adoption of binding obligations in the form of agreements and conventions on a regional and international level to combat and reduce some of the worst forms of pollution as well as to promote the conservation of endangered species. Noted examples are the Geneva Convention on long-range transboundary air pollution and the Washington Convention on international trade in endangered species of wild flora and fauna.

As we stand on the threshold of the future, we cannot afford the luxury of merely contemplating the successes of the past. There are many urgent and pressing problems which require our attention. Some of these, such as desertification, while identified as requiring action as early as 1972, have worsened. Others, such as transport and disposal of hazardous wastes have emerged as major phenomena endangering the health and very lives of citizens and thus requiring urgent attention on a global level.

With the pressures to which our environment is being subjected continuing to increase and each day bringing with it new problems and challenges, we must acknowledge that, despite all that *has* been done (and it is a great deal) we are still faced with a worsening situation. We must accept that, whether because of lack of political will or lack of resources or because they have been daunted by the very complexity of the task, governments have not yet shown sufficient determination to embark on renewed and vigorous action. It is a regrettable fact that, given the urgency, scope and global importance of the challenges before us, the efforts now under way around the world fall far short of what is needed. We must all pledge ourselves to do better in the decade to come.

There are two underlying themes which characterize this period of constant movement and change:

- The first is the almost limitless capacity of human beings for building and

creation, matched by equally great powers of destruction. The escalating needs of soaring numbers have often driven people to take a short sighted approach when exploiting natural resources, with devastating consequences.

- The second is the global interrelatedness of actions, with its corollary of global responsibility. The planet has shrunk to a neighbourhood; it is a community which has become so interdependent that even mistakes when they occur are exaggerated on a world scale.

Let us pause for a moment and reflect on some of these threats to the global environment and major problems requiring urgent attention and renewed commitment in the forthcoming decade.

Environmental, resource and population stresses are intensifying and will increasingly determine the quality of human life on our planet. Latest estimates suggest that, by the year 2000, the world's population is likely to exceed six billion (with nearly five billion people just in the developing countries and over half of them crowded into cities). This is a challenge that we must all take up. A slow down in population growth must surely be seen as a fundamental environmental concern.

Many of the environmental problems of global concern are concentrated in developing countries. With the high cost of oil and other energy supplies, for example, many developing countries will have increasing difficulties meeting energy needs. For the one-quarter of humankind that depends primarily on wood for fuel, the outlook is nothing but bleak, since needs for fuelwood will exceed available supplies by about 25% before the end of the century. Partly because of this growing need for firewood, partly to serve the demands of the developed world and partly to create new agricultural land to feed the multitudes, forests in the Third World are being cut down ten times faster than new ones are being planted. As a result, Planet Earth has lost about a quarter of its closed canopy forests over the last 20 years.

Population increases will place great stress on world food supply. It is estimated that although food production may expand 90% by the year 2000, the increase will be less than 15% on a per capita basis; and this is not sufficient to eradicate starvation. Of particular concern here will be the ability to improve world agricultural yields in the face of pressures leading to degradation of agricultural soil and water resources and the conversion of some of the best cropland to other uses.

With the loss of one species per day, it is estimated that as many as 20% of the species of plants and animals now inhabiting the earth could be extinct by the end of the century.

Meanwhile the burning of fossil fuels is already causing damaging increases in the acidity of rain, with alarming consequences for soil, vegetation and the aquatic environment in developed countries. It is also causing a rise in the concentration of carbon dioxide in the earth's atmosphere, with global implications. Protection of the ozone layer and the reduction of marine pollution are also matters of global concern. At the same time, while human beings benefit greatly from the advances of science, careless use of pesticides and other toxic substances and the haphazard disposal of byproducts and waste from chemical and energy processes pose fundamental dangers and adversely affect every aspect of the earth's ecosystems and resource base and ultimately mankind itself.

It is clear that all countries around the world are faced with serious economic difficulties, and that environmental protection measures are increasingly under attack. In the European Community we have recognized that environment policy is

a structural policy which must be carried forward steadily without regard to short-term fluctuations in cyclical conditions, in order to prevent degradation of natural resources and to ensure that future development potential is not sacrificed. It simply does not make sense if we allow essential long-term environmental policies to suffer or be impeded because of short-term fluctuations or if we cut corners in order to make small savings now, only to be faced with massive repair costs later. Environmental protection must simply be seen as part and parcel of good management in every field of human activity. Moreover, as has repeatedly been made clear, public opinion is still very concerned about environmental matters and, despite economic difficulties, continues to support measures to protect the environment. In the socioeconomic context of the 1980s, environmental action must also take account of major problems such as unemployment, inflation, regional disparities etc; and must be *seen* to contribute to solving many of these major problems. There is no doubt that this *can* be done, eg by stimulating the development of new and clean technologies and thus leading to the creation of employment in new industries producing goods and services designed to be resource conserving, or less polluting. In this and other ways environmental policies can make a real contribution to innovation – and to the evolution of the industries of the future.

In seeking ways of addressing the global challenge, a guiding principle is the urgent need for the promotion of *sustainable economic development*. Only a concerted attack on the socioeconomic roots of extreme poverty, one that provides people with the opportunity to earn a decent livelihood in a non-destructive manner, will permit protection of the world's natural systems. Nor will development and economic reforms have lasting success unless they are suffused with concern for ecological stability and wise management of resources. Thus economic development, if it is to be successful over the long term, must proceed in a way that protects the natural resource base of all nations and in particular the developing nations. Ways must be found of ensuring that the free operation of competitive and market forces will orient themselves so as to ensure that environmental imperatives are respected. In many cases the necessary data are available. What we need to do is to redesign the data framework – the economic parameters – within which the market operates, to ensure the sound management of natural resources. This will not be easy, involving, for example, the introduction of qualitative considerations into the planning and organization of economic and social development. But it *must* be done, just as we must press ahead also with the development and implementation of low and non-waste technologies as well as the technical means to recover, recycle and reuse wastes and secondary materials – all matters of crucial significance to the developed and the developing world alike.

The Commission proposes within the framework of future development cooperation negotiations with the African, Caribbean and Pacific and other partner states, to lay particular emphasis on the following environmental aspects of development aid:

- the conservation and sustainable utilization of natural resources;
- the support of those development actions that are most adapted to the natural and cultural heritage of the peoples concerned;
- the preservation of those species and ecosystems that are most vulnerable both to human and to climatic disturbance (deserts, tropical forests etc);
- the creation of training, education and information programmes to assist

- developing countries to define their own priorities and actions in this area; and
- the promotion of low energy-consuming technologies.

Public involvement in the tasks before us is crucial. The decisions taken by those in authority affect the very lives and living conditions and lifestyles of each and every individual. We attach great importance therefore to the role of non-governmental organizations.

It is a sobering thought that, as has been so clearly demonstrated in the past, the careful husbandry of the earth is a *sine qua non* for the survival of the human species, and for the creation of decent ways of life for all the people of the world. Man must accept responsibility for the stewardship of the earth. It is because there are so many potential paths towards points of irreversible no return that the self-repairing cycles underlying all living systems cannot be taken for granted, for they cannot survive indefinite over loading or mistreatment. To interfere with the tropical forest cover or the vast untouched plains of the northern hemisphere is to tamper with the two great lungs of our planet through which its continuing health has to be assured. The intimate, inescapable interdependence of living things implies a fine balance, a certain stability, a certain dynamic reciprocity. In the words of Goethe's Faustian legend, we must ensure that the end is not torment but redemption and the protection and perpetuation of the delicate balances of the planetary environment.

An adequate response to the enormous and urgent challenges before us will require an unprecedented degree of global cooperation and commitment. Future generations will never forgive us if we do not make this response.

Organisation for Economic Co-operation and Development

It is evident that the parameters for environmental policy are dramatically different from those that prevailed in Stockholm ten years ago. The quality of the environment has changed considerably over the decade, in some respects favourably but in others less favourably. While significant gains have been made on some problems in some countries and regions, overall the pressures have not diminished. Public opinion has evolved enormously and it has evolved in the direction of growing awareness of and support for environmental measures. Moreover, environment seems to have become an integral part of the dominant value system of our times.

The perceived relationship between economics and the environment has changed. We have learned a great deal about the costs and benefits of measures to manage the environment and about their employment, inflation, trade and other economic effects. This has cleared away a number of misconceptions. Ten years ago, it was assumed in many quarters that economic development and environmental quality were in a state of inherent conflict. A decade of analysis by OECD and others has demonstrated, however, that while there can be conflict between development and environment in the short run and on the local scale, on the national, macroscale the relationship is generally positive, cumulative and self-reinforcing. Economic conditions are notably different from those of ten years ago. This represents perhaps the single most recent significant shift in the parameters for environment policy.

In 1972, the member countries of OECD had just come through a long period of exceptionally rapid economic growth, averaging around 5% per year during the 1950s and 1960s. Between 1974 and 1980, however, growth in all 24 OECD countries advanced at around 2%. But today we have slow growth, increasing unemployment and continuing but reduced inflation throughout the region, varying greatly, of course, from country to country. Prospects for productivity growth, on the other hand, are encouraging after a long period of severe decline. In addition, in common with other regions, OECD is faced with the continuing transition from oil to alternative forms of energy and with the need to adapt its economies to constant changes in patterns of production and trade. The changing economic climate has served to put the efficiency and effectiveness of environmental policies under serious and stringent scrutiny.

OECD work has shed considerable light on these evolving and new parameters. It has also focused on future prospects for the state of the environment in member countries, based on certain assumptions about economic, social and technological development over the next decade or so. These assumptions have embraced the anticipation that the world economy would soon return to substantial and sustained growth. Yet the opposite hypothesis and analysis have demonstrated that even persistently low growth, including zero growth, would in no way eliminate serious risks of further environmental degradation, unless appropriate preventive action were vigorously pursued.

The awareness of a gradually but substantially changing environmental situation,

combined with an increasingly sharp perception of future trends and expectations, has helped policy makers in OECD countries to redirect their environmental policies progressively. Not that the principles and orientations so far applied have been found to be dispensable, but some important new dimensions have emerged and presently command increasing attention. Among these, the following deserve special mention:

- While there is no justification for relaxing efforts on pollution control, it has become urgent to extend environmental action in the sphere of resource conservation management and in a range of quality of life issues, where present realities often fall short of realizable aspirations.
- While some current technologies have proved effective in dealing with environmental problems, further efforts should be made to foster and support technological innovation, in view of the returns that can be expected in terms of cleaner processes and products and savings in materials and energy.
- While considerable work remains to remedy environmental degradation in a variety of specific situations, anticipatory and preventive measures should be pursued more systematically and vigorously in the future in order to minimize the costs and maximize the beneficial effects of environmental policies.
- While international organizations will continue to focus on problems and policies in their member countries, the growing reality of worldwide economic and ecological interdependence suggests a substantial widening of perspectives in order to counter more effectively the threat of the degradation of the shared planetary environment.

Changes in the quality of the environment

In marking the tenth anniversary of the Stockholm Conference, it would be tempting to dwell on past achievements. In OECD member countries, they have been significant by any standard, including the standard that counts most: real improvements in environmental quality. According to OECD's *State of the Environment Report*, in a number of member countries and communities, the past decade has seen measurable improvements in the quality of air in some urban areas, especially as regards sulphur dioxides and particulates, and in the quality of water, especially as regards suspended solids and biodegradable matter. The flow of certain persistent chemicals has also been reduced. Areas set aside as parks and natural reserves have been extended, as have sites of outstanding historic and architectural value.

Summarizing changes in the quality of the environment over the past decade, the report also notes that:

- the emission of pollutants from point sources such as chimneys and sewerage has often declined, but emissions from diffuse sources have generally increased;
- the degree of concentration of pollutants at black spots has been reduced or stabilized, but some pollutants such as sulphur compounds, because they are transported over long distances, now affect much wider areas;
- acute ill health and death caused by short-term exposure to intense loads of pollution have generally decreased, but increased attention is being given to the

long-term effects on human health and the environment of exposure to specific substances;

- critical tracts of land are usually well protected, but greater attention is being focused on better nation-wide land management; and
- many accidents involving toxic chemicals and oil have occurred and the amount of oil accidentally released in marine waters has increased.

The costs and benefits of environmental action

OECD's work on the costs and benefits of environmental action goes back to 1970 when its Environment Committee was established with the task, among others, of developing the fundamentals of environmental economics. Its first report in this field entitled *Problems of Environmental Economics* led subsequently in 1972 to the adoption by OECD of the 'polluter pays' principle.

We have tried to identify the impact of environmental measures on employment. The data which we were able to gather are still far from precise. Yet they are sufficient to make an essential point: at national, macroeconomic level, the overall net impact of environmental measures on employment appears clearly to have been positive at least in the short term. For example, on balance more jobs have been created by environmental measures than have been lost.

Another important issue is the impact of environment policies upon prices and the level of inflation. We have looked at this and have found the impact to be quite small in comparison with much more basic causes of the present high inflation rates: an important piece of information in view of misconceptions which appear and reappear almost cyclically about the allegedly unbearable cost of environmental measures, especially in times characterized by severe economic difficulties. In most countries for which we have figures the contribution of environmental expenditures to the inflation rate appears to have ranged around 0.2 to 0.3% per annum. In no OECD member country has it ranged higher than 0.8%.

OECD's work on international trade suggests that even with existing differences in the level of standards between OECD countries, the trade effects of environment policies appear on the whole to have been neutral.

We must be constantly on guard, of course, against applying the conclusions of our macroeconomic analysis to the microlevel. Indeed, if one looks at the microlevel and examines specific industries or communities, the impacts of environment policies, positive and negative, can vary greatly. Firms engaged in food processing, iron and steel, non-ferrous metals, pulp and paper, chemicals and electric power generation have all been major polluters and have borne a significant proportion of the total pollution control investment in industry. In the USA, for example, pollution control investment in 1977 represented over 16% of total plant and equipment investment in the iron and steel industry; 17% in non-ferrous metals; and over 10% for the electric utilities. Generally similar figures are reported from Japan, FR Germany and other member countries.

Faced with these comparatively heavy costs, however, many of these industries have been induced to develop a broad range of new processes, clean technologies and more environmentally efficient products. Those in the forefront of innovation have benefited in terms of plant that is more resource efficient, more energy efficient and hence, today, often more economic and competitive. Many have also found new opportunities for investment, sales and exports. It has been estimated,

for example, that by 1978 world trade in environmental technology had grown to the order of \$11 billion per year. To provide some idea of what that means, in 1977 total trade in chemicals between OECD member countries was about \$46 billion.

Turning to the benefits of environmental policies, they can, of course, be assessed in a general way through environmental statistics showing the evolution of the state of the environment. Where possible, however, it is also clearly desirable to assess benefits in terms of the damage costs avoided by environmental measures. These may take the form of health costs, property costs, and other external costs.

Some ten years ago the data base needed for cost-benefit analysis was almost non-existent; indeed methodologies for evaluating benefits were in their infancy. Although the present situation is far from perfect, it has improved considerably. Methodologies have reached a reasonable level of sophistication and some reliable data are available. The evidence on savings in health expenditures and on property damages avoided is quite impressive.

We have been able to estimate the health damage costs avoided through control measures on certain types of air pollution; for example, on sulphur and particulates as a percentage of GDP in some OECD countries. The damage costs avoided are of the order of 0.3% to 0.8% of GDP. Taking into account the value of other damages prevented, such as the corrosion of materials and the effects on fish, forests and vegetation, the range might be fractionally higher. Although we have not been able to account for the entire range of damage costs avoided, these order of magnitude figures are useful for policy purposes in OECD countries.

It is difficult to gauge the relevance of these figures for non-OECD countries as our data and knowledge are limited. OECD's work, however, clearly demonstrates the usefulness of investigating the costs of environmental action, even in an approximate way, as well as of attempting to measure the resulting benefits, even if we deliberately choose to underestimate them. This is underscored by the overwhelmingly positive response that our efforts have elicited from OECD member countries and other international organizations. It is encouraging to see that these results, continuously revised and refined as changing conditions make necessary, are of substantive guidance to decision makers in developing, modifying and implementing environmental and other policies in their respective countries.

The challenges of the 1980s

During the 1970s, OECD undertook, with the help of member governments, a broad analysis of the relationship between environment policy and economic prospects. This work is currently being reassessed and it should be completed next year. Although the results are expected to show differences in detail, it appears that they will largely confirm the general conclusions drawn in 1979.

The analysis suggests that over the next decade the OECD region as a whole will experience a considerable increase in pressures on the environment in several sectors. If this is true for the OECD region, it is probably broadly true for other regions. Thus, slower growth is not going to mean fewer environmental problems. In fact, environment problems are going to continue to multiply, to increase in complexity and to become more difficult to deal with. This will be true even recognizing the real improvements that have been made in several sectors in resource recycling and efficiency, in the ratio between emissions and output, and in the GNP/energy ratio. And it will be true on several fronts: pollution abatement,

resource management, the integration of environmental concerns in major development questions and the whole range of broad quality of life concerns.

Environmental protection

We have considered the impact of growth, albeit slower growth, on environmental pollution, sector by sector and in total. We cannot, of course, be at all precise in our estimates of pollution loads resulting from growth, since our understanding of the variable and constantly changing relationships remains limited. Precision, however, is not always essential to aid thinking about future needs and directions of policy; orders of magnitude can often be more than adequate.

On an overall basis, then, our analysis suggests that even comparatively slow growth of between 2.5% and 3% per annum for the decade would result in a serious degradation of air quality from sulphur oxides, nitrogen oxides, hydrocarbons and particulates, unless standards are reinforced substantially over those prevailing in 1978. New technologies, while potentially critical in fields such as coal pollution abatement, would probably not affect this judgement because of the time lags associated with their introduction.

Fortunately, the majority of OECD countries, anticipating these problems even under slower economic growth, have already set down standards stricter than those prevailing in 1978. One group of relatively high per capita income OECD countries, which has already made substantial progress in air pollution control, should be able to reach their objectives by the end of the decade. They may even see the level of traditional air pollutants decline below that achieved at the end of 1970s. The costs involved in achieving these higher standards need not, if efficiently handled, exceed the relative costs of past periods.

Under the same 2-3% growth assumptions, water quality would also suffer from significantly increased pollution from biodegradable matter and suspended solids unless further substantial investments are made to increase public waste water treatment facilities by as much as 50% by the end of the decade.

The correlations between growth and environmental pollution reflect the consequences of an expanding output of industrial production and energy in terms of net emissions of noxious substances. In addition to industry and energy, however, other sectors such as agriculture and transport are likely to remain important sources of pollution.

For OECD as a whole, it seems reasonable to assume that agricultural output will continue to expand at between 2% and 3% per annum and, if so, fertilizer use would continue to expand faster than 3%. The pollution impact will vary from country to country and region to region, but the moderate estimates for some OECD countries are that, even excluding nutrients from animal wastes, run off of nutrients and pesticides will likely grow annually at 1-2% or even more. Nitrogen pollution in water seems to be on the increase everywhere in spite of the control measures taken.

In the domain of transport, it is likely that for the majority of OECD countries the past rate of increases in the automobile fleet will continue over the next decade. This, coupled with progress in fuel efficiency, emission control technology and some reduction of distances travelled, could allow a stabilization and possibly even some reduction of emissions in several of these countries. Noise, on the other hand, is likely to remain a serious nuisance, unless significant abatement measures are

taken, such as those recommended by OECD, to bring down the noise level to 5 to 10 decibels according to vehicle type.

These and other similar evaluations, which are averages for the whole of the OECD region, raise especially serious concerns when reassessed in relation to those member countries characterized by relatively low income levels. These countries are aiming at higher than average growth rates; their environmental machinery is incomplete; the backlog of pollution is large and consequently the pressure on their relatively fragile environments is already severe.

Resource management

Awareness of the threat posed by pollution has grown steadily in most OECD countries during the past decade and even before, although the Stockholm Conference served to generalize, consolidate it and translate it into a practical political commitment. Issues of resource management were received with a much lesser degree of manifest agreement for some considerable time. Recently, however, these issues have moved higher on the agenda of OECD member governments. An important factor in this change, as well as an important symptom of it, has been the appearance of a number of authoritative studies, several sponsored by governments, others led by international bodies and political and scientific groups commanding exceptional international prestige.

The conventional, confident response to the current pace of resource consumption, namely that more of each resource, or substitutes for it, will undoubtedly be found at the appropriate time and in the quantities needed – although perhaps in more remote regions and probably at higher prices, to which buyers and sellers would readily agree – is difficult to maintain in the face of evidence, experience and worldwide political realities. Today countries realize with increasing concern the causes and consequences of the unceasing loss of croplands because of land conversion to residential use, highways, airports and reservoirs and the progressive deterioration of soils because of erosion, compaction, logging and salinization. Especially for countries whose economies depend largely on raw material imports, it is alarming to note the current pace of deforestation and desertification. The massive depletion of the planet's genetic resource base – a concern that used to be confined to dedicated naturalists – is now recognized as a serious threat for a number of important advanced technological and industrial sectors.

Quality of life

The future dimensions of environmental policies will need to embrace quality of life as a third component to be added to the two already mentioned: environmental pollution and resource management. That the demand for improvements in the quality of life, sometimes also referred to as the demand for environmental goods and services, should become especially vocal in economically advanced countries is hardly surprising. Requirements of this kind are especially income elastic, as economists say; they tend to turn into needs after other, more basic needs are satisfied. The growing demand for them is due to rising aspirations, linked to higher incomes, changing value systems and evolving individual and social preferences. These pressures cannot be ascribed to declining trends in quality of life as there is

no convincing evidence in OECD member countries of such a decline but simply to dissatisfaction with the current conditions even though they are superior to those prevailing in the past.

This phenomenon is particularly evident in contemporary cities of the Western world. Through the enhanced role of participation in decisions affecting matters of collective interest such claims are getting progressively stronger. City administrations are having increasing difficulty matching rising expectations and demands for public provision of services, amenities, open space, transport facilities and other demands with a reduced tax base and shrinking fiscal resources. Moreover, according to sociologists, frustrated aspirations for a satisfactory quality of life level in modern Western cities is having a significant impact on urbanization trends. The so called flight from central cities, resulting in diffuse suburbanization, is not new in certain economically advanced countries, such as the USA or the UK. Recently, this mode seems to be spreading, not only to Germans and Scandinavians, but also to French, Italian and Spanish people. Almost all the largest metropolitan areas of the Western world, one after another, are experiencing an unprecedented downturn in their demographic trends. Several of them are actually losing population at an alarming rate; and cases of complete dereliction and abandonment of large urban areas, including semicentral and even central locations, are so frequent as to become economically and socially worrying.

New directions for environment policy

In its examination of new directions for environment policies, OECD's analysis indicates that strengthened measures will be needed both to maintain the gains in environment quality, resource management and quality of life made during this decade and to deal with the more complex and difficult environmental challenges of the 1980s. It suggests that new and innovative measures will be needed. And it suggests that in the current and prospective economic climate, these measures and the ways in which they are applied will need increasingly to meet the tests of economic efficiency and cost effectiveness.

Technological innovation

In the area of environmental pollution, this clearly means policies that actively encourage innovation by industry in the development of new processes, clean technologies and environmentally safe products. It means policies that are investment inducing, that encourage resource and energy efficiency and have a positive impact on employment wherever possible. It also means policies that focus more attention on the forward end of a product cycle – the design and planning end rather than the use and waste disposal end. This would be true whether the cycle concerns energy, a new commercial product or a new urban development or redevelopment.

When it comes to efficient cost-effective environmental management, industry has already often found that it is far more economic to build in than to add on. Faced with the prospect of a major add on investment of say 5–20%, with little prospect of repayment except through tax rebates – a policy that needs to be questioned – many industries have tried to find a better way. Often they have found

it by looking at their pollution not as something solely to be treated and disposed of, but as a wasted resource to be used and exploited. Pollution is often potential profits going out the pipe. Its prevention can pay.

Anticipation and prevention

Anticipatory, preventive policies could embrace the entire field of environment action, not only environmental pollution but also the management of resources as well as the provision of amenities and other measures to improve the quality of life. They could even extend into the realm of changing patterns of growth, consumption and lifestyles.

In areas such as energy development and resource management, including agriculture, forestry, fisheries and urban development, anticipatory policies include measures that induce public and private bodies to build environmental considerations into development decisions at the earliest possible stage rather than adding them on later, usually at greater cost, after all the other key elements have been substantially fixed.

The experience of some industrialized OECD countries in this respect has been gained at considerable cost. This experience provides a great opportunity for other countries in which issues of environmental pollution have not loomed large in the past decade but which, looking to the future, hope for and expect major industrial developments in many areas. As these materialize, it can be expected that issues of environmental pollution will climb higher on their policy agenda. As they do, they will have an opportunity that was not available to the highly industrialized OECD countries in the 1960s and early 1970s. This is the opportunity to develop anticipatory policies and to prevent pollution from occurring in the first place by building clean, by requiring the utilization of the low waste technology and processes that have been developed in many industries. There is no doubt that from a societal point of view, preventive policies are more economic than curative policies.

Global economic and ecological interdependence

A decade ago, it is fair to say, our environmental concerns were articulated largely in terms of the production, consumption and trade activities of OECD countries and their impact on other OECD countries. In other words, the concept of interdependence underlying our work was largely limited to relationships within and between OECD countries.

Today, international economic and political interdependence is seen increasingly to require consideration of the impact of the activities of OECD countries on non-OECD countries, especially in the Third World, and also the reverse impacts back on OECD countries. And this interdependence is seen clearly to involve the environment and the ecological basis for development.

A major implication of economic and ecological interdependence is that, as it inevitably increases, the ability of governments to deal unilaterally with problems on a national scale will diminish. More and more, economic, social, energy and other problems with an environmental or ecological basis within countries will

prove resolvable or avoidable only through increased cooperation among countries.

While this is true of problems within and between OECD countries, it is also true of problems between OECD and developing countries. In fact, issues such as declining biological diversity, the loss of habitat, forests and croplands are not North-South issues, but global issues. Because of increasing economic and ecological interdependence, they are of worldwide concern. Consequently, efforts to deal more effectively with resources and environment issues, not only in our own but in other countries as well, through bilateral and multilateral programmes are no longer a matter of generosity or ethics but of mutual self interest.

As individuals and neighbours in this small interdependent world, we all have a duty to hope; most of us as national and international public servants, also have the duty and responsibility to convert that hope into policy and practice.

International Union for Conservation of Nature and Natural Resources

Human beings, in their quest for economic development and improvement of the quality of life, must come to terms with the reality of resource limitation and the carrying capacity of ecosystems and must take account of the needs of future generations. This was the central message of the Stockholm Conference. It is also the central message of modern conservation.

As such, conservation is basic to human welfare, and indeed, to human survival. But it is not always recognized as such. Conservation has been used with many different meanings. In the sense that we use it conservation is defined as the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations. Conservation, then, is a precondition for sustainable development.

At the time of the Stockholm Conference, this relationship was not widely recognized. Indeed, the whole concept of environment was new to most governments. For some environment was considered in the broad sense of man's total surroundings and the factors which contribute to making the earth fit for sustained human habitation. However, for many, particularly those from developing nations, environment was equated with pollution. This had come about because much of the public environmental concern and publicity preceding the conference stemmed from pollution related incidents such as Minamata disease from mercury pollution in Japan, massive tanker spills and severe incidents of urban air pollution.

This in turn led to further and more basic differences among the delegates. Pollution was seen by many nations as external evidence of industrial development, not as a threat. 'What we need is more pollution' was frequently reiterated by representatives of developing countries. Therefore, efforts to control pollution were looked upon by some as efforts to control development.

In spite of the lofty ideals expressed by those at Stockholm, many of the governments of the developing nations and the development assistance establishment in the developed nations have until recently tended to regard environmental concern as an obstacle to development rather than as a necessary condition for it. Development, in this sense, refers to the broad array of activities, national and international, intended to satisfy human needs and improve the quality of human life. To be successful, development must not only succeed in the short run but it also must be sustainable, economically and ecologically.

Unfortunately, much development worldwide has not been successful in those terms. Some activities are themselves short lived because of inherent ecological errors. One example is range management development which does not include control of livestock numbers; this leads to overgrazing and collapse of the resource. Other projects deal with part of the system and are defeated by problems elsewhere in the system. Examples here include hydroelectric or flood control dams which are short lived because the essential watershed areas were not protected as part of the project and became denuded, which led to erosion, filling the dam with mud instead of water. Other projects which may appear successful in themselves adversely affect

the sustainability of the environment as a whole for people. Construction of industries, transport systems or housing on prime farm land is an example of this type of problem. In any event, there has been much ecological backlash from projects which did not take conservation requirements into account, so that in all too many cases such development projects have reduced, rather than increased, the human carrying capacity of the area, consequently reducing, rather than enhancing, human welfare.

Whatever the individual causes, the hard fact is that in spite of the billions of dollars which have been spent on development in the decade since Stockholm, vastly more people today are malnourished, destitute or poor than in 1972. Far more serious, the indications are that the life support system of the earth – its carrying capacity for humans – is being seriously eroded.

The World Conservation Strategy is a document which presents a clear statement of conservation priorities and a broad plan for achieving them. It is a strategy in the military sense, in that it defines goals, assigns priorities and lays out a framework of specified actions to accomplish the goals. Specifically, it defines the major conservation goals ie maintenance of essential natural processes and life support systems; assurance that the utilization of species and ecosystems is sustainable; and maintenance of genetic diversity. It identifies the major obstacles to achievement of these goals. And it defines specific steps – policy decisions and other actions – to achieve the goals, at worldwide, regional and national level, by governments, international organizations and the private sector.

Our strategy was developed at a time when there was growing international recognition of the interdependence of conservation and development. In 1980 the Brandt Commission completed its two years' work and released its report, called *North-South: A Programme for Survival*. The report analyses the world's economic and social predicament as it affects the Third World and concludes with a set of far reaching proposals for the reform and restructuring of the world system, which in the Commission's view are essential to avert disaster and which are in the mutual interest of both North and South. The report states, *inter alia*, 'Few threats to peace and the survival of the human community are greater than those posed by the prospects of cumulative and irreversible degradation of the biosphere on which human life depends'. 'It can no longer be argued that protection of the environment is an obstacle to development. On the contrary, the care of the natural environment is an essential aspect of development.'

The World Conservation Strategy has been in existence for just over two years. It has probably done more to put environmental conservation on the world's agenda than any other single action since the Stockholm Conference. The challenge now is to implement it and the question is, does the world have the political will, the institutional capabilities and the resources to implement the strategy?

The Stockholm Conference brought the environment to the attention of most of the world's governments. It led to environment being accepted as a legitimate and necessary governmental concern. It resulted in the establishment of UNEP and of governmental environmental units in most nations of the world, which facilitated a series of subsequent national and international agreements and other actions to conserve the environment. While Stockholm was not the first international environmental conference, nor even the first with UN sponsorship, it was the first full United Nations conference focused solely on the environment and it firmly placed the environment on the UN agenda. It made an essential contribution to the international acceptance of the principle now expressed in the World Conservation

Strategy, that conservation is not only compatible with development but is an essential condition for it.

Now, ten years later, we have irrefutable proof of the validity of this principle and clear understanding that we must apply it if we are to assure human welfare, and indeed, survival. The coming decade will be the crucial one when the World Conservation Strategy must be applied if it is to succeed. IUCN does not underestimate the magnitude and the difficulty of this challenge and success depends upon the political will, capabilities and resources of the world's governments and institutions. But we are optimistic and we look forward to continued and expanded cooperation in the vitally important work which has brought us together here.

World Wildlife Fund

The World Wildlife Fund (WWF) uses the term wildlife in its broadest sense to cover all wild living resources – that is, the whole natural environment including air, soil, water, habitat and landscape – not simply wild animals and plants, as some might understand from the name. The manner in which WWF and UNEP have cooperated in sponsoring and financing the preparation of the World Conservation Strategy by IUCN and the manner in which the three organizations cooperated in the strategy's widely publicized international launch is well known.

What needs to be stressed is that a unique partnership has been forged by these three organizations: UNEP with its governmental constituency, IUCN with its scientific constituency and WWF with its constituency in the private sector. This unique partnership benefits from a joint credibility which its individual members could not obtain on their own. We need to increase our cooperation to ensure that we exploit and benefit from the credibility we have established.

The World Conservation Strategy is so all embracing that it can be claimed that all or any aspect of UNEP's work, of IUCN's and of WWF's – indeed that of virtually any conservation organization – falls within the strategy's parameters. Herein lies a danger. We need a more focused approach. If the World Conservation Strategy is to become effective it needs to be translated into regional and national conservation strategies. While a few countries have already established national strategies or are in the process of doing so, it is clear that we have not done enough to encourage and assist individual states in this regard. Time is not on our side. We must do more, much more and we must do it soon, lest our partnership loses its credibility and the strategy comes to be looked at in the years ahead as yet another good plan which started well but was not properly implemented.

It is often stated that environmental degradation and consumption of living natural resources, at a rate faster than can be sustained, pose a greater threat to human survival than a nuclear holocaust. Yet the resources made available by governments for national and international conservation efforts, including those of UNEP and IUCN, are far less than are required.

Apart from collecting and providing funds, we in the private sector can help by creating the climate of public opinion which not only makes political decisions favouring conservation acceptable but, indeed, demands that such decisions be taken. The public at large must support more strongly those politicians and governments that adopt the concept of development with conservation – those that take a long-term view of sustainable development rather than those who seek immediate political benefit by short-term exploitation which mortgages the future.

The same principles apply to the industrial sector which is a major user of natural resources. We must applaud and encourage those industries and companies which utilize resources in a responsible and sustainable manner, benefiting the populations where the resources are to be found. Where they do not we should seek to convince them to change their ways and to become our partners in conservation.

We know what needs to be done. The strategy exists. What is required is political will, financial resources and action. WWF looks forward in the next decade to continuing close cooperation with UNEP and with all who strive towards the mutually dependent goals of conservation and development.

Environmental Non-Governmental Organizations

Statement by Barbara Ward

We believe there was never a moment in history when a change in course was more vital. We cannot close our eyes to the continuing degradation of the environment. The current development process in the North and the South, the East and the West, is everywhere beset by similar dangers, and is itself the fundamental cause of environmental degradation. Despite all the difficulties confronting the people of the world, a new kind of development, human and environmental, must emerge. It is the unique responsibility of this generation to accept that challenge and to work together to secure the future.

In the ten years since the Stockholm Conference the prospect for the human environment has darkened rapidly. The development processes that degrade the human environment are also those which degrade the human condition. They have continued to accelerate. Governments everywhere have failed to carry forward the spirit of Stockholm. Unratified conventions, unenforced laws, underfunded agencies, inadequate national institutions and declining support for international efforts have traced a record of neglect and irresponsibility. Such efforts as have been made have dealt with symptoms rather than causes, have failed to recognize the urgency of global problems and the need to devise fundamentally new approaches to development if environmental problems are to be solved.

The state of the environment is bleak:

- croplands and rangelands are everywhere under increasing stress, threatening agricultural productivity;
- forests, particularly tropical rainforests, are rapidly declining in area;
- while the deep oceans are not yet known to be significantly damaged, coastal zones, and their important fisheries, are being degraded in many parts of the world; exploration and exploitation of deep ocean minerals and oil in the coming decade threatens the marine environment;
- air quality is improving in some localities, but worsening in more; acid precipitation and photochemical pollution are acute problems in many regions and the long-term threat to the atmosphere from carbon, sulphur and nitrogen oxides is growing;
- the quality of inland waters is improving in some places and deteriorating in more and the availability of fresh water is not keeping pace with minimum requirements;
- human settlements are continuing to expand over increasing areas of valuable agricultural land; the quality of the landscape and of urban areas continues to decline.
- biological diversity continues to decline at a rate unknown in history as species loss accelerates through destruction of natural habitats.

Human impact

This state of affairs cannot be allowed to continue. The increasing violence to, and degradation of, the global environment has inevitably led to more insecurity, more poverty in the midst of growing affluence and violence to humanity itself:

- as forest industries expand, forests recede and women walk further for fuel;
- as food production grows on large land holdings, so too does the number of landless hungry people;
- as communities lose control over their destinies, the quality of urban life everywhere declines and growing numbers are forced into the inhuman slums of every city in the Third World;
- as poverty deepens and basic human needs for clean water, sanitation, food, fuel and shelter remain unsatisfied, so birth rates remain high, stimulating population growth. The continued growth in per capita consumption in developed nations and the rapid increase in world population is increasing the strain on food and other resources of the biosphere, undermining our efforts to achieve sustainable development;
- as old diseases disappear, so new ones are emerging, often as a result of human activities;
- as non-renewable resources are depleted and prices rise, it is the poor and future generations who will lose access to them;
- as capital-intensive and dangerous technologies cause the loss of millions of jobs and dehumanize working conditions.

Of all the threats to the environment and humanity, war is the most serious. The direct impacts of the use of nuclear, chemical, biological and conventional weapons are well known, as are those of deliberate climatic or terrain modification. It is both immoral and unwise to divert the investments needed for sustainable development into arms acquisition and production. Just as war leads to environmental degradation, environmental degradation and the demand for resources lead to war.

Pattern of development

The current development process is alienating people from their natural environment, constantly forcing them to move towards a new dehumanizing environment, in both physical and cultural terms. The supposedly civilized are often the most culturally brutalized. As the high consumption culture of a minority intensifies and spreads, the diversity of human cultures and life forms disappears. The current process attacks *all* elements of the natural environment – from birds, whales and trees to human beings. Environmental degradation and social injustice, like conservation and development, are two sides of the same coin.

The uniform, high consumption culture which makes some rich and many poor, must be changed to create the political, economic, technological and spiritual conditions encouraging a multiplicity of cultures to coexist and grow. Technical measures alone will not solve the problems of the environment: new socially and environmentally sound technologies will be needed, together with relevant social and political changes. Organic agriculture, renewable sources of energy, new forms of public transport and recycling of materials will play an increasingly important role.

Creating an alternative poses a major intellectual and political challenge, that of elaborating and articulating a new kind of development. Development can no longer be defined as simply increased consumption and production of material goods and services. It must be defined as a process that enables individuals, communities and governments to regain their rights and capabilities to decide their own future. Freedom to choose a personal lifestyle in keeping with cultural and traditional values and social needs is essential.

In the pursuit of short-term profit it is often forgotten that the economy of both industrial and developing nations has an ecological foundation, the productivity of which ultimately determines the health of the whole economy. Damage to the environment eventually manifests itself as damage to the economy either through lower crop yields, shorter building lifetimes, higher burdens on health services or rising real prices for resources. Economic strategies must include measures to sustain their ecological foundations and economic assessments of projects and products must include the external costs of the full cycle from initial extraction to ultimate disposal.

Global problems

Beyond these immediate horizons lie such urgent problems as modification of the climate, damage to the outer atmosphere and the build up of persistent toxic and radioactive substances. These threats, which are often due to the introduction of new, ecologically dangerous technologies, are truly global in scale and insoluble by any government acting alone. Despite the failure of many governments to validate their environmental rhetoric with concrete actions, our understanding of environmental issues has deepened. Scientific knowledge has accumulated rapidly. Although gaps remain, many of the remedies for specific environmental problems are well understood. The challenge now facing us is not so much to know more as to do more. We should anticipate the development of global environmental problems by early action; Antarctica provides a unique opportunity for international cooperation.

Citizen action

Since the Stockholm Conference, citizen groups have become an increasingly powerful force for environmental protection. For a decade, we have alerted societies to undiscovered problems and monitored the environmental performance of governments, corporations and other institutions; we have also educated the public, communications media and opinion leaders. We have built strong constituencies for both domestic and international actions on a wide range of specific issues, from whales to nuclear energy, from toxic chemicals to tropical rainforests. We have identified issues, researched the facts and offered alternative policies more compatible with the environment.

We are committed to continuing the fight for the future of our environment, to forge new models for development and to prevent war. As non-governmental organizations, we are in a unique position and thus have a grave responsibility to work at all levels of society. Our responsibility is to alert the public to the global predicament; to educate its members on the significance of environmental

problems for their lives, and those of their children; to mobilize opinion in support of environmentally sound policies; to develop new policy ideas and to act directly in the political arena and in the environment to secure a sustainable future. To these tasks we pledge our efforts and our resources.

Closing statements

Ingemund Bengtsson

Closing statement by the President of the Conference

We have now come to the end of this first United Nations Conference on the Human Environment. We can justly be satisfied with its results. During the two eventful weeks which lie behind us many important decisions have been taken which will shape and guide the efforts of the international community to protect and improve the human environment. These decisions taken together represent the fulfilment of the objectives entrusted to us by the General Assembly.

I expressed the hope at the outset of my presidency that I would be able to rely on your collaboration and your great international experience. This hope has been amply fulfilled. I wish to pay tribute to the remarkable spirit of cooperation among delegations which ensured the smooth completion of a truly massive work programme within the very short time at our disposal.

The success of the Conference on the Human Environment offers great hope both for further joint international action in this immensely important area and for the strengthening of the United Nations as a whole. The decisions we have adopted here were the result of a process which started in 1968 and which does not come to an end today. Our common endeavours must continue without interruption and we have now laid a solid foundation for the next phase of our work. I am sure that we all look forward to pursuing these efforts with the full participation of all members of the international community.

The good spirit in which we have worked was characterized by the tremendous efforts invested by all delegations in the search for agreement on the Declaration on the Human Environment. The Declaration which we have adopted sets out a series of guidelines for environmental behaviour of individuals and states. The Declaration of Stockholm does not constitute the final word; but it represents the first joint expression by 113 countries of their concerns and convictions with regard to the problems of the human environment.

The approved Action Plan will serve as the environmental work programme for the international community in the years to come. The deliberations at the conference have shown that governments are prepared on the basis of existing scientific knowledge to take decisions of far reaching importance. The recommendations to minimize the release of certain dangerous pollutants into the environment; to establish a global earthwatch programme and an international environmental referral service; to improve water supply and sewerage in cities of the developing countries and to preserve the world's genetic resources – these are but a few examples of some components of the adopted Action Plan. I am also pleased that the conference took steps to ensure the completion in 1972 of the draft convention on ocean dumping.

The implementation of the Action Plan will be greatly facilitated by the new institutional and financial arrangements recommended by the conference. I hope that when we come to the General Assembly this fall these recommendations will be put into effect without delay so as to maintain the momentum built up by this conference.

Maurice F. Strong

Closing statement by the Secretary-General of the Conference

When this conference convened two weeks ago, the tasks before it seemed almost impossible of achievement. But it has faced up to the challenge – much of it controversial, all of it difficult, none of it with precedent for guidance – with a determination to find solutions.

The result is that it has dealt with all issues on its agenda and it has dealt with them urgently, imaginatively and, above all, constructively.

Even in areas where agreements are lacking – and I must emphasize that these are few indeed – a major contribution has been made. For questions have been clarified, and a procedure has been started that, I am convinced, will ultimately lead to the agreement we seek. But if we have reason for satisfaction, we have none for overconfidence. We have taken the first steps on a new journey of hope for the future of mankind. But the journey before us is long and difficult, and we have barely begun it. What is most important of all, however, is that we leave Stockholm with a programme of action to cope with the critical relationships between the natural and the man made systems of Planet Earth.

This conference was never conceived to be a once and for all definitive approach to the problems of our global environment. For an inherent characteristic of the environmental issue is precisely that it will remain with us for an indefinite period.

And because it will, the fundamental task of the Stockholm conference has been to take the political decisions that will enable the community of nations to act together in a manner consistent with the earth's physical interdependence.

We have approved a Declaration on the Human Environment. What many sceptics thought would only be a rhetorical statement has become a highly significant document reflecting a community of interest among nations regardless of politics, ideologies or economic status.

We have approved a wide ranging Action Plan which constitutes a turning point in man's endeavours to preserve and protect his planetary heritage. We have approved both the establishment of continuing environmental machinery within the United Nations and the provision of necessary financing. We have approved the substance of an Ocean Dumping Convention that will be finalized before November and opened for signature this year. We have done all this – and more. As part of the Action Plan, we have set into motion machinery that will:

- drastically curtail emission into the atmosphere of chlorinated hydrocarbons and heavy metals;
- provide information about possible harmful effects of various activities before these activities are initiated;
- accelerate research to better assess the risk of climatic modification and open up consultations among those concerned;
- assist developing countries to cope with the urban crisis and its related priority needs such as housing and water supply and waste disposal;
- intensify the preparation of conventions on conservation for the protection of the world's natural and cultural heritage;

- stress the priority of education and information to enable people to weigh the decisions which shape their future and to create a wider sense of responsibility;
- initiate steps to protect and manage common resources considered of unique value to the world community;
- initiate a global programme to ensure genetic resources for future generations;
- create an International Referral Service that will enable nations to exchange environmental information and knowledge;
- incorporate environmental considerations into the review of the development strategies embodied in the Second Development Decade;
- pursue regional cooperation for purposes of financial and technical assistance;
- prevent environmental considerations from becoming pretexts to limit trade or impose barriers against developing country exports;
- emphasize opportunities that environmental concerns open up for developing countries, including the possible relocation of industries to countries whose natural systems have been less burdened; and
- study the financing of additional costs to developing countries arising from environmental considerations.

These few examples are not all inclusive. They merely illustrate the rich variety and scope of the actions that have been taken here. We must add a new dimension to the discourse between governments and peoples, engaging the best technological and managerial abilities of the entire world. The global environment has a global constituency. The community of the concerned is now no less than the world community.

I believe we must leave here with an awakened sense of this new dynamic breaching of the barriers between those who make the official decisions and those who are affected by such decisions. If we do that, it may well have a more far reaching impact on the affairs of Planet Earth than any of the more technical decisions we have reached in the course of the Conference.

But the need for technical solutions has not circumscribed our view. This conference has emphasized both in word and in deed that deep and pervasive changes are needed in the way man looks at his world, at the role of man within nature, and at his relations with other men.

It has asserted its conviction that man cannot manage his relations with nature unless he learns to manage better the relations between man and man – that if he is to preserve Planet Earth for future generations, he must also make it a better home for present generations.

The force of this conviction was an imperative in our deliberations and we can but hope now that out of it will come a new burst of political will to end, finally, the massive poverty which still exists in a world of unprecedented plenty, and which still comprises the greatest barrier dividing the tribes of man.

This Stockholm Conference has done more than recognize the urgent need for a change in man's priorities. It has achieved a heartening consensus to the effect that no fundamental conflict exists between the goal of environmental quality on the one hand and economic and social progress on the other.

So there *is* reason for hope in the work it has done, in the programmes it has adopted, in the awareness it has expressed of our global unity, in the affirmation that the problems of the human environment can only be resolved if we place man at the centre of our concerns and in the conviction that we must liberate ourselves from the outdated and outworn habits of the past.

Mostafa K. Tolba

Closing statement of the Executive Director of UNEP

Nations met at Stockholm to start something new. At Stockholm governments registered their determination to protect our environment. Though buffeted by the recession and remodelled by the sometimes bewildering pace of change since 1972, that same determination has resurfaced here in Nairobi. And if now that determination is altered in nature and scope it is because we have shown a willingness to learn from our mistakes and successes.

What has been said has shown us that in 1982 every government recognizes the potentially catastrophic consequences of environmental degradation, of the wastage of this planet's resource base. And, just as important, we have seen a remarkable measure of agreement emerge on what has been accomplished and what we should be doing now and for the next ten years to protect our environment.

If I were to single out the most satisfying change between Stockholm and this Nairobi meeting it is the extent to which the developing countries have taken the environment cause as their own. It is worth recalling that on the eve of Stockholm the Third World viewed environment protection as an impediment to economic growth. All that has now changed. The leadership shown by developing country delegates in many areas of debate during this meeting has amply demonstrated that their countries now assign top priority to the environment.

Governments have made advances in, for example, establishing international environmental conventions; in responding to the World Conservation Strategy's call for nations to draw up national conservation plans; in increasing our knowledge of the complex relationship between people, resources, environment and development. These and a host of other positive steps taken during the last ten years augur well for the survival of the Nairobi commitment. But as evidence of progress they provide no excuse for complacency; instead these positive developments serve to show only what could have been achieved if the means to match our environment crisis had already been made available.

We must recognize that complacency can lie hidden in consensus. The decade since Stockholm has shown us that agreement on what we should do is no guarantee that it will be done. During the past decade nations have agreed on action plans for water, for human settlements and to combat desertification, but their implementation has remained slow.

A great deal will depend on the non-governmental organizations (NGOs). If posterity observes that we have seen the start of a new determination, then it will also have to concede that the NGOs – as at Stockholm – have played a crucial role in helping bring it about. When NGOs come up with new ideas we should listen and when they identify valid new areas of concern we are expected to react.

In partnership with governments, the UN system, the NGOs and the media we must also do more to assist in meeting another priority decided by this meeting; namely to spread awareness of environmental issues more effectively among the general public. Governments do not take decisions in a vacuum, they do so through support or pressures exerted by citizens. And such supports and pressures will only

be healthy if peoples first understand more about the environment, and second, feel they have a positive role to play in the decision making process at all levels.

As one veteran of many international conferences has observed, 'When all is said and done, most often more is said than done'. Let this time be different. Let us each reflect on what we have said and do our best to convert our own words into action.

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Evolving Environmental Perceptions

The United Nations Conference on the Human Environment, convened in Stockholm in 1972, is a milestone in the history of the environment movement. For the first time in history, environmental decision-makers at the highest level from different countries got together to discuss how best to resolve the major environmental problems facing mankind. The Conference agreed on a Declaration and Action Plan. It established an international machinery – the United Nations Environment Programme (UNEP) – as the environmental conscience of the United Nations system, to look after events following the Conference.

Because of the seminal nature of the Stockholm Conference, the General Assembly of the United Nations decided that a Session of Special Character of the Governing Council of UNEP be held in 1982 to commemorate its 10th anniversary. This took place in Nairobi.

This book contains edited versions of the Declarations and of all statements made at Stockholm and Nairobi. Also included is the resolution on common environmental perceptions from the 1987 meeting of the United Nations General Assembly. The book thus shows how global environmental perceptions have evolved during the 15 year period of 1972 – 1987.



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